Heat Management

Swedish Pulp Mill

Application: Black Liquor Recovery Boiler
Efficiency solution: HISS®
Cleaning area: Superheater, Boiler Bank, and Economizer

General info

Mill: Pulp and Paper
Boiler: Götaverken (1976)
Fuel: Black liquor
Capacity: 2 600 tDS/day

Installation

Type: HISS® Advanced
Year of installation: 2024
Country: Sweden

Situation description

The Customer's recovery boiler, a Götaverken design commissioned in 1976, has a current firing capacity of 2,600 tDS/day—upgraded from the original 1,900 tDS/day. It operates at a maximum continuous steaming rate of 350 t/h, with sootblowers accounting for approximately 27 t/h, or 7.5% of total steam production.

As part of an initiative to improve energy efficiency, the customer evaluated several optimization strategies for the recovery boiler. HISS® technology was selected to enhance the online cleaning process. The goals were to maintain high availability under continuous load, reduce steam consumption from the sootblowers, and increase the main steam temperature of the recovery boiler.

HISS® was taken into commission in June of 2024.

"We've never pushed the recovery boiler this hard, for this long — still running full throttle on 9 guns."

- Tommy Lindgren, Operations Coordinator. Nov. 2024.

Wave Impact Heat Management AB
E-mail: info@heatmanage.com
Phone: +46 8-661 33 10

Results

In below Figure 2, a **34 % decrease in sootblowing steam flow** can be seen during the period 2023-01 to 2025-06. During the same period, relative boiler load and available steam to turbine saw increases, as seen in Figures 3 and 4. It should be mentioned that the boiler load during the reference period was atypically low, and the start-up period was longer than normal.

HISS® reduces unnecessary sootblowing when the recovery boiler is operating below full capacity. This leads to more efficient steam utilization and delivers meaningful operational improvements.

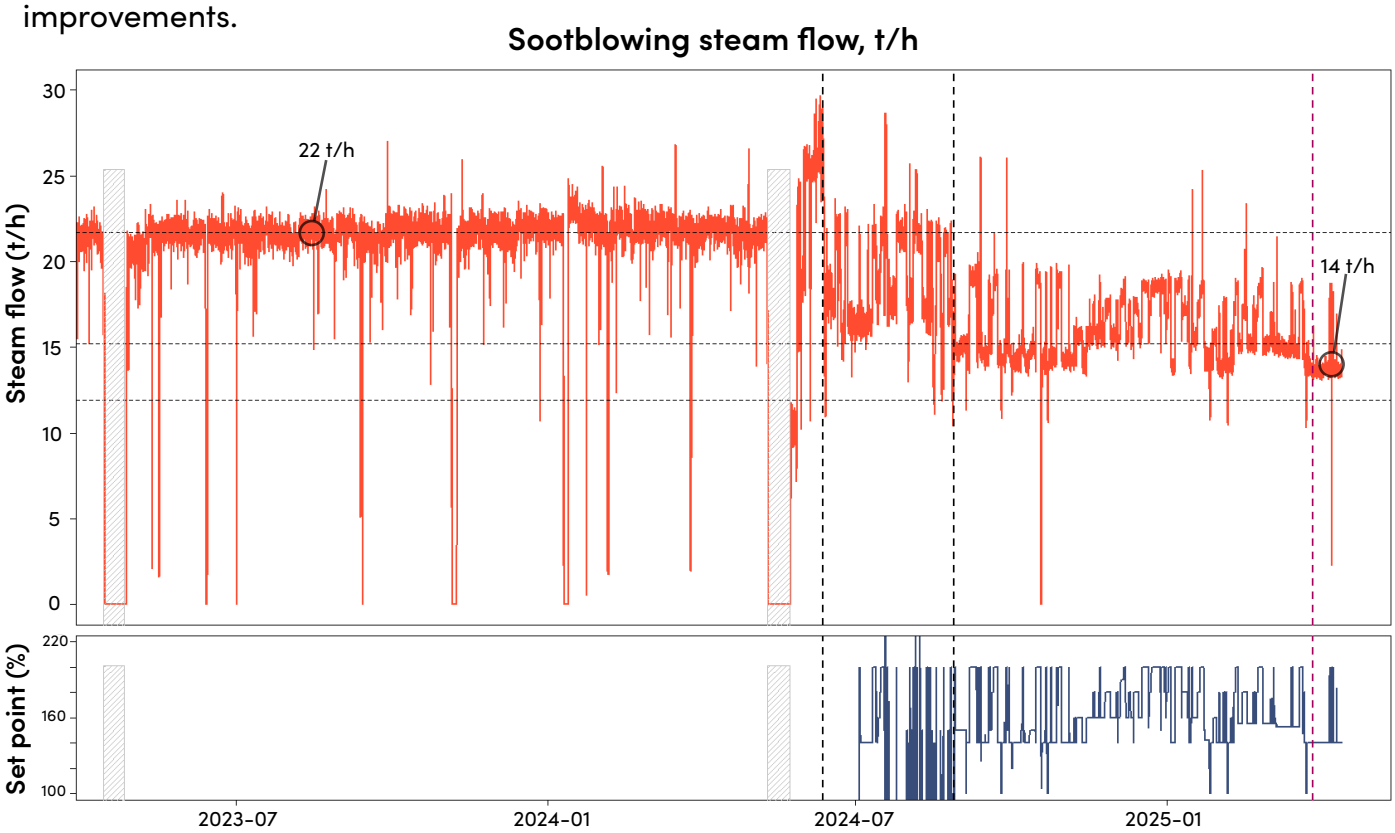


Figure 2. Process data from the recovery boiler, showing sootblowing steam flow rate (t/h) together with sootblowing set point (%). Partial implementation of HISS® occurs at the first vertical dotted line, followed by a tuning period.

"The system has proven especially valuable during low-load operation of the recovery boiler, which often occurs due to disruptions elsewhere in the mill.

In such cases, additional steam demand must be met by starting up the bark boiler. However, the bark boiler has limited flexibility at low loads and cannot be throttled efficiently, frequently resulting in significant steam venting when only a small increase in steam is needed"

- Jonas Heikkinen, Process Engineer. June 2024.

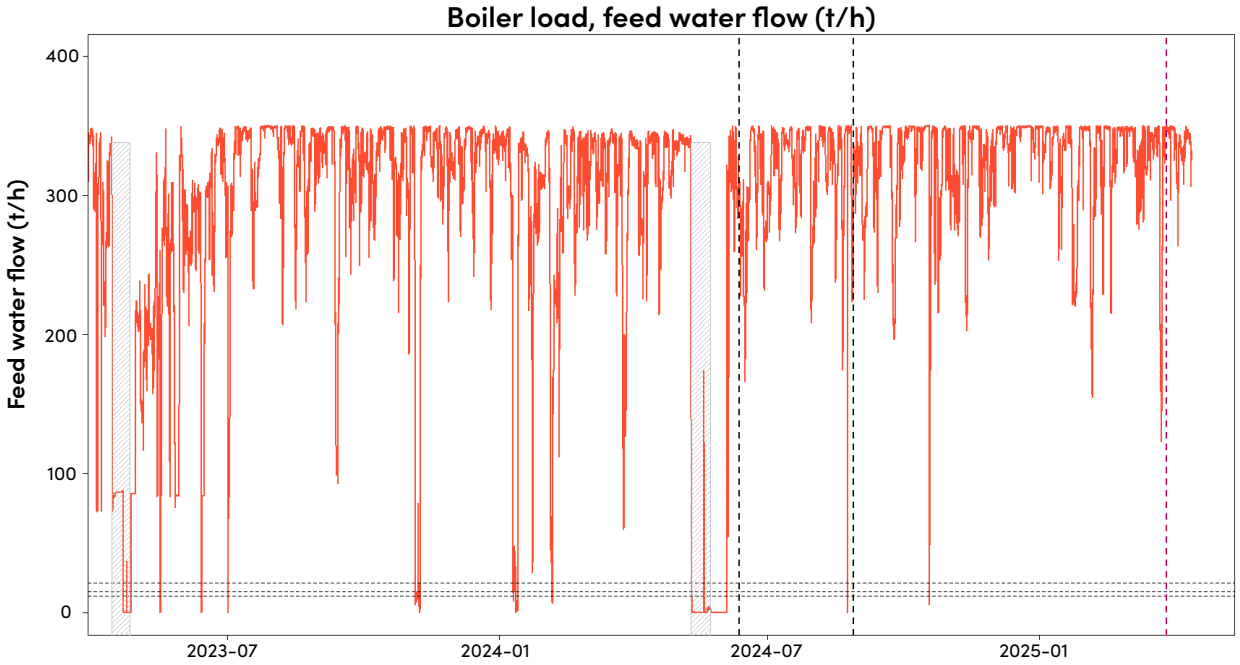


Figure 3.

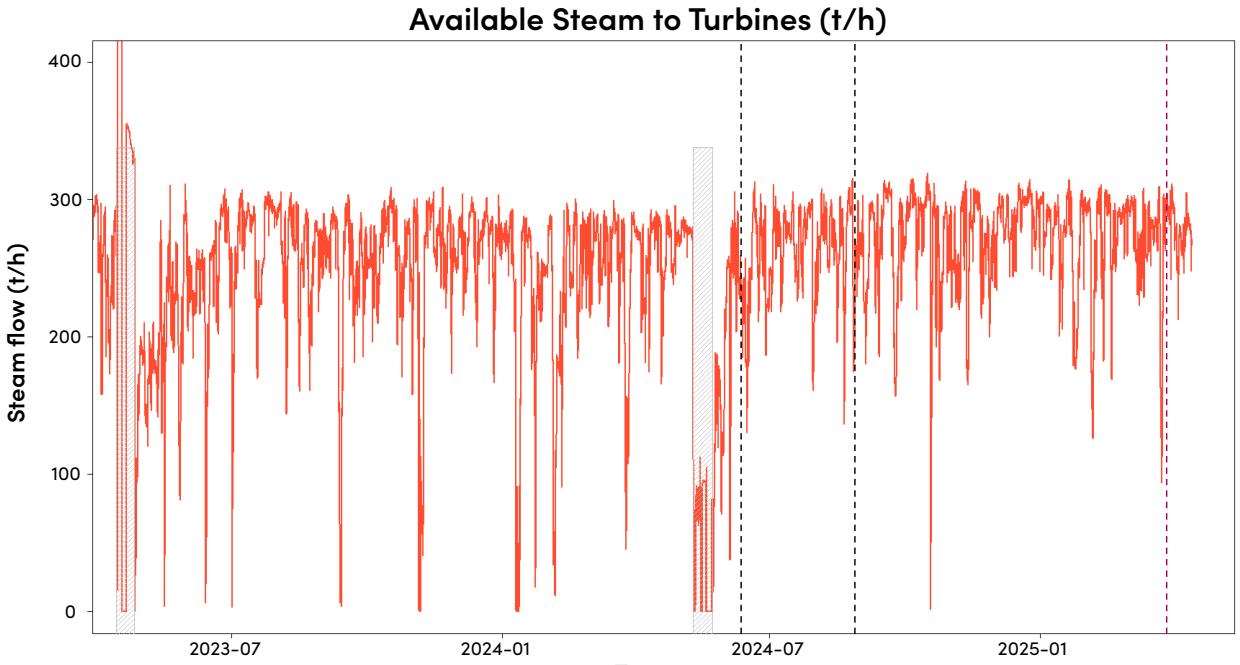


Figure 4.

Boiler feedwater (BFW)	**Season before HISS® (t/h)** 279,3	**After HISS® tuning (t/h)** 322,3	**Change** + 15,4 %
Steam to turbine	**Season before HISS® (t/h)** 237,1	**After HISS® tuning (t/h)** 267,9	**Change** + 13,0 %

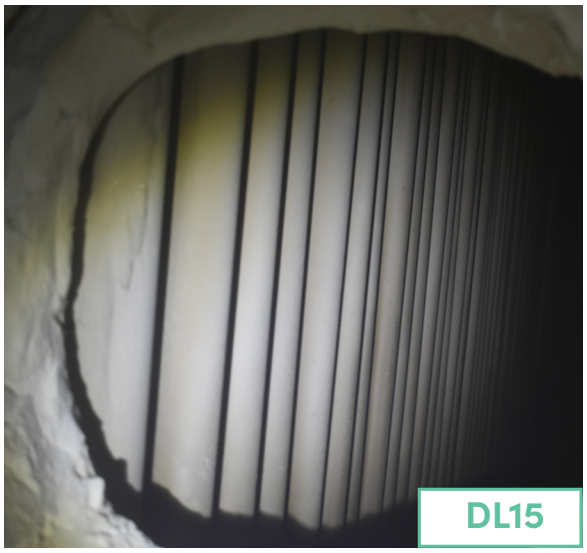
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Inspection photography

In April 2025, Heat Management performed an inspection photography of deposits through manholes during stop and before water wash. The boiler was found to be relatively clean even though the liquor throughput was higher than normal before inspection.









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