

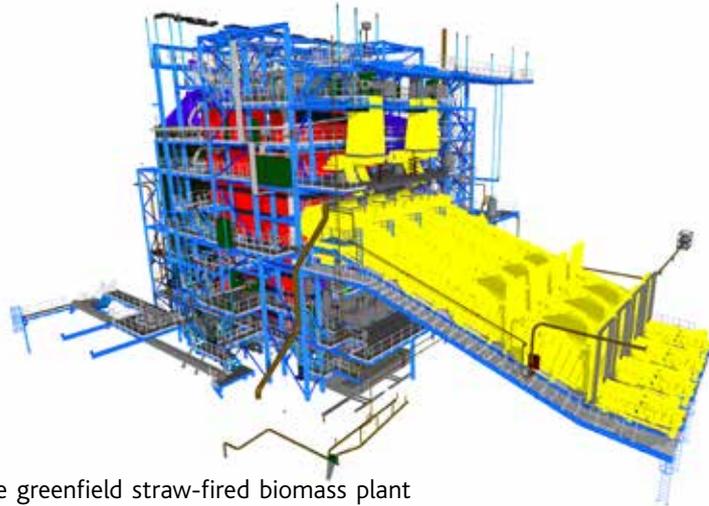
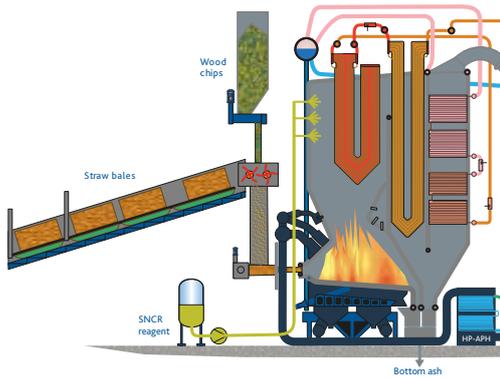


Case stories - BWE Boilers

SLEAFORD 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 Sleaford, UK. Plant capacity is 38.5 MWe and has a net plant efficiency of 34%. The contract was awarded in December 2011 and was completed in June 2014.

The plant

The Sleaford Renewable Energy Plant (Sleaford REP) is an operational straw-fired power station in South Lincolnshire. The project combines the environmental benefits of renewable power generation with more local economic benefits that will put Sleaford at the heart of a new market for the supply of straw.

The boiler

The 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 Sleaford 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

Sleaford REP is built for 100% straw-firing. With a heat input of up to 115 MJ/s this is equivalent to an annual consumption of straw in the range of 240,000 tons. The plant is also designed to operate with up to 20% wood chips as an auxiliary fuel. The equivalent CO₂ reduction is close to 250,000 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, bottom ash and auxiliary systems.

Boiler data

Steam	152 t/h, 112 bar and 540°C
Boiler efficiency	92.3% (EN 12952-15)
Heat input	115 MJ/s
Foot print	31.2 m x 32.0 m
Boiler house height (internal)	30 m

