Andritz Recovery Boilers

- 27 New Boilers 1999-2009
  ~ 3 new boilers/year
  - 12 EPC
  - 6 Mechanical EPC
  - 9 Equipment delivery only

- 8 HERBs (High Energy RBs)
  - 4 in Scandinavia
  - 3 in North America
  - 1 in South America

- 50 Major Retrofits 1999-2009
Size Increase in Recovery Boilers 1980-2009

1.5 and 12.0 Mlbs/d boilers
HERB Power Production and Consumption
Potential Annual Savings

- Increase from actual technical solution

- 53% of the savings are possible to achieve with other technical solutions

- 47% of total savings are from the pressure increase

Calculated with price of 60 USD/MWh. 1 week for maintenance/year and 90% load

Total power production increase

32% (10.9MW)
Andritz High Energy Recovery Boiler

Basic Concept

- Steam 1525 - 1600 psig and 950 - 960 °F
- Liquor dry solids 80 – 85 %
- High air temperature 390 °F
- Feed water interheaters (before and between economizers)
- Flue gas cooler
- Sootblowing steam from the turbine
- Chlorine and Potassium removal
Practical Limitations to High Efficiency

- High Chlorine and Potassium in Liquor
  - Superheater corrosion
  - Boiler plugging

- High Liquor Viscosity
  - High carry-over
  - Superheater corrosion
Chloride Removal with Ash Leaching

Ash Leaching system materials
Recovery Boiler
DS Tank Vent System

Fresh Air

LP STEAM

DISSOLVING TANK

Cooling Water

TA or SA LEVEL

ANDRITZ Pulp & Paper
Recovery Boiler
DNCG System

DNCG FROM MILL X ACFM @110°F

Building Wall

FRESH AIR MAKE-UP (OUTSIDE AIR)

TA or SA LEVEL

LP steam

Recovery Boiler
SCA’s Östrand mill in Sweden started up an Andritz HERB in autumn 2006. Before the new boiler started up Östrand mill was producing 242 GWh/a of electricity.

The new boiler and turbine generator increased the mill electricity production to 468 GWh/a.
High Energy Boilers in North America

- IP Valliant, OK
  - Capacity 6.3 Mlbds/d
  - 1500 psig, 925°F
  - 80% dry solids
  - High air temperature (340°F)
  - Low gas exit temperature (340°F)
  - Low sootblowing steam consumption

- IP Campti, LA
  - Capacity 6.0 Mlbds/d
  - 1500 psig / 950°F
  - 80% dry solids
  - High air temperature (340°F)
  - Low sootblowing steam consumption
High Energy Boilers in North America

- PCA, Valdosta GA
  - Capacity 3,500,000 lbds/d
  - Steam 1500 psig / 925°F
  - Boiler design pressure 1790 psig
  - Dry solids 75%
  - Air temperatures (prim, sec and tert) 340°F
  - Steam flow (gross) 4.28lb/lbds

- Cl and Potassium removal system
  - Cl-content in the liquor max. 0.3%
  - K-content in the liquor max. 1.0%

- Dissolving tank vent gas burning system
Questions to be considered when planning a new modern mill

- Is green energy production an important part of the investment?
- Can excess electricity be sold to the grid?
- Pressure and temperature levels of Recovery Boiler should be decided based on above!
- Full or partial HERB? This will effect the super-heater materials!
- If Recovery Boiler is designed for high pressure and temperature Cl- and K-removal is a must!
- Dry solids should be 80…85% if going to HERB!
- Recovery Boiler emissions must be according to BAT, but requiring too much will be expensive!
ECBLBAC MEETING

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