

## Dry biomass (including wood fuel\*)

The Cotswolds Conservation Board is the body responsible for co-ordinating the management of the Cotswolds Area of Outstanding Natural Beauty (AONB).

The Board believes that there is considerable scope for the generation of renewable energy by householders and businesses in the AONB without harming the beauty of the landscape or traditional buildings.

This leaflet is one of a series providing information about a number of renewable energy technologies which are suitable for the Cotswold landscape. \*\* Consideration should be given to using more than one such technology in an integrated way to maximise the potential for renewable energy generation at a particular site or building.

The Board encourages everyone to reduce energy use by making their home or office energy efficient, particularly when planning for new buildings or conversions of existing buildings.



Domestic wood fuel burner

\* This leaflet does not include information regarding the production and use of biofuels for transport purposes.

\*\* The other leaflets in the series cover solar photovoltaics, solar water heating, small-scale wind power, heat pumps, and micro-hydropower.

### DRY BIOMASS (INCLUDING WOOD FUEL)

#### Key points

- Burning biomass releases greenhouse gases into the atmosphere. Regrowth of the plants reabsorbs these gases over their lifetime
- Well proven technology and little pollution from modern boilers
- Used for space and water heating or to generate electricity and heat
- Biomass systems can be fitted into existing or new buildings
- The production of wood fuel can help manage the woodland landscape, utilise waste products and assist the rural economy
- A cost effective fuel for rural areas not on the gas grid

#### How does it work?

Biomass includes crops such as Miscanthus (elephant grass), as well as agricultural residues such as straw or chicken litter. For the Cotswolds the main types of wood fuel available are traditional logs, or timber or waste wood/ sawdust processed into woodchips and wood pellets. These fuels can be burned in room stoves and as a fuel in hot water/ central heating boilers. Wood and biomass fuels can also be burned to run a turbine and generate electricity.

Pellets and chips are of uniform size and shape so they are suitable for automatic feed systems, which are more convenient than hand feeding. Pellets require approximately one quarter of the storage space of woodchips.

A wood boiler generally looks similar to a conventional boiler. A central heating system in a typical 2-3 bedroom house in the Cotswolds would need about 8-12 dry tonnes of fuel per year. The fuel store would be not very different in size from conventional oil tanks and existing flues could be used.

In the case of a small heat plant for a school or community building, the boiler house could be some 4 metres by 3 metres, with a sunken fuel bunker of similar proportions. The chimney would be between 3 to 10 metres high, depending on plant design and surrounding buildings.

Wood-fired electricity plants are comparable in size to a large barn or small factory.

In all cases sufficient space needs to be allowed for a lorry or tractor and trailer to deliver fuel and turn.

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### Why is wood fuel and biomass energy generation suitable for the Cotswolds AONB?

Wood-fired heating schemes are well suited to domestic, community and commercial buildings in rural areas because they are more likely to have the space to accommodate the storage and delivery of fuel. Visual impact is negligible as boilers and room heaters would be inside the buildings and the fuel storage need have no greater impact than an outbuilding or garage. Care may be needed to be taken with the location of the flue if no existing chimney is available, particularly with listed buildings such as barn conversions.

It may be possible to use existing agricultural or commercial buildings for electricity / combined heat and power plants. (Wood fuel burners can be used for electricity generation). New buildings will have to be carefully designed and sited to avoid adverse impact on the landscape. The building needs to be close to The National Grid, major roads and a source for the fuel. Transport of wood fuels over 40 km would involve



Wood fuel pellets

excessive energy costs and the transport of significant quantities of fuel could generate unacceptable lorry traffic on the smaller roads in the AONB. Proximity to major woodland is therefore likely to be the most successful location. This is because it would be close to a wood supply and have minimum landscape impact because of natural tree screening on the site.

Woodlands, many of them ancient, are an important landscape feature in the Cotswolds. An increasing demand for wood fuel would provide the additional income needed to ensure the proper management required to preserve these woodlands. Production of wood chips is particularly suitable to develop markets for small suppliers using locally sourced material.

Pelletising plants would provide additional income for saw mills or tree surgeons for example and overall a local wood fuel enterprise can have a positive impact on the local economy.

There are landscape and bio-diversity issues which will limit the production of biomass crops such as Miscanthus in the Cotswolds. The Board has issued guidance on the location of Miscanthus crops in the AONB. If such crops are grown they would be most suitable for fuel in small-scale electricity plants.



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