



AWARD-WINNING DISTRICT HEATING WITH SOLSTICE® TECHNOLOGY

CASE STUDY



Heat pump supplier OCHSNER Energietechnik wins international accolades for its revolutionary heat recovery solution for Austrian district heating using Solstice® ze refrigerant.

BACKGROUND

A heating plant in Hall, in the western Austrian state of Tyrol, generates heat and electricity from biomass, providing thermal energy for the local district heating pipeline system used for hot water and space heating.

The plant's operator, Hall AG, tasked OCHSNER Energietechnik and its partners to redesign the flue gas system to boost energy efficiency and performance.

OCHSNER Energietechnik, a sister company of OCHSNER heat pumps, specializes in heat pump systems that save energy and reduce carbon dioxide (CO₂) emissions.



CHALLENGE

For decades, the heating plant in Hall processed biomass with a heating output of approximately 13 MW. It operated two 8 MW boilers, which was enough to service 1000 district heating customers¹.

Hall AG required a new energy-efficient heat recovery system with low CO₂ emissions that could improve heating output without increasing biomass fuel requirements.

SOLUTION

To meet this challenge Hall AG added a multistage desuperheating and flue gas condensation section to the existing system, as well as four 900KW medium-temperature heat pumps² using Solstice® ze refrigerant.

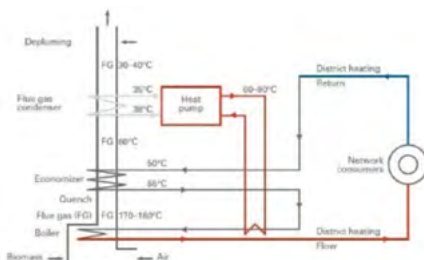
Ultra-low GWP Solstice HFO refrigerants, like Solstice® ze (R-1234ze) and Solstice zd (R-1233zd) drive the efficiency of district heating networks. They are designed for safe application in large-scale heat pumps that power district heating networks.

Households account for 27% of European energy consumption, and 79% of that household energy is consumed for space and water heating³.

European heat pump adoption in heat networks is led by the decarbonization goals of the EU Green Deal 2050, which strives to make Europe the first climate-neutral continent⁴.

Using Solstice heat pump technology for EU district heating networks offers:

- Lower refrigerant pressure and toxicity, which enables a simpler and more cost-effective heat pump system.
- Reduced operational hazards, ensuring better security with less downtime.
- Energy efficiency advantage, which reduces running costs and carbon emissions.



CUSTOMER RESULTS

After installing the new high-capacity heat pumps it was possible to increase heating output at the Hall plant from 13 MW to 18.5 MW, while keeping biomass consumption the same².

The OCHSNER solution is incredibly energy efficient with a high COP value of 5 and it saves around 2,200 tons of CO₂ per year¹. The design is scalable and can be replicated across Austria.

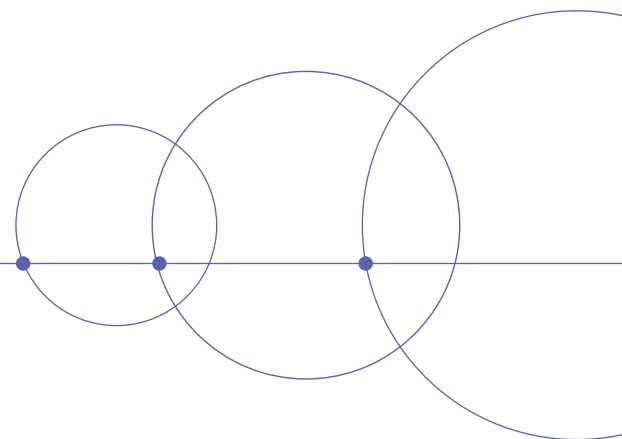
- Project benefits included:
- Increase in renewable energy shares in heat labeling
- Reduction of gas use for heat production

- Minimization of the consumption of CO₂ certificates
- Reduction of marginal costs in the production of heat
- Increased congestion capacity of the biomass cogeneration plant
- Increased profitability of the biomass cogeneration plant

In recognition of this successful project, OCHSNER was awarded the prestigious Hall AG Award Austria and the Energy Globe Award Tirol in 2021².

REFERENCE NOTES

1. OCHSNER Energietechnik. 2025. <https://ochsner-energietechnik.com/>
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3. "Energy use in households up 6% in 2021". 2023. Eurostat, European Commission. <https://ec.europa.eu/eurostat/en/web/products-eurostat-news/w/ddn-20230613-1>
4. "The European Green Deal". 2025. https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en



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