

Recovery boilers

Chemical recovery and green energy



The challenge: efficient chemical recovery with maximum power generation



Rising energy costs and the security of supply in the future are causing pulp producers to re-think their overall energy strategy.

In the past, the value of surplus energy was marginal compared to the price of pulp, but today mills are actively seeking process solutions that can help them generate a surplus of “green energy” that can be sold to the grid for additional revenue. Critical to this energy self-sufficiency is a recovery plant capable of maximizing the production of thermal energy while also efficiently recovering chemicals for the fiberline.

ANDRITZ PULP & PAPER is an acknowledged leader in this area. These energy-efficient processes, in addition to recovering cooking chemicals, produce clean condensates and steam for mill processes and energy production. The full range of

ANDRITZ’s recovery technology includes complete recovery islands: evaporation plants with condensate stripping and methanol liquefaction, gasifiers, High Energy Recovery Boilers, biomass power boilers, chloride removal systems, and odorous gas handling systems.

The technology presented here is already in operation in several mill applications. It has helped mills be energy self-sufficient and increase their power surplus to provide more biomass-based energy for public networks.

Requirements

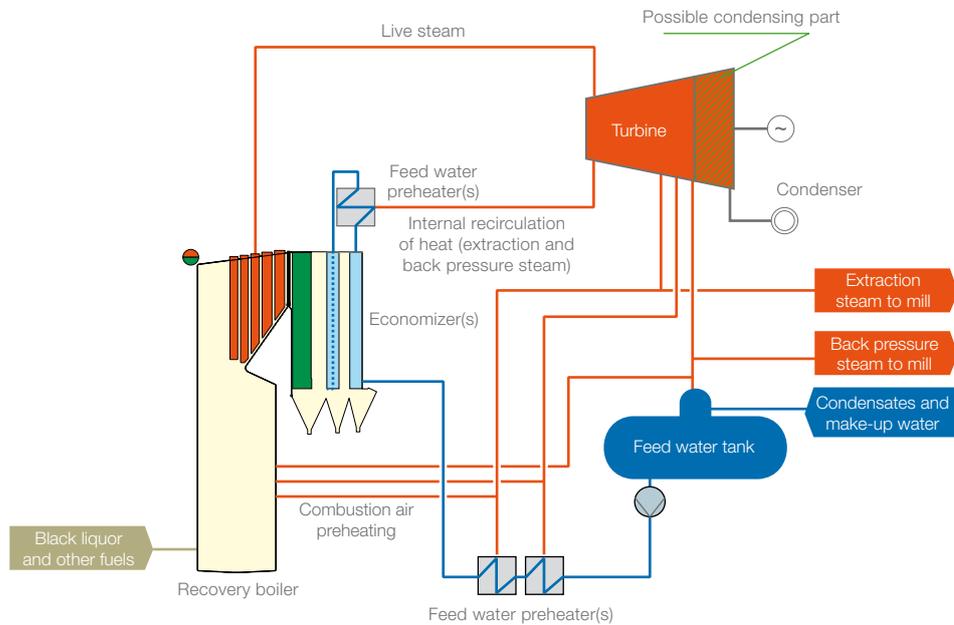
Chemical recovery is an essential part of kraft pulp production. In addition to recovering cooking chemicals, the chemical recovery process generates heat and power. The combination of high dry solids of the

black liquor (through the evaporation process) and high steam values in the recovery boiler are the determining factors in turning the pulp mill into obtaining a net energy surplus from the pulp mill.

Increasing the power-to-heat ratio

ANDRITZ has been a pioneer in developing High Energy Recovery Boiler (HERB) technology to gain a higher power-to-heat ratio from the recovery process. The main limiting factor today is the amount of chlorine and potassium in the black liquor, which relates to material/corrosion issues.

The ANDRITZ solution: High Energy Recovery Boiler (HERB)



Vertical Air system

ANDRITZ's Vertical Air system effectively mixes air around the burning process so that the recovery furnace operates more efficiently. The furnace can be run with a smaller amount of excess air, which lowers the amount of flue gas and also lowers the power consumed by the fans. A reduced excess air amount, in combination with the correct staging of the air, contributes to a potentially significant reduction of NOx emissions.

Recovery Boiler ACE

ANDRITZ Advanced Control Expert (ACE) products are designed to optimize the control and operation of pulping processes. They help achieve uniform, stable, and optimum operation of processes and equipment.

ACE products are based on a common open platform of software, hardware, and communications architecture. Each ACE system has ANDRITZ process and equipment expertise built-in, combined with

predictive models and advanced process control.

Recovery Boiler ACE integrates nicely with other ACE packages for ANDRITZ recovery and fiberline processes.



Benefits

- More power from the same initial energy
- Less CO₂ emissions per unit of electricity produced
- Energy self-sufficiency: eliminate purchased power
- Potential increased revenue from sale of green energy

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SCA Östrand

Before installing an ANDRITZ High Energy Recovery Boiler in 2006, SCA's Östrand mill was producing 242 GWh/a of electricity. Now, the Swedish mill's new boiler and turbine-generator enable the mill to boost electricity production to 468 GWh/a.

High Energy Recovery Boiler (HERB) deliveries:

	Capacity tds/d	Steam temperature °C	Steam pressure bar
Montes del Plata, Uruguay	5,710	495	97
Iggesund Paperboard, Sweden	2,400	515	110
CMPC, Laja, Chile	2,500	495	105
SCA Östrand, Timrå, Sweden	3,300	515	106
International Paper, Campti, USA	2,725	510	103
Södra, Väröbacka, Sweden	2,200	485	87
SCA Obbola, Sweden	1,000	505	110
UPM Pietarsaari, Finland	4,450	505	102

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