

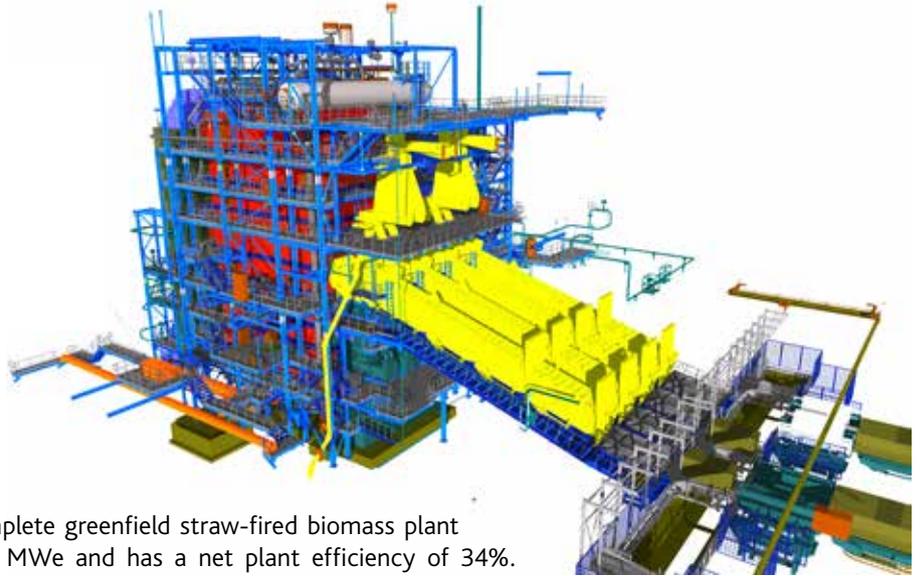
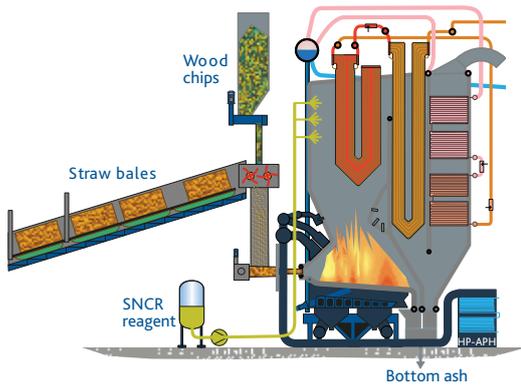


Case stories - BWE Boilers

SNETTERTON RENEWABLE ENERGY PLANT, UK



CASE STORIES - BWE BOILERS



ECO2 Lincs Ltd. chose a BWE Boiler for the complete greenfield straw-fired biomass plant located in Snetterton, UK. Plant capacity is 44 MWe and has a net plant efficiency of 34%. The contract was awarded in November 2014 and expected to be completed in September 2017.

The plant

The Snetterton Renewable Energy Plant (Snetterton REP) was built for production of electricity for the National Grid. Snetterton REP is a straw-fired power station that combines the environmental benefits of renewable power generation with more local economic benefits that will put Snetterton at the heart of a new market for the supply of straw.

The boiler

The BWE Boiler is of the drum type with natural circulation. The straw feeding system and patented scarifier developed by BWSC is adaptable to different types of square bales such as Heston and CLAAS. The straw bales are conveyed through four sets of straw feeding lines to the boiler. The boiler is designed and optimized to operation with corrosive and sticky ash caused by cereal straw combustion. Hence super heaters are designed as slagging super heaters using austenitic material grade.

Water-cooled vibrating grate

The water cooled vibrating grate designed by BWSC ensures homogeneous and stable combustion of untreated biomass and can handle fuels such as straw, wood chips, cotton residuals, olive cake, etc. The main fuel used on Snetterton REP is supplied in straw bales and fed in via the bale openers and the stoker feeders. The water cooled vibrating grate is part of the evaporator system of the boiler and this design ensures the optimal utilization of the fuel with a minimum of maintenance.

Fuel mixing

Snetterton REP is built for 100% straw-firing. With a heat input of up to 130 MJ/s this is equivalent to an annual consumption of straw in the range of 270,000 tons thereby producing 44 MWe, an output equivalent to 82,000 homes. The plant is designed to operate with up to 50% wood chips as an auxiliary fuel. The equivalent CO₂ reduction is close to 300,000 tons per year.

Boiler scope of supply

BWSC is responsible for design, manufacturing, supply, installation and commissioning of the biomass boiler island including fuel feeding including receiving table(s), bottom ash and auxiliary systems.

| Boiler data | |
|--------------------------------|----------------------------|
| Steam | 173 t/h, 112 bar and 540°C |
| Boiler efficiency | 91.8% (EN 12952-15) |
| Heat input | 130 MJ/s |
| Foot print | 34.0 m x 33.9 m |
| Boiler house height (internal) | 32 m |

