



Wood Energy



Wood energy is a renewable energy resource that can be harnessed to produce heat and power. It is sourced either directly from the forest or from processing timber by-products in downstream industries.

Sources include:

- Small roundwood logs from forest thinnings and other wood, including tree tops and branches, which are converted into wood chips.
- Short rotation coppice (SRC) biomass crops, such as willow and poplar.
- Sawmill and panel board mill by-products converted into fuel wood, sawdust, wood chips and bark.
- Wood waste or recycled timber arising from manufacturing.

Wood energy outlets

Wood is a versatile and flexible energy source. It can be used in large-scale combined heat and power (CHP) plants, group-heating schemes or in small domestic outlets. It is used to fuel specialised heating boilers as:

- Fuel wood
- Wood chips
- Wood pellets

Modern wood-fuelled heating systems offer similar levels of comfort, convenience and reliability as oil or gas boiler systems.

Wood energy sources include thinnings of both conifers and broadleaves such as ash (above) and wood processing by-products such as wood chips (opposite).



Why wood energy?

Ireland imports 90% of its energy requirements, at an annual cost of over €6 billion to the economy, mainly as coal, oil and gas. Renewable energy, especially wood energy, can significantly reduce our dependency on imports and fossil fuels.

Irish experience: Renewable energy (principally wood fuel) accounted for 2.5% of the Total Primary Energy Requirement in 2005, the lowest level in the EU. By 2020 the government target is to raise it to 20%.

Contributions from wind, hydro, landfill gas, biomass and other biofuel reached 6.8% of gross electricity consumption in 2005, compared with 5.2% in 2004. However, electricity imports increased by 30% in 2005.

European experience: While wind and solar energy are regarded by many as the key renewable resources, wood energy is currently well ahead of these in Europe. Close to 59% of Europe's renewable energy (100 million cubic metres annually) comes from wood, while 96% of all Europe's renewable heat comes from wood.

Global experience: Globally, biomass use amounts to nearly one billion tonnes of oil equivalent, a level comparable to the consumption of natural gas or coal. This makes it the largest renewable source in use today.

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Reasons for converting to wood energy

There are sound economic and environmental reasons for using wood as the main renewable energy source because wood is:

- A renewable resource.
- Carbon neutral.
- Recognised as playing a role in reducing global warming.
- A proven and cost effective outlet for roundwood and timber by-products - the energy used for harvesting, processing and transport of wood is just 10% of the total energy output.
- Capable of producing a significant proportion of Ireland's renewable energy needs.
- A flexible fuel that can be stored and used as a stand alone energy source.
- A versatile resource that can be co-fired with peat and other fuels.



WOOD – PLAYING A POSITIVE ROLE IN CLIMATE CHANGE

Wood manufacturing and sustainable forestry play a positive role in global climate change through

- Carbon sequestration
- Wood energy

The importance of forests in the creation of carbon sinks is recognised by the United Nations Framework Convention on Climate Change (UNFCCC) and the National Climate Change Strategy as a major contributor in sequestering carbon and contributing to the attainment of Ireland's green house gas emissions targets. Electricity generation in Ireland depends mainly on fossil fuels such as natural gas, coal, oil and peat. All are non renewable and all contribute to greenhouse gas emissions. Burning fossil fuels releases huge amounts of CO₂ and other greenhouse gases which has led to global warming, a major cause of environmental damage.

Forests on the other hand, contribute to lowering concentrations of carbon dioxide in the atmosphere by taking up the gas and converting it to cellulose in wood. In this context, forests are sometimes referred to as sinks, in that they take and store more carbon and greenhouse gases than they emit in a process known as carbon sequestration. In the case of afforestation of former agricultural land there will be a net increase over time in the carbon stock on the land (a sink), as long as the forest remains in place or is reforested following harvest.

The benefits of wood energy to the environment and lessening our dependence on fossil fuel extends beyond the forest, as timber products from the forest, at various points of the processing and manufacturing stages, also contribute to sequestering carbon.

Even the generation of energy from burning wood has a positive environmental effect, as long as the area is reforested and overall stocks of carbon on the land are conserved. Following reforestation, carbon released during combustion is sequestered once more. In effect the forest becomes a solar energy store, continually releasing the energy as required in wood combustion.

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Acknowledgments

This document is brought to you by the Wood Marketing Federation – www.wood.ie

Published February 2008