

Case Study

3.25 - 4.25 MWe Biomass Power Plant

This Power Plant is one of the turnkey products of Biomass Power, and is located in Bagnolo di Po, Rovigo, Italy. The contract for £4.6m was placed with Biomass Power in July 2009, Bagnolo Power Srl, a subsidiary of the Zignago group. The Zignago group is owned by the Marzotto family and have a combined turnover of over €1.25ob. The plant is currently in construction and will go online late 2011.



The plant has a capacity of 15-20 MW thermal and rated at 3.25-4.25MWe gross producing green electricity which is exported to the grid.

Biomass Power have developed a highly optimised process of gasification followed by secondary combustion which has the flexibility to easily handle any of the diverse range of fuels that may be used in this plant, including forestry and agricultural residues, woodchips, straw and miscanthus, consumed at an annual rate of around 30-40,000 tonnes. This renewable energy power station will save around 11,700 tonnes of carbon per year.

The process is well proven and robust. A heavy duty moving floor feeds fuel into the heavy duty reciprocating step grate via a finitely controlled metering device. The grate gasifies the fuel to produce a volatile gas. These volatile gases are then combusted at above 850°C for more than two seconds to ensure complete combustion.

Once the gasification and then secondary combustion process is completed the hot gas is exchanged via a water tube boiler into 450°C steam, at a pressure of 45 Barg. This is then used to produce high efficiency electricity in a vacuum condensing turbine. Once the hot gases are released from the boiler at low temperature they go through a dust filtering treatment process which monitors flue gas emissions constantly and in doing so ensures compliance with the emission standards.

A SCADA (Supervisory Control And Data Acquisition) system is employed to significantly enhance the plant control and maximise the performance.