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Case Study - Eccleshall Biomass Power Plant



The Eccleshall Biomass Power Plant is one of the turnkey products of Talbot's Biomass Power. The plant was commissioned in September 2007 and has a capacity of 13 MW thermal producing 2.65 MW of electricity. The fuels burned range from woodchips, compost oversize, straw and miscanthus, at an annual rate around 30,000 tons. These renewable energy resources save about 18,500 tons per year of fossil fuels, equivalent

to reduction in CO₂ emission of 36,500 tons per year.

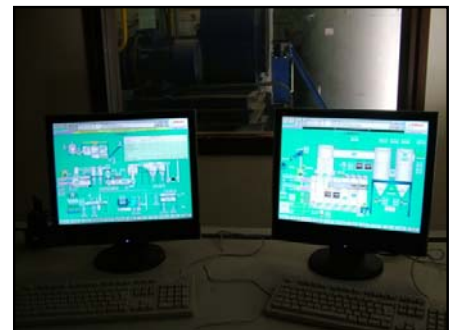
The plant is owned and operated by Eccleshall Biomass Limited (EBL), who has a number of long-term contracted fuel suppliers. Feasibility study of the project began in 2003, and in 2006 contract was signed between EBL and Talbot's Biomass Power for the design, erection and commissioning of the plant. The project was financed by private funds and got support of 1.5 million GBP from Advantage West Midlands and DTI green-energy reward. The plant produces 20,800 MWh of electricity per year, 90% of which is exported to the grid. The expected financial return of the plant is about 6 years.



The boiler employs a moving step-grate combustor and BAT (best-available-technology) is applied throughout the designing process. To ensure the lowest possible NO_x emission and at the same time reduce the clinker on the bed, flue-gas recirculation technology is adopted. Three successive cyclone combustors are employed to completely burn out volatile organic matter and CO. This, plus the horizontal design of a fire-tube boiler, keeps the whole plant in a very low profile (roof height < 15 meters). Course fly ash is separated and collected before entering into the super-heater and boiler sections, ensuring

the best working conditions for the boiler. Economiser is positioned at the back of the boiler to recover residual heat in the flue gas.

SCADA (Supervisory Control And Data Acquisition) system is employed to significantly enhance the plant control and diagnosis quality and hence maximise the performance. This highly automatic control reduces the staff to only 3 during day time and 1 during night time.



This green-energy power plant really generated enthusiasm among the local community, who proudly claim that they are making a great contribution to combat global warming, in such a small town in the West Midlands.