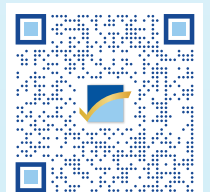
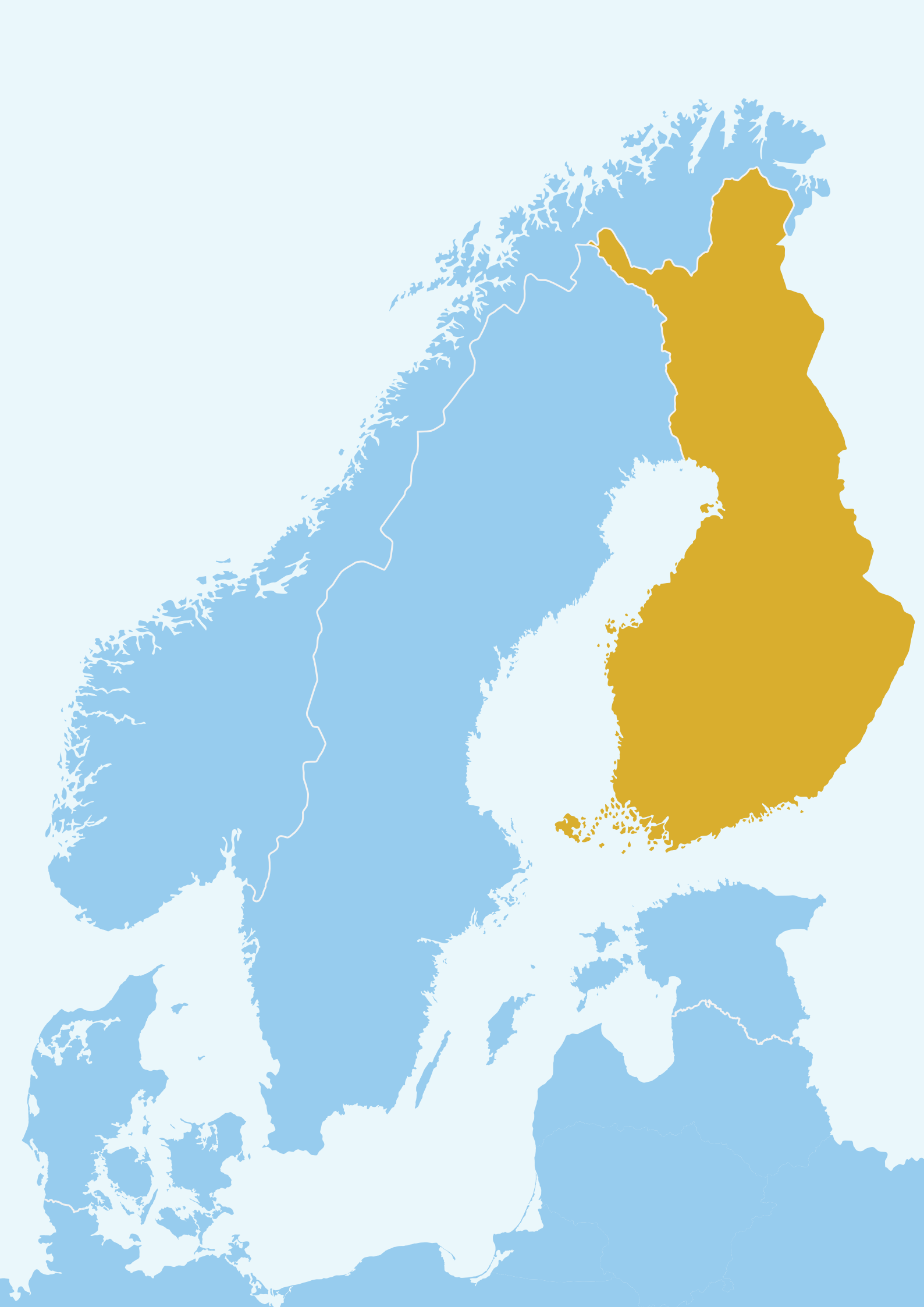




■ Ozone Friendly ■ Climate Friendly ■ PFAS free

Case Study: Data-Driven Heat Recovery





Turning data center waste heat into district heating



Image for illustration purposes only - site under construction

FINLAND

Year: 2025

Heat pumps: 6 x HCI-3000 (1st phase)

Application: Combined heating and cooling

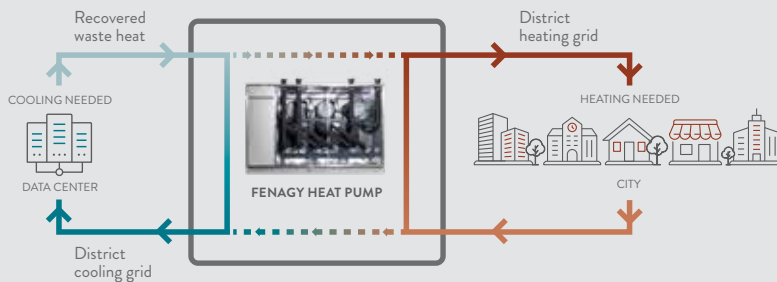
Refrigerants: Isobutane and propane

Capacity: 18 MW -> 30 MW

Heat source: Excess heat from data center

30 MW
HEAT

Sector integration · No heat wasted · Optimal energy efficiency



THE CASE

Fenagy has partnered with Finnish contractor Caverion to supply six isobutane/propane heat pumps to a utility company providing district heating to a city in the north-east of Finland. These heat pumps will enable the recovery of excess heat from a nearby data center and supply it into the district heating network.

The district heating plant is located near a large data center, which operates year-round and continuously generates excess heat from server room cooling. Traditionally, this heat was removed using dry coolers and thus became waste heat. By connecting heat pumps to the existing cooling water circuit, the system can now both provide cooling and recover the excess heat for district heating. The old chillers will remain in place but will only be used as a backup when needed.

Data centers require cooling throughout the year, which makes them a stable and reliable heat source - an ideal match for heat pumps. In winter, the heat pumps recover waste heat for the city's residents; in summer, excess heat is released via the existing dry coolers.

THE HEAT PUMPS

The heat pumps are customised HCI-3000 units designed to provide both heating and cooling. Each heat pump has three compressors, two using isobutane as a refrigerant and one using propane.

The excess heat from the data center is around 30°C. The heat pumps raise this to approximately 85°C to meet district heating requirements. On the cold side, they provide 20°C water for server room cooling, independent of the return temperature from the district heating network, which in this case is about 50°C.

Both isobutane and propane are highly efficient refrigerants. They are natural, PFAS-free and have an extremely low global warming potential.

When the system is fully implemented, it can deliver more than 30 MW of heat.

WATCH VIDEO about recovering waste heat.

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