



HERKKUMAA

Aina Herkumpaa

The goal of achieving carbon-free steam production at Herkkumaa has been achieved!

With the Elstor equipment, a milestone of 1,000,000 kWh of steam production was reached in four months at Herkkumaa.

The 10 MWh Elstor thermal storage system, which was commissioned in May 2023, has reached the milestone of 1,000 MWh in the amount of steam produced by September 27, 2023. This achieved energy amount is equivalent to the consumption of approximately 160 electrically heated detached houses during the same period*. By replacing fossil fuels with clean electricity, the Elstor device has created around 300 tons of CO₂e emissions reductions during just over four months of operation. Equivalent emissions reductions would occur if over 500 internal combustion engine cars were replaced with electric vehicles**.

The highest daily production rates have exceeded 20 MWh, while the storage capacity is 10 MWh. The independent charging and discharging processes of the Elstor device, as well as its ability to charge and discharge simultaneously, are significant advantages.

The AI-based charging optimization continuously monitors upcoming electricity prices, future consumption, and storage capacity to select the most cost-effective charging hours. The optimization for Herkkumaa's device has performed exceptionally well. In addition to minimizing the customer's costs, the electricity grid benefits from flexible consumption capacity. The device's charging helps balance the electricity grid, and it also participates in reserve markets to balance the grid.

Herkkumaa chose Elstor's solution for steam production to achieve a truly carbon-neutral production process. Compared to other carbon-neutral alternatives, the benefits of the Elstor device stem from the optimization of charging prices and support for the electricity grid rather than putting strain on it.

"We particularly value the carbon neutrality enabled by the Elstor project, but also its ease of use. The end-user quickly gets the necessary steam, and production startups are swift," says Sari Paavola, Factory Manager at Herkkumaa Oy.

Herkkumaa Oy's Technical Manager, Harri Halonen, continues: *"Advanced automation allows real-time monitoring and continuous improvement of our operations. By monitoring data, we gain deeper insights into our processes."*

"We at Elstor Oy are pleased that the Elstor's world first 10 MWh-scale energy storage system has met our customer's expectations for steam production and brought many benefits and advantages compared to combustion-based steam production technology. We have also learned from Herkkumaa's user experiences and have been able to further develop our solution," says Kari Suninen, CEO of Elstor Oy. *"Emission-free and cost-effective steam production is now a reality, not just a dream on the drawing board,"* he concludes.

*Annual consumption of an electrically heated detached house is assumed to be 19,000 kWh. Over a 4-month period, the consumption would be 6,333 kWh. 1,000,000 kWh / 6,333 kWh = 158 times.

** Emissions from an internal combustion engine car are assumed to be 117 g CO₂/km. With an annual mileage of 15,000 km, the mileage for the 4-month period is 5,000 km. With this mileage, emissions are approximately 0.585 tCO₂. 300 tCO₂ / 0.585 tCO₂ = 513 cars.