

Where does wood fuel come from?

Wood fuel is a common name for solid biofuel because of the large amount of biomass from wood that is processed into making a biofuel. For a full description of the full range of solid biofuels see Technical Guide 1 "[Solid biofuel classification guidelines](#)".

New Zealand is fortunate to have perfect growing conditions for trees and has a significant 'traditional' forestry industry focused on the growth of *radiata pine* largely to serve export markets. This forestry industry is the key source of wood fuel in New Zealand. In Australia there is a much wider range of sources of biomass.

Increasingly its likely that landowners will wish to maximize the return from their land and will consider growing dedicated fuel crops in addition to their traditional agricultural or horticultural business activities through integrated land use. In addition, as sustainability is now a factor in all smart energy and environmental decisions, waste wood and demolition timber are increasingly providing opportunities as fuel sources.

- **Waste Wood from Forest Harvesting Operations** – Efficient harvesting gives rise to the potential to economically recover high quality wood residues for sale as fuel, (such residues are often considered and treated as waste and are left to rot in the ground, yet they can create a valuable revenue stream).

Not all harvest residues should be removed as it is important for the maintenance of soil fertility that some biomass is left to replenish the goodness which has been removed by growing trees.

- **Agricultural harvest biomass residues** – There are many agricultural crops where stalks etc are left after the food component has been taken. These residues can be processed into fuel.
- **Farm forestry** – Trees grown on farms for shelter, erosion control, riparian river bank protection and in wood lots are all potential sources of biomass for processing into fuel. For farms that are near a demand for wood fuel such as a milk processor there are significant opportunities for farms to diversify from being only a food producer to being a food plus fuel producer. This can improve farm business resilience by having two revenue streams based on two very different markets.
- **Dedicated Energy Crop Growing** – As demand for wood fuels increases there will be an increase in the growth of new non wood fuels such as Miscanthus, or Switchgrass. Current activities focus on understanding the best conditions for growth of herbaceous biomass sources. In addition, there are some mainstream forestry activities considering growing wood to produce high quality pellet fuels.

Currently in New Zealand and Australia it is not anticipated that there will be a need to grow energy crops because there are adequate sources of biomass which are being left to waste and could be processed into being a solid biofuel.

- **Processed Wood / Wood Off-cuts** – Historically, log processing would give rise to quantities of off-cuts and processing wood waste that were then processed into wood fuels for kiln drying. Most wood processing plants in New Zealand now utilise their wood processing residues and there is little that is wasted. However often the process residues are high quality shavings, chip or sawdust which could be sold for say wood pellet production. If the on-site heat plant where such fuel is currently used can utilise lower grade fuels from say forest harvest residues then it may be financially attractive for the wood processor to sell their high grade process residues and buy in lower grade harvest residues.
- **Demolition Timber** - Urban wood waste that is often derived from building demolition or packaging can often be used as a fuel. Clean uncontaminated urban wood fuel can be chipped and used as a fuel in most heat plant. However, treated or paint contaminated timber has always been a difficult waste to dispose of in a sustainable way. Contaminated urban wood fuel can however be used as a fuel in high temperature heat plant because the “nasties” are consumed through very high temperature combustion.

In Canterbury where there is now significant amounts of demolition timber Environment Canterbury has been undertaking a Project that focuses on treated timber. The Treated Timber Waste Minimisation Project – will test the feasibility of, and subsequently develop a sustainable business model for the large scale collection and reuse, recycling and/or recovery of hazardous treated timber waste. More details [here](#). A select number of Bioenergy Association members already provide services that secure waste timber and redirect to a fuel use as opposed from going to landfill.

- **Pelletised paper and cardboard** – All communities produce significant quantities of paper and cardboard which could be pelletised so that it can be used as a fuel in combustion plant.