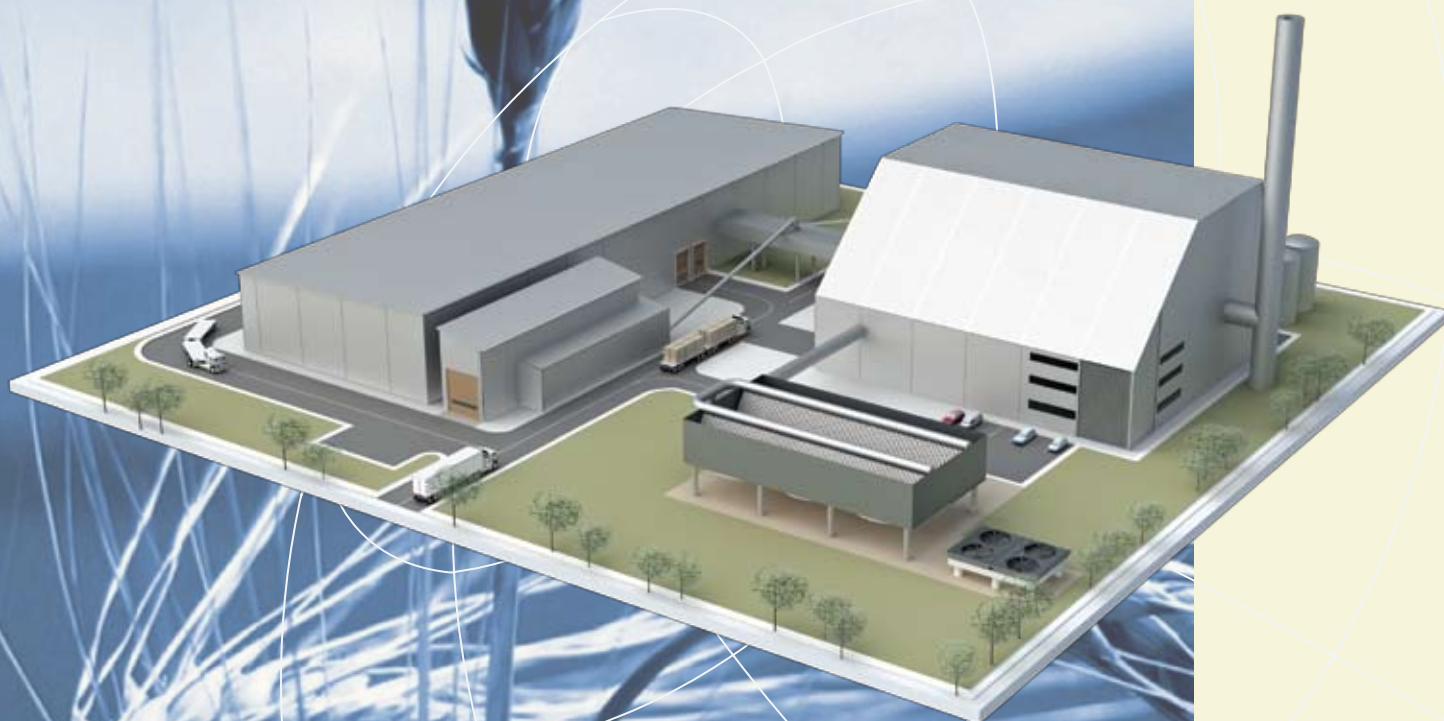


THE TURNKEY SOLUTION

40 MWe Straw-fired Power Plant

Data sheet

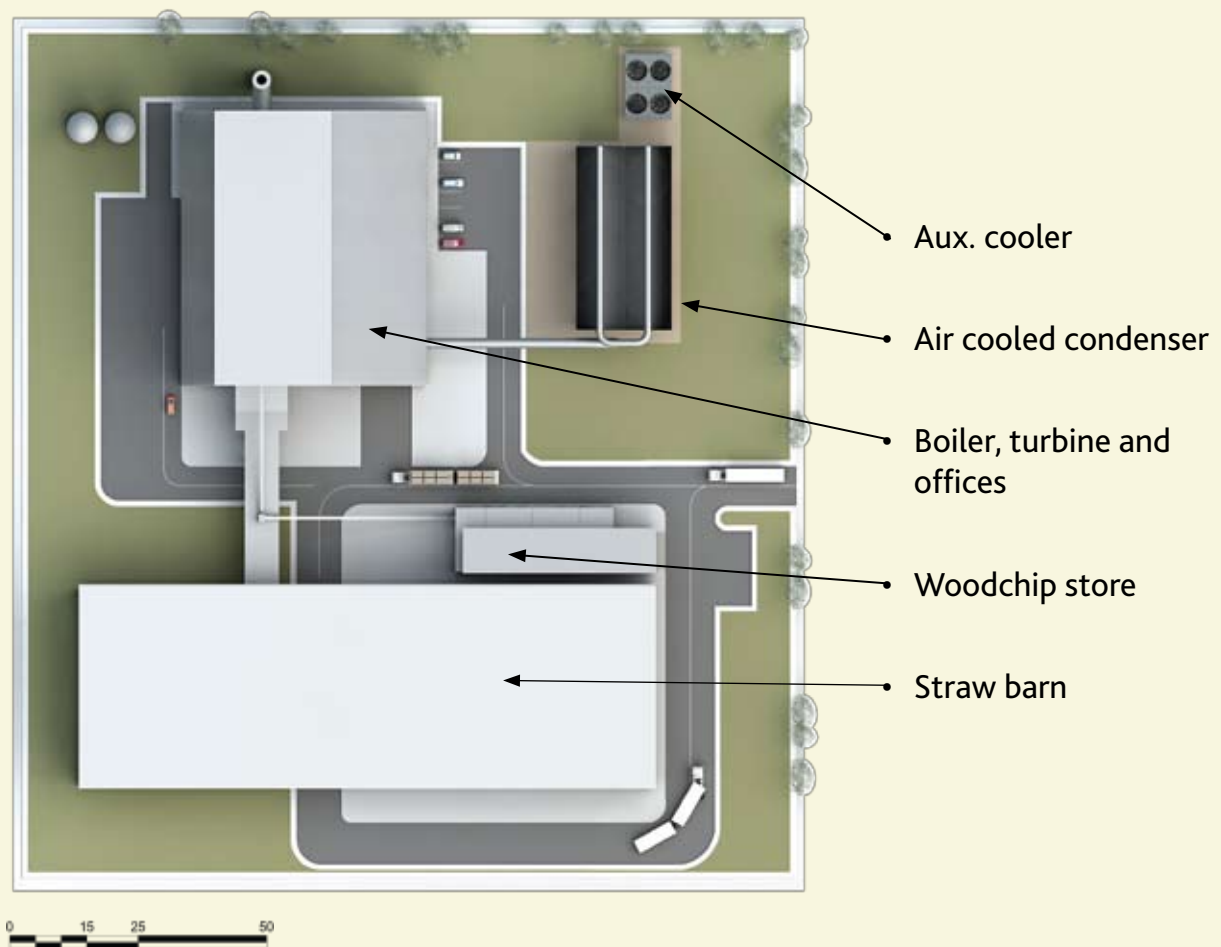


Burmeister & Wain Scandinavian Contractor A/S

40 MWe STRAW-FIRED POWER PLANT

BWSC offers its vast expertise as turnkey power plant developer, contractor and provider to supply leading efficiency biomass power plants. This specification is for BWSC's standard 40 MWe power plant, designed to burn straw with the option to co-fire with up to 40-50% wood chips.

Plant layout



The prime objective of the layout is to ensure an optimal functioning plant. This is achieved by providing short and direct access for materials and personnel allowing for ease of operation and maintenance.

The majority of equipment is contained indoors giving protection from weather, reducing heat losses and enabling a neat plant design. The architectural design emphasizes the plant's purpose as a clean, solid and efficient provider of green energy for the future.

40 MWe STRAW-FIRED POWER PLANT

BWSC's turnkey biomass power plants typically include the following key components:

- Fuel reception and storage systems for straw with 2 cranes
- Fuel reception and storage system for woodchip, with one loading floor
- Fuel feed system for straw and wood chip
- Boiler pressure part system, including evaporator part (panel walls), super heaters, economizer, flue gas cooler etc.
- SCR NO_x reduction system
- Diesel tank and burner system for plant start
- Bottom ash (slag) handling system
- Combustion air system with air preheaters and forced draft fan
- Flue gas cleaning with bag filter and hydrated lime injection
- Induced draft fan and stack
- Live steam system
- Steam turbine air cooled condenser (ACC)
- Condensate system including pumps and preheaters
- Feed water system including pumps and preheaters
- Water supply system, with tank and supply pumps
- Make-up water system, including water treatment plant and storage tank
- Auxiliary cooling and heat recovery system
- Vacuum cleaning system
- Compressed air system
- Fire water system
- Alternator system
- Step-up transformer
- Medium voltage systems
- Station transformers
- Low voltage systems
- Control system & instrumentation
- DC system and UPS system
- Buildings, civil works, and landscaping



40 MWe STRAW-FIRED POWER PLANT

Plant data

The table below shows plant performance data for a standard BWSC straw-fired power plant. This performance data will vary based on project and site-specific conditions. Data is shown for configuration both in electrical-only and combined heat and power production.

	Power generation / Combined Heat and Power
Max fuel input	115 MW
Main fuel type	Heston bales of straw
Straw fuel consumption	29 ton (65 bales)/hour
Net. electric plant output	38-40 / 35-30 MW
District heating output at 80 °C	0 / 30-70 MW
Plant availability	8,000-8,400 hours/year
Straw storage capacity, typical	4,000 bales ~ 60 hours of operation
Secondary fuel	Woodchip
Wood chip storage capacity, typical	300 m ³ ~ 20 hours (10% firing)
Slag production approx.	1 ton/hour (+ water)
Fly ash production approx.	0.35 ton/hour
Flue gas amount approx.	60 kg/s
Max. CO emission	250 mg/Nm ³ – 11% oxygen
Max. SO ₂ emission	200 mg/Nm ³ – 6% oxygen
Max. HCL emission	50 mg/Nm ³ – 6% oxygen
Max. NO _x emission	300 mg/Nm ³ – 6% oxygen
Max. Dust emission	30 mg/Nm ³ – 6% oxygen
Max. ammonia slip	10 mg/Nm ³ – 6% oxygen
Plant water consumption approx.	2 - 3 m ³ /h
Import power (for start-up) approx.	2 MW
Max. normal external noise emitted measured 500 m. from the plant	40 dB L(AEQ)
Max. normal internal noise pressure level 1 m from equipment in technical rooms (except turbine room)	85 dB L(AEQ)
Max. normal internal noise pressure level in control room and offices	45 dB L(AEQ)



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