Heat Management

Mälarenergi Block 6

Application: CFB Boiler
Efficiency solution: HISS®
Cleaning area: Superheater, Economizer and Boiler Bank

General info

Plant: Mälarenergi
Boiler: CFB Boiler
Fuel: Waste to Energy
Capacity: 160 MWth (50MWel)

Installation

Type: HISS®
Year of installation: 2023

Situation description

Prior to the installation, the customer used full steam flow in both directions when sootblowing, which is the traditional way of sootblowing. Since 90% of the soot cleaning effect happens at the first stroke from the sootblower, most of the steam on the retraction stroke is wasted and consumes expensive steam.

The wasted steam can instead be used to increase electricity production



Figure 1. The facility

The goal of the installation was to:

- Increase the awareness of preventing maintenance
- Improve Boiler Cleanability
- Save 40-45% sootblowing steam
- Increase the electricity generation
- Reduce CO_2 emissions

Boiler steam data:

Steam preassure: 73 bar
Steam temperature: 470 °C

qValify ISO 9001 qValify ISO 14001 qValify ISO 45001

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Results

The results transcended the guarantees from Heat Management and can be summarized:

- Reduced 42.8% sootblowing steam consumption per cycle
- Half the time saved during sootblowing
- 1441 MWh of extra electricity per year
  - *This is equal to the consumption of approximately 72 average-sized Swedish houses,*
  - *Or 213 laps around the Earth with an electric vehicle*
- Reduction of water consumption for sootblowing, approximately 6866 tons per year
  - *This is equivalent to approximately 2.8 Olympic sized swimming pools*
- Reduction of CO_2 emissions

"Thanks to HISS®, we only need to replace 150 tube protections yearly, instead of 470. Nothing is sure for next year, but we've noticed significant less wear and tear"

- Peter Gewert, Production Engineer, Block 6. September 2024.

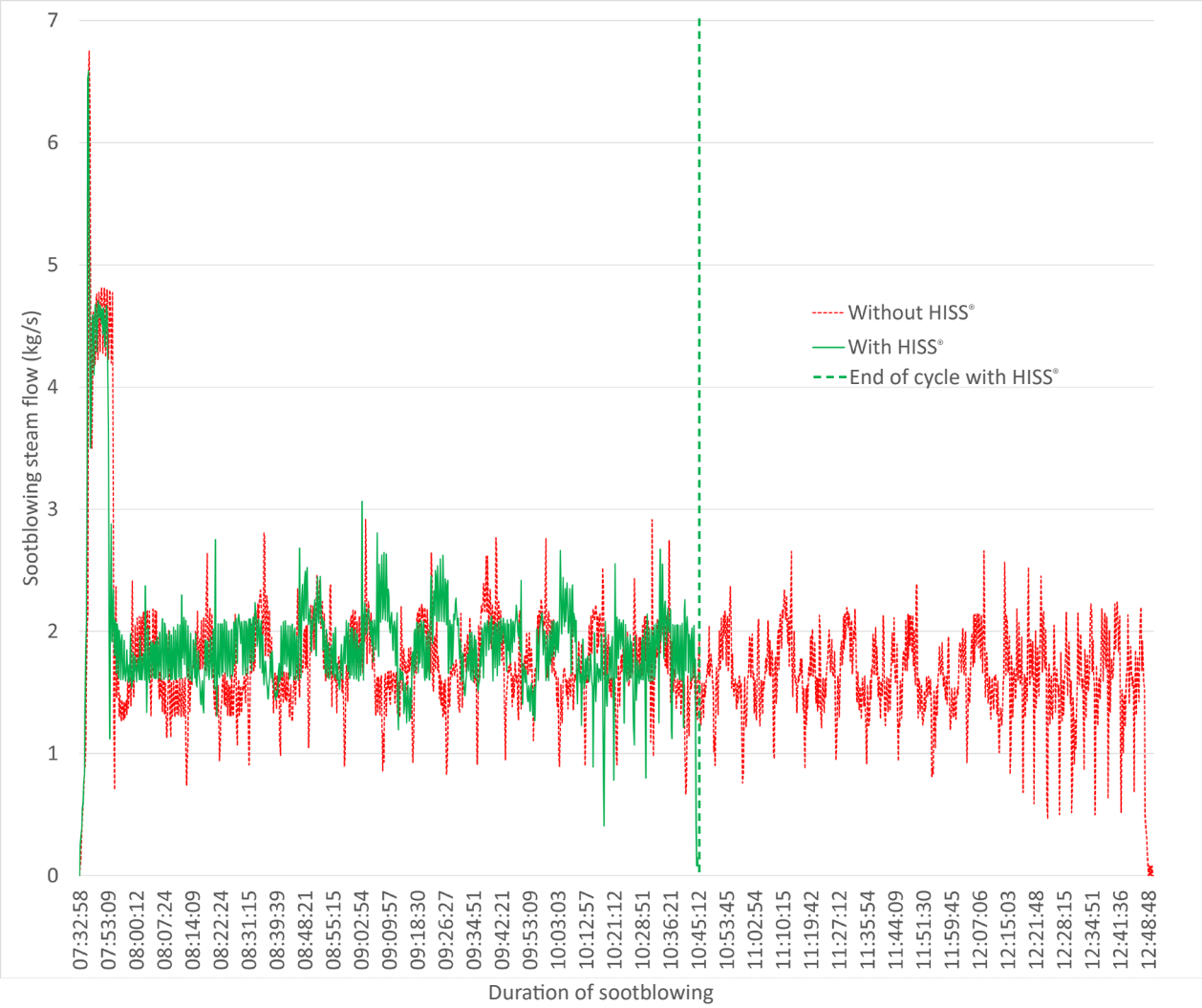


Figure 2. The customers sootblowing data before and after HISS®

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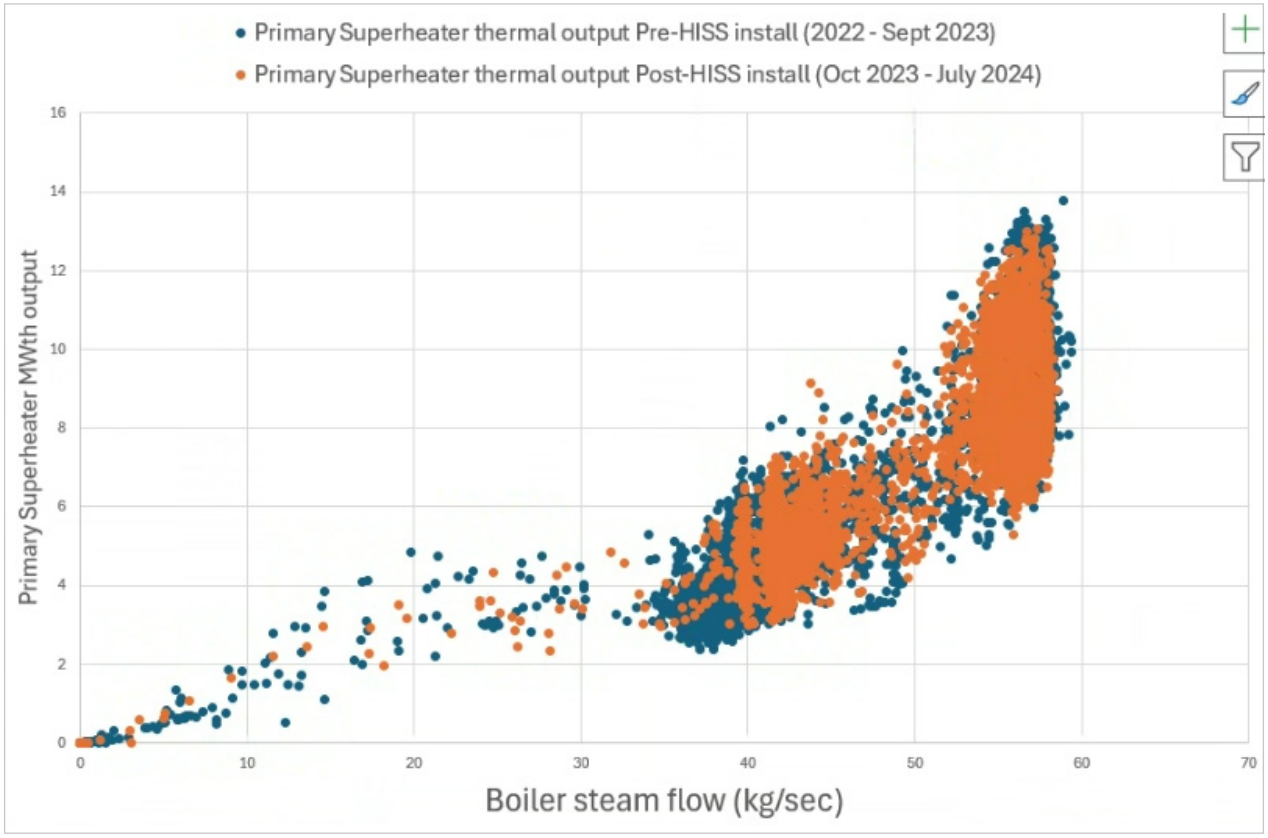


Figure 3. A common question regarding HISS® is if one-way sootblowing will reduce the cleaning efficiency compared to two-way sootblowing. This operational data shows that there is no reduction in heat transfer efficiency with HISS®.

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