

Wood Fuel in the South West Forest

Introduction

A number of organisations are currently investigating the potential of wood-fuel in Devon & Cornwall. It is however important to remember that there are many different types of wood-fuel, which can be used for different purposes.

These include;

- Firewood & kindling; Selling direct to the domestic market. Some attempt at branding, including WOODMARK timber (e.g. Greater Exmoor Woodland Project and Poplar Tree Company). There is scope for some expansion of this market, particularly if more efficient and convenient burners can be promoted.
- Charcoal; Selling mainly to the barbecue market, although more specialised markets are also available. Many small-scale producers are around, with a Bioregional Charcoal Group selling to B&Q and other large customers. There is potential for a medium scale industrial enterprise to convert hardwood thinnings into charcoal and wood-gas/heat much more efficiently. I do not know anyone who is looking at this in Devon or Cornwall, but detailed specifications exist.
- Wood Chips; These can be made out of fresh wood, or various types of wood waste. The main problems with this kind of technology relate to the variability to the product, its fairly low calorific value (especially if it is wet) and the fact that it can readily decompose. This type of technology is most normally used for fairly large-scale, such as Drax powerstation, or District heating schemes (as in Finland) with technical back-up. The WOODHEAT programme is trying to introduce this type of technology to smaller scale applications, such as school-buildings.

When considering waste minimisation, we should also consider that some wood waste is also used for other uses, as shown below.

- Green Wood Waste; Lop and top and branches are best made into mulch. Eco-Sci do this in Devon, and this is being tested by some of our farmers.
- Waste Wood from landfill; This can be hogged and made into chipboard, and a number of operators are already doing this.
- Sawmill Co-Products; Sawdust and chips can be made into chipboard, but you can only use a certain proportion of sawdust, as it is only used on the surface of the boards.
- Bark; Normally sold for horticultural uses.

Wood Pellet Technology

This type of technology has some very significant advantages over other types of wood-fuel which can mean that it is suitable for different applications. It is also produced from a different wood feedstock than the other types of fuel.

What are wood pellets

Wood pellets are made from waste sawdust to strict quality standards that control the moisture and ash contents. They are a mature technology with around ½ million installed in the USA and Canada alone.

How are they made

They are made by compacting dry sawdust so that the lignin melts, holding the pellet together. If the sawdust is wet, then it must first be dried, otherwise the pellet will not form properly. This makes the process particularly suitable for dealing with waste produced from the furniture industry and a new mill has recently been built in Cardiff to process 70,000 tonnes of sawdust produced by the Welsh furniture industry. This sawdust was previously sent to landfill.

The local furniture industry also produces waste sawdust, but we do not know how much.

What are the advantages of Wood pellets compared to other wood fuels

Wood pellets are;

- Uniform
- Energy dense
- Stable in storage
- Easily handled
- Can be utilised by fairly cheap machinery without technical support
- Low maintenance (remove ash one a month).

This means that they can be used in domestic situations and on industrial estates, where ease of handling, stability in storage and compactness are important.

How could Wood Pellet Technology be applied in the South West Forest area

This technology is normally used for space and water heating, including central heating systems and convection stoves. Wood pellet technology appears to be cheaper than electricity, oil or Liquid Propane Gas (LPG) but more expensive than piped gas.

Hence, it is particularly appropriate for rural properties gas and for light industrial units on industrial estates, which are often not connected to mains gas.

The heating system can be fed by hoppers or manually.

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