



Alvie House is a traditionally built shooting lodge with accommodation for 44 people. With grant support from HIE Inverness and East Highlands, the EU ERDF and Forestry Commission Scotland, a woodfuel heating and hot water system has been installed to replace the old oil fired boilers as the main source of heat, reducing both carbon emissions by using a renewable fuel and fuel costs as the Estate can use its own resources for energy.



Facts and figures

Boiler: Veto 250 kW woodchip boiler. The supply of air and chips to the boiler is adjusted by a Lambda control that senses the level of oxygen in the flue gases to achieve optimum burning efficiency. The boiler has a water cooled grate, and ash is removed automatically by two augers.

Fuel feed: from silo to boiler by spring agitator stoker system comprising two augers with drop-cell feeder supply (airlock) between to avoid burn-back into the stored fuel. The augers, spring agitator and moving grate are driven by 3 phase electric motors. As the house supply is single phase there are inverters to convert the single phase supply to 3 phase.

Fuel storage: 30m³ capacity underground silo filled by tipping lorry.

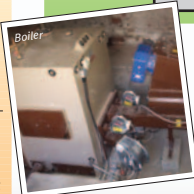
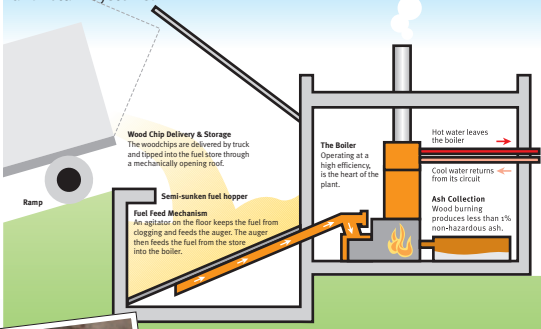
Chipper: Heizhock wood chipper, output 10m³ per hour. Drying floor in one quarter of a 288m² shed. Up to 100m³ of wood chips can be dried at one time by blowing pre-heated air through the floor and up through the chips. Air is heated as it is drawn through a passive solar collector. The rest of the shed has been modified for storage of wood chips. The total storage capacity of the building is in the region of 600m³.

Alvie House

Sustainable woodfuel supply and heating

How does a woodfuel boiler work?

Modern installations are fully automated and require minimal attention. The key components are the boiler, fuel handling system, and the flow and return systems.



The fuel supply

Alvie Estates have created their own wood chip supply, by investing in a drying shed and wood chipper with aid from the FCS Developing Farm Woodland Energy grant. The Estate can now provide a high quality of chip for their own use and to other customers in the area, helping to develop a local market for energy. Wood fuel is produced from round wood, windblown timber and slab wood harvested on the Estate and elsewhere within the locality.

Chipping direct into storage shed



Drying and storage of woodchips



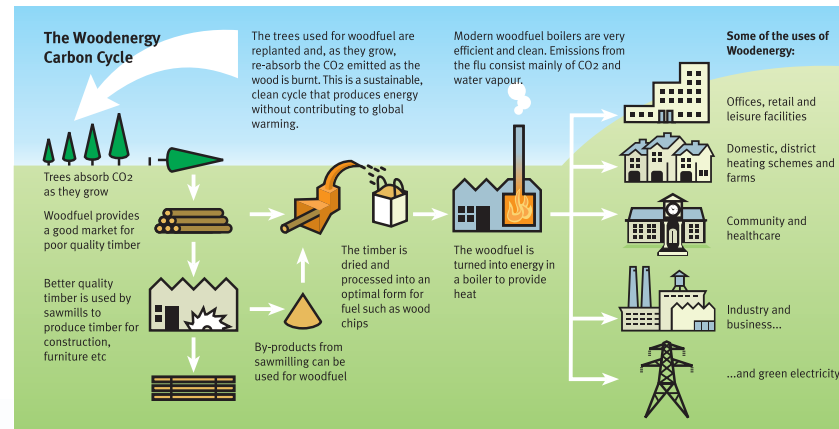
Delivery of woodchips to fuel silo



Sustainable Heating with

WOODENERGY

SCOTLAND



What is woodfuel?

Woodfuel is a modern, clean and environmentally friendly alternative to fossil fuels, and is an economic solution for the heating needs of public buildings, industry and business premises, agricultural buildings and households. It comes in many forms including logs, pellets (made from sawdust), and woodchips.

Woodfuel is widely used throughout mainland Europe for heating and power generation and is Europe's most important source of renewable energy providing 51% of all renewable energy.

Why biomass?

Supporting the local economy

- local income stream
- more local jobs than any other renewable energy alternative
- new market for forestry and farming industries
- cheaper fuel prices

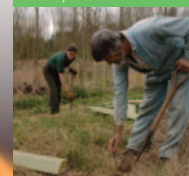
Environmental Facts

- renewable energy
- clean and safe to store
- promotes sustainable forest management and so can benefit wildlife

Social Benefits

- local employment
- communities can contribute to their own future energy needs
- helps reduce fuel poverty

Trees are planted...



...then harvested as part of...



sustainable wood fuel production

