BILLERUD FRÖVI

A NEW RECOVERY BOILER BUILT FOR THE FUTURE

Futureproofing pulp mills has become a necessity as requirements on safety and the green transition increase. These challenges were firmly in mind when Billerud chose ANDRITZ to supply a new recovery boiler for its Frövi mill in Sweden.

When the environmental permit for Billerud's Frövi mill was coming to its end in 2023, the management had to make an informed decision on replacing its aging recovery boiler. With increasing environmental regulations, as well as a competitive business landscape, the new recovery boiler had to be fit for the future when it came to efficiency, availability, and environmental performance.

The mill, located near Örebro in central Sweden, has a long and colorful past, with the site first being industrialized in 1550. Paper production began in the early 1900s, with the latest board machine added in 1981. The mill produces a combination of high-quality liquid packaging board and folding boxboard and has a capacity of 500,000 t/a. The site makes around 330,000 t/a of chemical pulp and 150,000 t/a of CTMP.

Despite its long history, the mill focused on the future with a new recovery boiler investment. Mill Director Richard Morén, says, "We had ongoing challenges with our existing recovery boiler simply because it was so old. Supplied in the 1960s, the boiler faced ongoing issues and couldn't meet stricter 2023 environmental regulations, making its replacement essential for compliance and continued operational efficiency."

PRICE, QUALITY AND FLEXIBILITY

In 2021, Frövi got the green light from the board at Billerud to invest in a new recovery boiler for the site with ANDRITZ being chosen to supply a solution to meet the mill's environmental and future production needs.

"ANDRITZ was chosen for a variety of reasons," says Morén. "Price, of course, is always important; however, it was much more than that. We were impressed with the quality of the equipment the company supplies, its ability to meet our environmental requirements, as well as the flexibility shown in the sales phase to help us meet our future needs."

The complete scope of supply to the Frövi mill project included:

- The world's leading recovery boiler technology from ANDRITZ to ensure stable pulp production and increased steam production. Benefits include fossil-free fuel operation, increased energy efficiency, lower emissions, and greater flexibility in production.
- A High Density (HD) concentrator to enable stable and optimal energy efficiency.
- Smart Smelt Spout Robot for improved operator safety. The Smart Smelt Spout Robot automatically cleans the smelt spouts and spout hoods without requiring human intervention, which significantly reduces operator time spent on the spout deck.
- Metris ACE for managing recovery boiler process, emissions, and operational flexibility.

Kari Liukko, Vice President, Recovery Boilers at ANDRITZ, says, "This new recovery boiler solution enables the mill to more than comply with existing and upcoming demands when it comes to environment and operational safety. It will also allow the mill to confidently increase the capacity of its production well into the future and provide real value to Billerud."

HD CONCENTRATOR – MAXIMIZING ENVIRONMENTAL BENEFITS

The HD concentrator from ANDRITZ was supplied to enable optimal conditions for efficient operation of the new recovery boiler.

"This was one of the examples of flexibility displayed by ANDRITZ," explains Morén. "The HD concentrator being installed in the evaporation plant a year before the recovery boiler enabled us to broaden our production window at the same time as prepare for a future increase in capacity."

"Another advantage was the involvement of our production and maintenance teams in the project right from the start, with the result that the learning curve has been much shorter than usual."

Richard Morén
Mill Director, Billerud Frövi Mill

Liukko, adds, "The target with installing the HD concentrator was to prepare the mill in advance for the start-up of the recovery boiler, and immediately maximize the benefits of the new installation."

With the HD concentrator, the dry solids content of the black liquor is increased from 72% to 82%, which enables higher steam and power production in the recovery boiler plant.

SMOOTH PROJECT IN A CHALLENGING ENVIRONMENT

Despite challenges encountered due the second wave of the pandemic and the start of the war in Ukraine, the recovery boiler project started up on time and on budget. Morén says, "Close collaboration with the Frövi and ANDRITZ teams meant we had a completely transparent relationship during the project, dealing with challenges and finding solutions together."

The recovery boiler started up in the summer of 2023 during the mill's annual shutdown, and apart from the usual teething problems, the boiler start-up and ramp-up went smoothly. Morén says, "We are delighted with how this project went and we are now concentrating on optimizing the operation of the recovery boiler. One advantage we had with the start-up was the use of ANDRITZ's comprehensive e-learning solution in Swedish, as well as a simulator of the recovery boiler for training purposes.

"Another advantage was the involvement of our production and maintenance teams in the project right from the start, with the result that the learning curve has been much shorter than usual."

Petri Pynnönen, Global Principal Engineer at ANDRITZ says, "The collaboration between Billerud and ANDRITZ was strong from the start, enabling a clear understanding of Billerud's goals and a smooth equipment start-up. Excellent co-operation continued after start-up by optimizing boiler performance for the current mill capacity."

The recovery boiler is now successfully running at its first phase design capacity and well under the environmental regulations that were set. The mill is now also ready and prepared for expansion in the coming years. Morén adds, "We have already pushed the boundaries of the new recovery boiler at all levels and we are very pleased with the performance.

"This recovery boiler solution from ANDRITZ has really been designed for the future, and complies perfectly with our own sustainability goals of recyclable, reuseable, and renewable production."

Read the complete story online!

CONTACT
Kari Liukko
kari.liukko@andritz.com