

A Guide to Small Scale Biomass Heating Projects (<200kW)

This guide has been written by the South Wood Fuel Advice Service; a project funded by Woodland Renaissance, Areas of Outstanding Natural Beauty in the South West (AONBs) and the Forestry Commission. It is for people interested in finding out more about biomass boiler systems.

As a priority, before considering the installation of a biomass heating system, you should investigate the potential for energy efficiency measures. These will help to lower heating demands and result in the installation of a smaller and cheaper biomass system requiring less fuel.

Domestic projects should contact their local energy efficiency advice centre today on 0800 512 012.

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1 Introduction to using wood fuel

In this guide we will refer to wood fuel as biomass.

People have been producing energy from biomass for centuries, and in many parts of the world it is still the principle source of heat. However modern technologies are far more efficient and cleaner than the traditional open fire and there are an increasing number of fuels are being used namely logs, wood chips, wood pellets and wood briquettes.

Energy from biomass refers to energy produced from organic matter of recent origin. This excludes fossil fuels which have taken millions of years to evolve. Biomass is also referred to as 'bioenergy' or 'biofuels' (in terms of renewable energy). Biofuels have been defined by the Energy Technology Support Unit (ETSU, 1991) as:

'any solid, liquid or gaseous fuels produced from organic materials either directly from plants or indirectly from industrial, commercial, domestic or agricultural wastes'.

However, throughout this document we are concerned with woody biomass – logs, wood chips, wood pellets and wood briquettes.

Producing energy from wood brings environmental and economic advantages both nationally and locally and has considerable potential within the UK.

Biomass heating systems, unlike other renewable energy sources, do emit carbon dioxide. However, it is the carbon dioxide (CO₂) taken from the atmosphere by trees for photosynthesis that is released during burning. This closed CO₂ cycle means that biomass heating is considered a renewable energy source.

For sustainably managed woodland, or energy crops, the process is similar. Wood is never removed faster than it is added by new growth, therefore the CO₂ released when the wood fuel is burned is never more than the CO₂ absorbed by new tree growth.

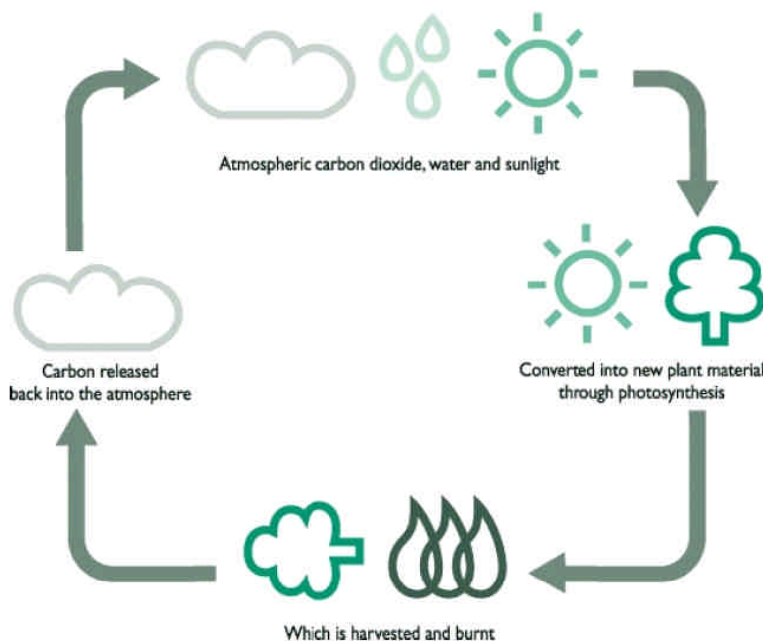


Figure 1. The carbon neutral wood heating cycle

However, biomass heating systems in reality create small net emissions of CO₂ to the atmosphere through operations including harvesting, transport, processing and the construction and commissioning of the boiler. Wood fuel emits 25 grams of CO₂ per kilowatt-hour (g/kWh); wind energy emits 8g/kWh; gas emits 194g/kWh; oil emits 265g/kWh and coal emits 291g/kWh¹.

1.1 Categorising biomass

Biomass used for fuel falls into two main categories.

1. Woody biomass, including:

- Forest residues – from woodland thinnings, “lop and top” after felling and arboricultural trimmings
- Untreated wood waste – e.g. from sawmills, furniture factories
- Crop residues – e.g. straw
- Short Rotation Coppice (SRC) – e.g. willow, miscanthus (elephant grass)

2. Non-woody biomass, including:

- Animal wastes – e.g. slurry from cows and pigs, chicken litter
- Industrial and municipal wastes including food processing wastes
- High energy crops – e.g. rape, sugar cane, maize

SRC and high energy crops are sometimes referred to under the more general term of ‘Energy Crops’; i.e. crops that are grown specifically for energy production.

Animal wastes and industrial and municipal wastes are not covered in this guide because these types of feedstock require different technologies other than biomass boilers, such as Anaerobic Digestion.

1.2 The benefits of using biomass as a fuel

Biomass is a renewable, low carbon fuel that is already widely, and often economically, available throughout the UK. Its production and use also brings additional environmental and social benefits.

Correctly managed, biomass is a sustainable fuel that can offer a significant reduction in net carbon emissions compared with fossil fuels and also many ancillary benefits:

- Biomass can be sourced locally, within the UK, on an indefinite basis, contributing to security of fuel supply
- UK sourced biomass can offer local business opportunities and support the rural economy
- The establishment of local networks of production and usage allows financial and environmental costs of transport to be minimised. There is no region in the UK that cannot be a producer of biomass, although some will have greater levels of productivity than others

¹ Building Regulations Part L2A - Emissions Factors
http://www.planningportal.gov.uk/uploads/br/BR_PDF_AD_L2A_2006.pdf

- Woodlands, forestry and agriculture are generally perceived by the UK population to be an environmentally and socially attractive amenity; providing opportunities for recreation and leisure activities
- Biomass fuels generate significantly lower levels of atmospheric pollutants than fossil fuels, e.g. sulphur dioxide (a major cause of 'acid rain')
- Modern biomass combustion systems are highly sophisticated, offering combustion efficiencies comparable with the best fossil fuel boilers
- Using arboricultural residues, forestry arisings, sawmill co-products and waste as fuel diverts materials that would otherwise be consigned to landfill. This eliminates costs for disposal, and reduces the burden on limited landfill resources
- Utilising biomass as fuel encourages more woodlands to be sustainably managed, thus benefiting biodiversity.

1.3 How much biomass?

The annual demand for biomass fuel for a particular site depends on the following:

- Scale of the installation
- Conversion option (heat only, combined heat & power [CHP], boiler or stove)
- Operating hours
- Boiler efficiency
- Moisture content of the fuel

A useful rule of thumb for a heat only installation is 1 tonne of wood chip at 30% moisture content per year per kilowatt installed.

Table 1 below shows approximate figures for how much energy is contained in different fuels, or the 'energy density' of a fuel. The table illustrates that 1 tonne of wood chip contains three times less energy than 1 tonne of oil; therefore wood occupies more storage space per tonne than oil or gas.

Fuel	Energy density by mass GJ/tonne	Energy density by mass kWh/kg	Bulk density kg/m ³	Energy density by volume MJ/m ³	Energy density by volume kWh/m ³
Wood chips (Very dependent on MC)	7-15	2-4	175-350	2,000-3,600	600-1,000
Log wood (stacked - air dry: 20% MC)	15	4.2	300-550	4,500-8,300	1,300-2,300
Wood (solid - oven dry)	18-21	5-5.8	450-800	8,100-16,800	2,300-4,600
Wood pellets	18	5	600-700	10,800-12,600	3,000-3,500
Miscanthus (bale)	17	4.7	120-160	2,000-2,700	560-750
Coal (lignite to anthracite)	20-30	5.6-8.3	800-1,100	16,000-33,000	4,500-9,100
Oil	42	11.7	870	36,500	10,200
Natural gas (NTP)	54	15	0.7	39	10.8

Table1. Energy density and bulk density of fuels (1Mj = 0.27kWh & 1Gj = 277.8kWh).

Source: Forestry Commission.

1.4 What you should expect from your biomass fuel supplier

As mentioned previously, the quality of your biomass supply will influence whether or not your project will be a success or not. This is particularly relevant to with wood chip which can vary a great deal in terms of quality. If you are going to be using wood chip you should ensure the following:

- The wood chip comes from a supplier who understands biomass fuel. If this is the case they will be able to sell you wood chip either by the tonne, volume or energy content (number of kWh)
- Moisture content must be consistent and matched to your boiler type
- The wood chip must be of a consistent size; containing no slivers that will clog or jam the fuel feed mechanism (although for larger installations, > 500kW, this is much less of an issue, because the fuel feed systems are large enough to accommodate all sizes of fuel)
- The wood chip must be free from contaminants. For example, if the wood chip is coming from arboricultural or tree surgery arisings it may contain grit, litter and dust. Any foreign objects could damage your boiler
- If you are unable to use ash on your garden or site, the supplier may be able to remove it
- Deliveries should be regular, easy to schedule and reliable

- Your supplier should be willing to provide you with details of quality assurance
- The supplier should be able to deliver fuel into your fuel storage container
- If you are purchasing logs they should be seasoned and of uniform size and shape (some suppliers will stack logs for you).

1.5 Finding a biomass fuel supply

The contacts list at the end of this document can be used to help you find a reliable biomass fuel supply, whether you need logs, wood chips or wood pellets. Please note we will be regularly updating this list as we hear about new fuel suppliers.

1.6 Using your own wood resource

Some customers are able to utilise their own woodland resource. As long as the wood is managed sustainably, where appropriate and fuel is processed properly, this option will reduce running costs and improve the financial viability of the project. Processing your own wood for fuel may also open up the opportunity to sell surplus wood chip to other biomass heating installations in the vicinity.

You may need to apply for felling permission from the Forestry Commission if you plan on using your own woodland resource, see www.forestry.gov.uk/forestry/INFD-6DFKXF for more information on Felling Licences, or contact the Forestry Commission on 01223 314 546.

If purchasing your own wood chipper or log splitter is not an option, it is possible to hire a wood fuel contractor (see the fuel supplier list for more details) to process your wood; you can also hire chippers.

Experienced wood fuel suppliers suggest that drum chippers produce the most consistent high quality chip, however good quality disc chippers are also suitable.

In some cases grants from the Forestry Commission's English Woodland Grant Scheme may be available, see <http://www.forestry.gov.uk/forestry/inf-d6dccc> or call 01223 314 546 for more information.

Managing woodlands also has the added benefit of improving biodiversity!

2 Modern biomass heating systems

If you are considering installing a biomass boiler system there are many important things you must consider for successful project. Perhaps the three most important points are:

1. Know which fuel is suitable for your project – Logs, wood chips or wood pellets
2. Use proven technology – Your project should not try to do anything that hasn't been done before!
3. Ensure you use good quality wood fuel – Most problems encountered with wood heating projects tend to be caused by poor quality or incorrect wood fuel rather than the system installed

By the end of this guide you should be able to go some way towards addressing each of these points, and with the help of the Wood Fuel South West Advice Service, we hope to ensure you have access to a reliable heat supply.

This guide is principally concerned with wood fuelled boiler systems, not room stoves (although we do provide basic information on stoves). Typically the boilers will be fed with either wood chip or wood pellets, however smaller systems for domestic buildings may also use logs.

We will refer to wood fuel boilers as biomass boilers in this guide. Biomass boiler technology is proven, reliable, clean and efficient. Modern biomass boilers are very common across Europe, particularly in Austria, Sweden and Finland. Austria has approximately 100,000 biomass boilers installed, with a reliable local wood fuel supply network in place. Biomass boilers can operate at 92% efficiency levels, comparable with modern gas condensing boilers.

Within this information pack we have included a list of suppliers and installers who are able to undertake projects in the South West. Many of these companies use technology from Austria, Sweden, Germany and other countries who have been working with biomass boilers extensively over the last 20 years.

The images below show different sized biomass boilers (nb – the uses are not limited to those depicted):



Figure 2. A Veto (80kW) wood chip boiler heating a farmhouse, two cottages, a café and business units



Figure 3. A Vigas (25kW) log boiler, suitable for a 4 bed property (size of medium sized fridge)



Figure 4. Farm 2000. Suitable for heating farm buildings and estates; will burn a variety of fuels

Figure 5. KWB (25kW) wood chip boiler heating an organic farm shop



Figure 6. Binder (50kW) wood chip boiler meets 50% of large educational centre's hot water demand



Figure 7. KWB Easyfire (15kW-30kW) pellet boiler, suitable for small scale domestic



Figure 8. Pellet stove with back boiler suitable for small scale domestic use to heat hot water and radiators

2.1 How do modern biomass boilers work?

In the case of wood chip and wood pellet boilers, the fuel is fed automatically into the boiler from the fuel store using an auger screw system (see Figure 11). The fuel then burns in the combustion chamber, where a regulated flow of oxygen ensures a clean and efficient combustion process. The resulting hot gases then heat water in a heat exchanger which feeds the hot water storage tank, or for smaller stoves a back boiler, and ultimately the heating circuit (radiators in most cases). You can read more about the specific design of combustion systems on most boiler installer and manufacturer websites; it makes interesting reading for the technically minded!

Biomass boilers are as controllable as modern gas condensing systems; heating controls allow the user to adjust all personal parameters for the central heating and domestic hot

water. Some controls even allow the user to switch on the boiler remotely via text messaging!



Figure 9. Inside a log boiler

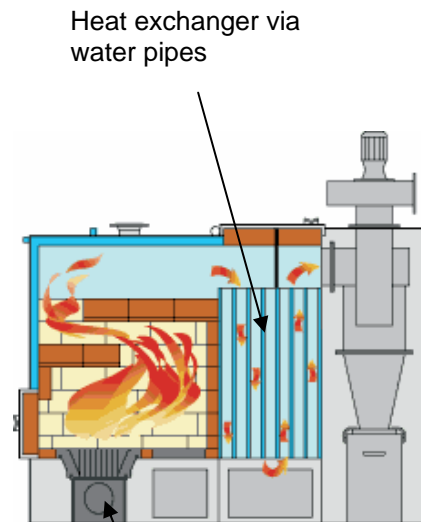


Figure 10. Inside a chip boiler



Figure 11. Wood chip auger screw

2.2 *Selecting the right boiler*

Table 2 is a rough guide to matching boiler type to the scale of use (nb. some boiler systems will be able to take wood pellets and wood chips).

Building type	Log & pellet stoves	Log boiler	Pellet boiler	Wood chip boiler
Domestic				
3 bed semi (<20kW)	✓	✓	✓	
4 bed detached (<30kW)	✓	✓	✓	
Large farmhouse (<50kW)	✓	✓	✓	✓
School				
Primary (<150kW)			✓	✓
Secondary (up to 1MW)			✓	✓
Community facilities				
Village hall (<50kW)	✓		✓	✓
Visitors centre (<50kW)	✓		✓	✓
Country estates				
House + buildings (<500kW)			✓	✓
Local authority				
Social housing block (250 units) (<500kW)			✓	✓

Table 2. Matching boiler and fuel type to scale

There are several factors that will influence the type of boiler suitable for a particular project. Below is a list of the most important points for consideration.

Space – If there is limited space on site then storage of wood fuel could be a restriction. Wood chips will occupy up three times more room than wood pellets for the same weight of wood. Biomass boilers also tend to be larger than conventional fossil fuel boilers, you will need to have a large enough space to house the unit.

Size of the building – Typically the larger the building is, the greater requirement for space heating and therefore the larger the boiler needs to be. Larger systems will consume more fuel and therefore tend to be automated systems with minimal manual intervention. Biomass boilers with automatic auger feed mechanisms and fuel stores are generally too large for domestic installations. However, domestic systems allow the user to fill a hopper attached to the boiler.

Access – For most systems a fuel delivery vehicle will need to access your site. Fuel can be delivered in a variety ways, however for bulk chips and pellet orders direct access to the fuel store is critical. For small domestic deliveries it is important to have a dry place to stack logs or store bags of pellets. Projects in urban areas will need to be mindful of the number of fuel deliveries (large vehicle movements) necessary throughout the year as this may have planning implications.

Fuel supply – You may have your own fuel supply, in which case using logs or chips would dictate the boiler type. Generally if space and access are not a problem larger projects would consider wood chip; however if space is at a premium or the area is sensitive to a greater number of fuel deliveries then pellets are the preferred option.

2.3 Capital and running costs

Prices vary significantly depending on the type of boiler you select. As a general guide for domestic installations the price per installed kW is around £450 - £600. So a 15kW pellet boiler would cost approximately £9,000. Wood chip boilers cost approximately £250 - £450 per kW installed; a farmhouse considering a 25kW boiler could expect to pay around £11,000. Log boilers tend to be cheaper than both wood chip and wood pellet boilers; for example a 20kW system suitable for a 3 or 4 bed property would cost in the region of £150 - £200 per kW installed (£3,000 to £4,000).

Additional costs include fuel storage and, for larger installations with multiple buildings, a heat main to pipe hot water to where it is needed.

In terms of running costs these will vary depending on the type of biomass used. For example, wood pellets are currently more expensive than wood chips and logs. The graph below is based on current fuel prices and shows the cost (in pence) per unit of energy (kWh). One tonne of wood pellets is currently selling for approximately £160 (5,000kWh), a tonne of wood chip approx. £35 to £65 (2,000-4,000kWh) and a tonne of logs approx. £50 (4,200kWh).

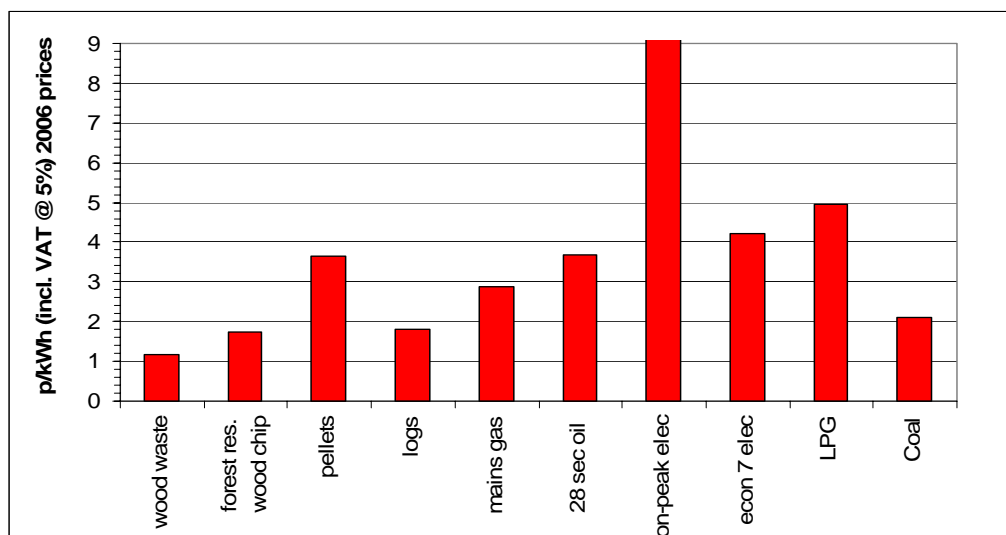


Figure 12. Graph showing fuel prices in pence per unit of heat (p/kWh)

2.4 Operating and maintenance

As with gas and oil fired boilers, biomass boilers will need an annual safety and maintenance check.

Unlike open fires biomass boilers produce very little ash; as a rule of thumb about 0.5% of the original volume of wood burned. This is because modern biomass boilers combust fuel very efficiently and cleanly. The ash produced is deposited in an ash pan for easy removal (see Picture 9). You can dispose of the ash as low grade fertiliser on your garden or alternatively it might be possible to arrange for your fuel supplier to remove ash when they deliver your fuel.



Figure 13. Ash bin

3 Basic calculations

Sizing a biomass boiler is an exercise your installer will undertake. However, several people who contacted the advice service expressed an interest in knowing how this is done, as well as how to calculating annual biomass fuel needs.

This section looks at various basic calculations to find out what size boiler your project will require; the quantity and volume of wood fuel you will need, as well as what carbon dioxide savings you can expect by installing a biomass boiler.

3.1 Boiler sizing

Traditionally fossil fuel boiler installers over-size systems to meet peak heat load requirements. Because biomass installations tend to include hot water/ thermal storage or accumulator tanks, the peak heating loads can be managed and a smaller boiler can be fitted. This means the biomass boiler you install will need to be a slightly lower kW rating than your current system.

Calculating required boiler capacity (typically stated in kilowatts, kW) is not as straightforward as replacing your current boiler with a biomass boiler of the same size; installers use a combination of experience and detailed heat load calculations. Fortunately there are some rules of thumb we can use to work out approximate figures instead of employing more complicated procedures

Three methods for calculating the kW capacity or size of boiler you might need:

Method 1

Multiply the volume of the building by 0.035.

e.g Volume = length x width x height.

$$800\text{m}^3 = 20\text{m} \times 10\text{m} \times 4\text{m}$$

$$800\text{m}^3 \times 0.035 = 28\text{kW}$$

Tip – use the Planning Portal volume calculator to calculate the volume of your building
<http://www.planningportal.gov.uk/england/genpub/en/1115311947796.html>

Method 2

If you know your annual fuel spend it is possible to calculate a rough estimate of the size of boiler you might need in kW. In this worked example we take a 3 bedroom house spending £1,000 per year on oil.

Step 1 - Calculate your annual consumption in litres

Assuming you pay 35p per litre of oil, this works out at $\text{£}1000/\text{yr} \div \text{£}0.35/\text{l} = 2,857$ litres/yr.

Step 2 – How much energy is in 2,857 litres of heating oil

Heating oil or 28sec oil has an energy density of 37Mj (mega joules) per litre.

$37\text{Mj} \times 2,857 \text{ litres} = 105,709\text{Mj}$ or 105.7Gj (giga joules). $1\text{Gj} = 277.78\text{kWh}$.

$105.7\text{Gj} \times 277.78 = 29,561\text{kWh}$.

So 2,857 litres of 28 sec heating oil contains approximately 29,384kWh.

Step 3 – Calculating useful energy

Unfortunately you will not be able to use all 29,384kWh directly for heating and hot water, a proportion of the energy is lost when it is burned in the boiler. Boiler efficiency determines what proportion you are able to use. The efficiency of a 25 year old oil boiler will be about 60%. Therefore the useful energy used for heating and hot water is $29,384 \times 60\% = 17,630\text{kWh}$.

Step 4 – How many kilowatts (kW)?

Because we know the house needs 17,630kWh, we want to remove the hours to leave us with kilowatts. A very approximate way of doing this is to divide our heating consumption in kWh by the number of full load hours the boiler will be running for. Because boiler use varies daily, weekly and seasonally we use a simplification called Full Load Heating Hours Equivalent or FLHE. For a domestic property we expect about 1,200 FLHE. $17,630\text{kWh} \div 1,200\text{hrs} = 14.7\text{kW}$. About what you would expect for a 3 bed property.

Method 3

The third option is to use an online tool, such as the one hosted by South West Wood Fuels: <http://www.swwf.info/images/boilersizewpdf.pdf> - boiler sizing worksheet.

3.2 Annual biomass consumption and storage space

Although this method gives only approximate quantities and volumes it is a useful calculation to perform as it will indicate running costs, quantity (of logs, wood chips or wood pellets) and associated volume.

Step 1 – Convert your heating demand into biomass quantities

Taking the 3 bed example above, converting 17,630kWh into biomass quantities is straightforward

To do this you need to know the energy densities of biomass fuels, see table 1. Before calculating biomass quantities though, it is important to make another boiler efficiency adjustment. If you install a wood boiler it will be 90% efficient, $17,630\text{kWh} \div 90\% = 19,589\text{kWh}$. So in order to generate 17,630kWh, a 90% efficient biomass boiler will require an input of 19,589kWh.

- Wood chip = $19,589\text{kWh} \div 3,000\text{kWh/tonne} = 6.5$ tonnes (at 30% moisture content)
- Wood pellets = $19,589\text{kWh} \div 5,000\text{kWh/tonne} = 4$ tonnes
- Logs = $19,589 \div 4,200\text{kWh/tonne} = 4.7$ tonnes (20% air dried stacked logs)

Step 2 – Convert the biomass quantities into required storage space

Each type of biomass has a different bulk density (see table 1), the weight per unit volume, in this case kilograms per cubic metre (kg/m^3).

- Wood chip = 6.5 tonnes = $6,500\text{kg} \div 275\text{kg/m}^3 = 23.6\text{m}^3$
- Wood pellets = 4 tonnes = $4,000\text{kg} \div 650\text{kg/m}^3 = 6.2\text{m}^3$
- Logs = 4.7 tonnes = $4,700\text{kg} \div 400\text{kg/m}^3 = 11.8\text{m}^3$

For a 3 bedroom property, storage space is likely to be a major constraint and therefore a biomass storage space larger than 5m^3 is likely to be unfeasible. This means multiple deliveries will be necessary. Assuming a 5m^3 storage space the example property would need 5 deliveries of wood chip, 1 to 2 deliveries of pellets and 2 to 3 deliveries of logs per year.

4 Legal and planning issues

There are several things you must check with your local planning department, depending on your situation. However, we recommend that for any installation it is advisable to contact your local planning department to inform them of your intentions.

- If you live in an urban area you should check if it is in a smoke control zone. If this is the case the biomass boiler you install must be an exempted appliance. See the lists below or ask your installer.

Follow this link to find out if you live in a smoke control zone:

<http://uksmokecontrolareas.co.uk/locations.php>

Then check to see if the appliances you are considering are exempt:

<http://uksmokecontrolareas.co.uk/appliances.php>

- Outside smoke control areas there is no legislation other than a general prohibition on not creating a nuisance, and a requirement not to emit "dark smoke". Burning dry wood on well designed appliances should give no cause for concern. Chimneys should be designed in accordance with Building Regulations Document J.
- Visual impact. If you live in a listed building, conservation area, AONB, National Park or other designated area then you will need to consult your local planning authority about the installation and construction of a chimney flue, fuel storage silo or boiler house.
- Fuel deliveries. For larger installations the number of vehicle movements may be a planning issue, as might the size and type of delivery trucks.

5 Grant funding

5.1 The Low Carbon Buildings Programme (Helpline 0800 915 0990)

Provides grants for householders, communities, non-profit organisations and businesses. The website contains everything you need to know about this government funded capital grants initiative. www.lowcarbonbuildings.org.uk. Householders are able to apply online. The funding for biomass systems is as follows:



Householders

Pellet stoves and pellet room heaters	£600 regardless of size
Wood boiler systems	£1,500 regardless of size
Log stoves	No funding available

Before applying for a grant towards a biomass system, householders are required to undertake a number of energy efficiency measures:

- Insulate the whole loft of the property to meet current building regulations (270mm)
- Install cavity wall insulation (if the property has cavity walls)
- Fit low energy light bulbs in all appropriate light fittings
- Install basic controls for the heating system (thermostats and programmers/ timers)

In order to take advantage of any offers in your area you should contact your local Energy Efficiency Advice Centre on 0800 512 012.

Community groups, schools, local authorities, charities

Non-profit community organisations such as registered charities, community groups, local authorities and schools can apply to the Low Carbon Buildings Programme. Organisations can apply for up to £30,000, or 50% of the capital and installation cost of the biomass system.

5.2 AONB Sustainable Development Fund

Is available for any project considering a biomass heating installation located in an Area of Outstanding Natural Beauty. Call the Wood Fuel South West Advice Service for more information 08450 74 06 74.

5.3 Utility Green Funds

Are available for not-for-profit organisations considering biomass heating installations. Up to £30,000 is available for capital funding. For more information call the Wood Fuel South West Advice Service on 08450 74 06 74.

5.4 Renewable Energy 4 Devon

Operates in Objective 2 areas (this is EU structural funding which helps regions to overcome economic and social problems). Free information packs and advice are available for householders. Free project support, including capital funding is available for businesses and not-for-profit organisations. You must be located within an Objective 2 area of Devon. Call 0800 512 012 for more details.

Objective 2 areas include the following areas: North Devon, Torridge, West Devon, South Hams and parts of Mid-Devon. Or use this link to see if you are located inside an Objective 2 area: www.objectivetwo.co.uk .

6 Further information

The following is a list of links and organisations where you can get further information about wood heating:

- **The Forestry Commission:** www.biomassenergycentre.org.uk lots of useful documents about fuel supply and boiler types
- **Northwoods:** www.northwoods.org.uk more useful information

- **Energy Saving Trust:** www.est.org.uk/myhome/generating/types/biomass some basic downloadable factsheets
- **Bio Energy Group** (East Midlands): www.bioenergygroup.org.uk/index.php some good case studies
- **Biomass Task Force:** www.defra.gov.uk/farm/crops/industrial/energy/biomass-taskforce/index.htm detailed review of current activity in the biomass sector and its potential in the UK
- **Government's response to the Biomass Task Force report:** www.defra.gov.uk/farm/crops/industrial/energy/biomass-taskforce/index.htm
- **The Carbon Trust's** 'Biomass Sector Review': www.carbontrust.co.uk/publications/publicationdetail?productid=CTC512
- **Forum for the Future's** 'Rural Estate Sustainability' report: www.forumforthefuture.org.uk/publications/ruralestatesustainability_page419.aspx
- **Wood fuel Wales:** www.woodfuelwales.org.uk well written basic information and supplier lists
- **Wood Energy Business:** www.woodenergybusiness.co.uk some excellent factsheets and a useful tool for calculating boiler sizes (with useful guidance notes)
- **Centre for Alternative Technology:** www.cat.org.uk/information residential courses, resource guides and free information sheets on wood heating
- **Bioheat:** www.bioheat.info EU initiative providing lots of helpful information and contacts lists
- **National Fireplace Association:** <http://www.nfa.org.uk/stoves.asp> search for a local supplier for your log or pellets stove/room heater

7 Installers and suppliers of wood boilers

We hope to keep this list as up to date and relevant as possible.

Please call us on 08450 74 06 74 if you would like to make any amendments

South West based:

Bioheat Contact: Roger Perry
Farmageddon, Stoke Trister, Wincanton, Somerset BA9 9PF. Tel: 01963 32604
Email: roger@biomassheating.co.uk Website: www.biomassheating.co.uk

Dunster Woodfuels Ltd Contact: Clifford Frost
Loxhole Sawmills, Dunster, Minehead, Somerset, TA24 6NY Tel: 01643 821188
Email: info@dunsterwoodfuels.co.uk Web: www.dunsterwoodfuels.co.uk

Eco-Exmoor Ltd Contact: Nick Backhouse
The Old Post Office, Parracombe, Barnstaple, Devon. EX31 4QG Tel: 01598 763595
Email: info@eco-exmoor.co.uk Web: www.eco-exmoor.co.uk

Econergy Limited Contact: Dawn Rigget
69 Hampton Park, Redland, Bristol. BS6 6LQ Tel: 0870 054 5554
Email: sales@econergy.ltd.uk Web: <http://www.econergy.ltd.uk>

Treco Ltd Contact: James Trebble
Howe Complex, Kentisbeare, Cullumpton, Devon. EX15 2BR Tel: 0845 130 9012
Email: info@treco.co.uk Web: www.treco.co.uk

Wood Energy Ltd Contact: Patrick Thornberry
Pink Worthy Barn, Oakford, Tiverton, Devon. EX16 9EU Tel: 01398 351349
Email: sales-domestic@woodenergyltd.co.uk Web: www.woodenergyltd.co.uk



Outside South West:

3G Energi Ltd Contact: Gavin Gulliver-Goodall
Unit 3, The Knowles, Kelso, Roxburghshire. TD5 7BH. Tel: 01573 229198
Email: admin@3genergi.co.uk Web: www.3genergi.co.uk

Ashwell Engineering Services Ltd Contact: Barry West
36- 38 Marsden Avenue, Queniborough, Leicester, Leicestershire. LE7 3FL
Tel: 0116 260 4050
Email: ashwelleng@hotmail.com Web: www.ashwellengineering.com

Bioenergy Technology Ltd Contact: Sam Langridge
Pound Lane, Framfield, Uckfield, East Sussex. TN22 5RU Tel: 01825 890140
Email: sales@bioenergy.org Web: www.bioenergy.org

Energy Innovations (UK) Ltd Contact: India Bacon
Units 5 & 6 Richmond Old Dairy, Gedgrave, Woodbridge, Suffolk. IP12 2BU
Tel: 0844 800 6805
Email: info@energyinnovationsuk.com Web: www.energyinnovationsuk.com

The Energy Crops Co Contact: Peter Webster
32 Anyards Road, Cobham, Surrey, KT11 2LA Tel: 01932 584455
Email: sales@energy-crops.com Web: www.energy-crops.com

FBC Contact: Heather Jackson
Sells Close, High Street, Barley, Royston, Hertfordshire. SG8 8HY Tel: 01763 849468
Email: info@fbcgroup.co.uk Web: www.fbcgroup.co.uk

Greenearth Energy Ltd Contact: Dai Rees
Unit 2A Westwood Industrial Estate, Pontrilas, Hereford, Herefordshire. HR2 0EL
Tel: 01981 241399
Email: info@greenearthenergy.co.uk Webs: www.greenearthenergy.co.uk

Mercia Energy Ltd Contact: Andrew Russell
86 Grosvenor Road, Rugby, Warwickshire. CV21 3LE Tel: 01788 842377
Email: andy-russell@merciam-energy.co.uk Web: www.merciam-energy.co.uk

Midlands Wood Fuel Supply Ltd Contact: Edward Lewis
The Barns, Harnage Grange, Harnage Cressage, Shrewsbury, Shropshire. SY5 6EB
Tel: 01952 510001
Email: ed@wood-fuel.co.uk Web: www.wood-fuel.co.uk

Rural Energy Ltd Contact: Paul Clark
Manor Farm, Main Street, Oakham, Leicestershire. LE15 8DH Tel: 01664 454989
Email: info@ruralenergy.co.uk Web: www.ruralenergy.co.uk

Solar Thermal Ltd Contact: Paul Brimble
The Old Engine House, Goodes Hill, Corsham, Wiltshire. SN13 9PP Tel: 01249 715295
Email: info@solarthermal.co.uk Web: www.solarthermal.co.uk

Talbott's Heating Ltd Contact: Amy Fielding
Drummond Road, Astonfields Industrial Estate, Stafford, Staffordshire. ST16 3HJ
Tel: 01785 213366
Email: sales@talbotts.co.uk Web: www.talbotts.co.uk

Teisen Products Ltd Contact: Peter Teisen
Bradley Green, Redditch, Worcestershire. B96 6RP Tel: 01527 821621
Email: heat@farm2000.co.uk Web: www.farm2000.co.uk

8 Suppliers of biomass fuel South West delivery

Wood chip - able to supply across the region

Econergy Limited Contact: Dawn Rigget
69 Hampton Park, Redland, Bristol. BS6 6LQ Tel: 0870 054 5554
Email: sales@econergy.ltd.uk Web: <http://www.econergy.ltd.uk>

Forest Fuels Ltd Contact: Sam Whatmore
Grascott Farm, Shebbear, Beaworthy, Devon EX21 5RW Tel: 01409 281 977,
Email: sam@woodfuelsolutions.co.uk Web: www.woodfuelsolutions.co.uk

Wood Energy Ltd
Pinkworthy Barn, Oakford, Tiverton, Devon EX16 9EU
Tel: 01398 351349 Fax: 01398 351115
Email: robin@woodenergyltd.co.uk Web: www.woodenergyltd.co.uk

Wood chip – localised supply

Bristol:

Cole & Sons Tree Surgeons (logs and chips)
8 Redcar Court, Downend, Bristol, BS16 6RW, 0117 956 7298

Cornwall:

Scott Brown Professional Tree & Landscaping Services (logs and chips)
Apple Tree Cottage, Park Bottom, Redruth, Cornwall, TR15 3XW, 01209 210154

Tregothnan Estate Woodlands (logs and chips)
The Estate Office, Tregothnan, Truro, Cornwall, TR2 4AN, 01872 520 325

Mount Pleasant Garden Services (logs and chips)
Mount Pleasant Farm, Gorran High Lanes, St Austell, Cornwall, PL26 6LR, 01726 843918

Cornish Garden Nurseries (logs and chips)
CGN 2000 Ltd, Perran - ar - Worthal, Truro, Cornwall, TR3 7PE, 01872 864 380

Cornovia Tree Services Ltd (logs and chips)
43 Dolcoath Road, Camborne, Cornwall, TR14 8RW, 01209 715010

Harp Enterprizes Contact: Mervyn Shute **(logs and chips)**
Penweathers, Vean, Truro TR3 6EA, Tel: 0845 459838

Dorset:

Knighton Forestry Ltd (logs and chips)
Waddock Yard, Waddock Cross, Dorchester, Dorset, DT2 8QY, 01929 463640

R P Joyce Tree & Woodland Specialists (logs and chips)
Tranquil, Verwood Road, Wimborne, Dorset, BH21 8LJ, 01202 825579

Banyards Ltd (logs and chips)
Nettle Tree Farm, Horton Heath, Nr Wimborne, Dorset, BH21 7JN, 01202 828 800

Wessex Independent Self Help - (Care) - (Recycling) Contact: David Spencer
7 Butts Pond Industrial Estate, Sturminster Newton, Dorset DT10 1AZ, Tel: 01258 446 258
Email: info@wish-charity.co.uk Web: www.wish-charity.co.uk

Your Choice (North Dorset Furniture Recycling Project) (logs and chips)



Unit 9, Richmar Trading Centre, Butts Pond, Sturminster Newton, Dorset, DT10 1AZ
Tel: 01258 471665
Email: info@yourchoiceplus.co.uk Web: www.yourchoiceplus.co.uk

Devon:

Teign Trees & Gardens (logs and chips)

The Shambles, 28 Gloucester Road, Teignmouth, Devon, TQ14 9HN, 01626 773499

Autumn Leaf Tree Care (logs and chips)

14 Headingley Close, Exeter, Devon, EX2 5UH, 07762 644957

Theo Bailhache Tree Surgeons (logs and chips)

Theo Bailhache Tree Surgeons, Passlands Farm, Membury, Axminster, Devon, EX13 7TE,
Tel 01404 881318

Bowrish Sawmills Contact: Jeremy Hutchinson (logs and chips)

1 Bowrish Cottages, Crease Lane, Gulworthy, Devon PL19 8HW
Tel: 01822 612803

The Tamar Joinery Company (logs and chips)

Holm Oak, Bere Alston, Yelverton, Devon PL20 7HJ, Tel: 01822 840848, Email:
nigel@tamarjoinerycompany.co.uk Web: www.tamarjoinerycompany.co.uk

Mr Andy Fyfe

Exmoor Tree Services, Willowdean, Oakford, Tiverton, Devon EX16 9HB, Tel: 01398 351395,
Mobile: 07817 596118

Gloucestershire:

Fredwood Forestry (logs and chips)

The Blue Gables, 122a Bisley Road, Stroud, Gloucestershire, GL5 1HJ, 01453 753601

Cheltenham Tree Services (logs and chips)

7 Loweswater Close, Hatherley, Cheltenham, Gloucestershire, GL51 3BA, 01242 581541

Somerset:

Brendon Hill Tree Services Ltd (logs and chips)

Jews Farm, Maundown, Wiveliscombe, Taunton, Somerset, TA4 2HL, 07971 531333

Dunster Wood Fuels Ltd

Loxhole Sawmills, Dunster, Somerset, TA24 6NY, Tel: 01643 821188,
Email: mineheadsawmills@supanet.com Web: www.dunsterwoodfuels.co.uk

South Wood Waste Management (logs and chips)

South Wood, Evercreech, Shepton Mallett, Somerset BA4 6LX Tel: 01749 830 688,
Email: enquiries@southwoodskips.co.uk Web: www.southwoodskips.co.uk

Higher Court Farm Contact: Mark Weatherlake (logs and chips)

Treborough, Watchet, Somerset, TA23 0QW, Tel: 01984 641179

Exmoor Woodfuel Contact: Richard Milton, (logs and chips)

Crosses Leigh Cottage, Langford Budville, Wellington TA21 ORT. Tel: 01 823 401537 Mob. 07831 437108

9 Installers and suppliers of wood stoves



South West based:

A Davidson Chimney Services

44 Norman Rd., Swindon, Wiltshire. SN2 1AX. Tel: 01793 491494

Alf Revell

11 New Road, Newlyn, Penzance, Cornwall. TR18 5PZ. Tel: 01736 369418

Almondsbury Forge

Sundays Hill, Almondsbury, Bristol. BS32 4DS. Tel: 01454 613315
Email: almondsburyforge@hotmail.com Web: www.almondsburyforge.co.uk

Casterbridge Fires

15 Casterbridge Industrial Estate, London Road, Dorchester, Dorset. DT1 1PL. Tel: 01305 262829

Corninium Stoves

Unit 14 Elliot Road, Love Lane Industrial Estate, Cirencester, Gloucestershire. GL7 1YS.
Tel: 01285 659887 Email: sales@corninium-stoves.co.uk Web: www.corninium-stoves.co.uk

Faraday Heating

Contact Name: Mrs Barbara Faraday
Shaves House, Northleigh, Colyton, Devon. EX24 6BT. Tel: 01404 831292
Email: bfaraday@msn.com Web: www.wood-burning-stoves.net

Fosse Fires

Sheep Street, Stow-on-the-Wold, Gloucestershire. GL54 1AA. Tel: 01451 831519
Email: malcolm@creese.fslife.co.uk

Gazco Ltd

Osprey Road, Sowton Industrial Estate, Exeter, Devon, EX2 7JG Tel: 01392 444030
Email: info@gazco.com

Gloucestershire Stove Centre

21c Ermin Street, Brockworth, Gloucester, Gloucestershire. GL3 4EG Tel: 01452 623817

Kernow Coal & Fires

Contact Name: Simon Breckon
Unit 2 Trenant Industrial Estate, Wadebridge, Cornwall. PL27 6HB Tel: 01208 812527
Email: kernowcoalfires@btconnect.com Web: www.kernowcoalandfires.co.uk

Lyme Regis Eng Co Ltd

Villager Stoves, Millwey Industrial Estate, Axminster, Devon. EX13 5HU
Tel: 01297 35596
Email: stoves@villager.co.uk Web: www.villager.co.uk

Mendip Fireplaces

Windsor Hill, Shepton Mallett, Somerset. BA4 4JE Tel: 01749 344015
Email: sales@mendipfireplaces.co.uk Web: www.mendipfireplaces.co.uk

Moreton Stove Centre

Mearsdon Manor, Cross Street, Moretonhampstead, Devon. TQ13 9NL
Tel: 01647 440483

Multifuel Heating Centre

209 Ringwood Road, St Leonards, Ringwood, Hampshire. BH24 2QA
Tel: 01202 890321

R W Knight And Son

Castle Farm, Marshfield, Chippenham, Wiltshire. SN14 8HU Tel: 01225 891469

Stovax Ltd

Falcon Road, Sowton Industrial Estate, Exeter, Devon. EX2 7LF
Tel: 01392 474000/474011
Email: info@stovax.com Web: www.stovax.com

Stove Shop Liskeard

Address: 7 Pike Street, Liskeard, Cornwall. PL14 3JE Tel: 01579 345018



The Heating Centre

Staunton Court, Ledbury Road, Staunton, Gloucestershire. GL19 3QE Tel: 01452 840878

The Stove Centre

103 East Street, South Molton, Devon. EX36 3DF Tel: 01769 574411

Wendron Stoves Ltd

Mallow Court, Wendron, Helston, Cornwall. TR13 0NA Tel: 01326 572878

Email: sales@wendronstoves.co.uk

Yeoman Stoves Ltd

Hill Barton Business Park, Sidmouth Road, Clyst St. Mary, Devon. EX5 1BP Tel: 01395 233122

Email: sales@yeoman-stoves.co.uk Web: www.yeoman-stoves.co.uk

South West Woodburning Centre

The Airfield, Torrington Road, Winkleigh, Devon. EX19 8HR Tel: 01837 83333

Email: sales@stoves-cookers.co.uk Web: www.stoves-cookers.co.uk

Metal Development Ltd

Contact Name: Rupert Snook

The Workshop, Wheatcroft farm, Cullompton, Devon. EX15 1RA Tel: 01884 35806

Email: rupert@metaldev.deom.co.uk Web: www.metaldev.demon.co.uk

Woodhayes

Contact Name: Jon Snow

Dunkeswell, Devon. EX14 4QQ Tel: 07866 241783

Email: albislug@hotmail.com

10 Wood Fuel Advice Service details

Telephone 08450 74 06 74 between 9am and 5pm

Or contact

Alastair, Louise, Helen or Jamie on 0117 929 9950