Wood Waste: Fuel

Wood-based fuel comes in a variety of forms. The following section explains these different forms starting from the least to most sophisticated, in terms of the level of investment and technology required.

Firewood refers to unprocessed wood that is burnt for fuel, heating and cooking. Firewood is usually stored for some time before use to allow it to dry to sufficient moisture content (MC) for burning. Freshly sawn ‘green’ wood is not suitable for firewood as the high MC does not allow it to burn well.

Firewood can be used for heating, cooking, or direct-fired kiln burner.

Steam generation - Waste sawdust, shavings, and offcuts can be used to operate a wood waste steam or hot oil burner, e.g. to produce steam for kiln drying. The steam is used to provide heat to the kiln and to control humidity.

Wood-waste fired boiler to produce steam.
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**Pellets** – Pellets are a fuel relatively easy to produce made from biomass materials. Pellet production equipment ranges from large factory equipment to household pellet mills. Pellets are commonly used for power generation, commercial and residential heating and cooking.

![Packed wood pellets (left) and part of the pellet production (right).](image)

**Charcoal** - production is a method of reforming wood for fuel. Because the water has been removed, charcoal has a much higher heating capacity to weight ratio than wood. Charcoal is produced by slow pyrolysis whereby it is heated in the absence of oxygen, or at very low oxygen levels.

![Raw charcoal (left) and traditional charcoal kiln (right)](image)

**Liquid biofuels** - are liquid fuels refined from forest and other wastes. They include ethanol, biodiesel, and pyrolysis oils. Unlike firewood and pellets, they can be used for wider applications, such as transport and high-temperature industrial processes. Biofuels production is a sophisticated process requiring substantial capital investment.