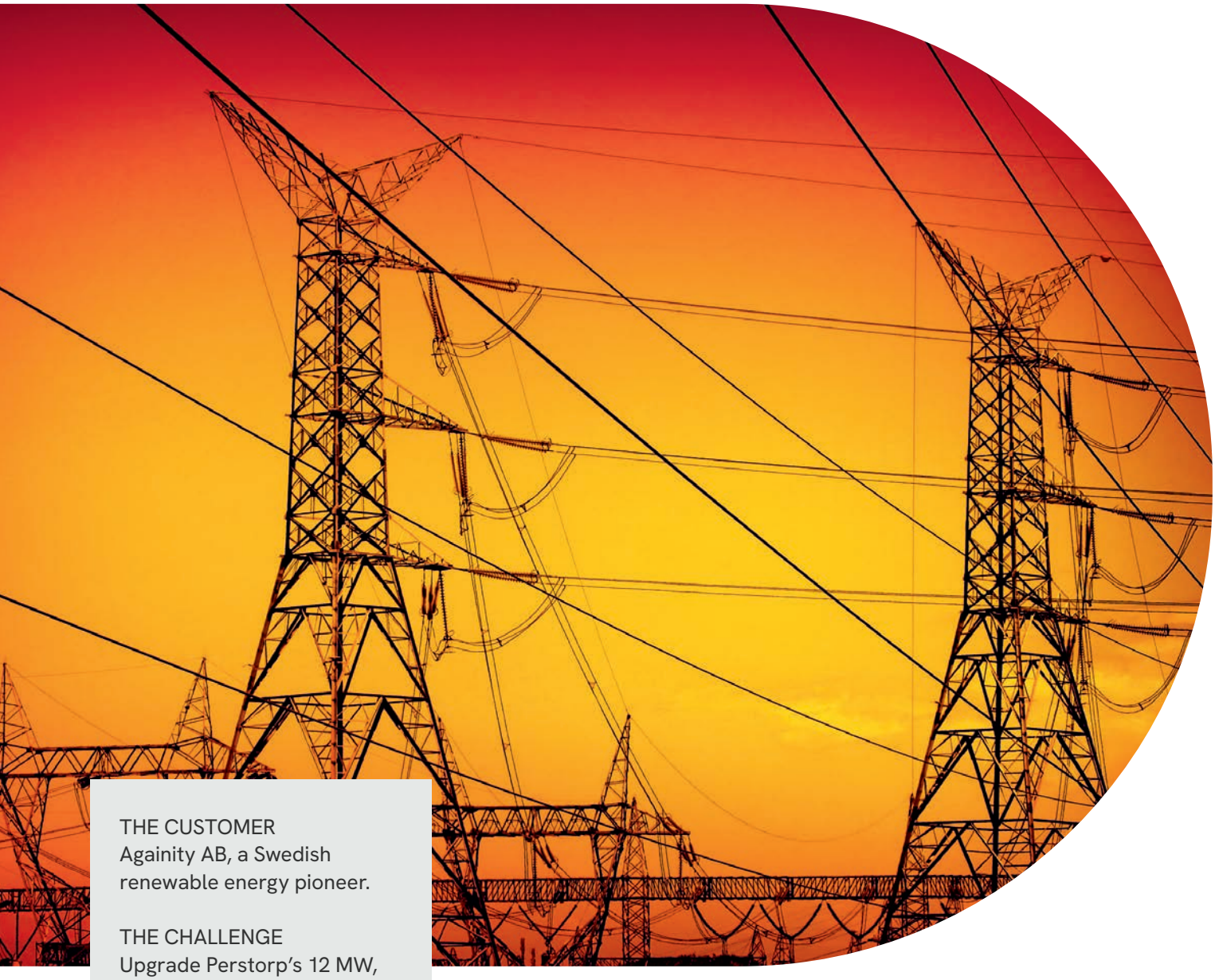
CASE STORY



THE CUSTOMER
Againity AB, a Swedish renewable energy pioneer.

THE CHALLENGE
Upgrade Perstorp's 12 MW, biomass-fired district heating plant into a combined heat and power (CHP) plant.

THE SOLUTION
Install an Againity organic Rankine cycle (ORC) unit at the Perstorp energy center.

THE HEAT EXCHANGERS
SWEP brazed plate heat exchangers are installed both as evaporators and condensers in the ORC system.

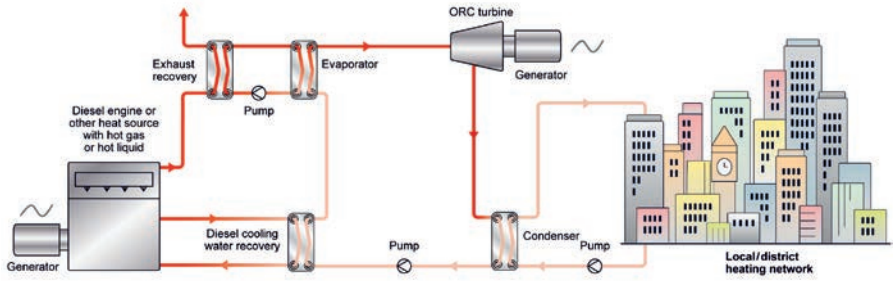
THE RESULTS
The system is capable of generating electricity from waste heat, using any heat source with a temperature of 90°C or above.

ORC technology delivers sustainable power at Perstorp CHP plant

SWEP
A DOVER COMPANY

Againity AB, a Swedish renewable energy pioneer, in collaboration with SWEP, successfully upgraded Perstorp's 12 MW biomass-fired district heating system into a combined heat and power (CHP) plant. The district heating system in Perstorp was originally constructed as a joint venture between the E.ON group and Perstorp municipality. To upgrade the plant, Againity installed a custom organic Rankine cycle (ORC) unit at the Perstorp energy center. Any heat source with a temperature of 90°C or above can be utilized in the system, including a woodchip-burning boiler, gas from a landfill or household waste, waste heat from a gas-burning engine, hot water from solar panels, or waste heat from an industrial process.

The new system is highly efficient. In optimal conditions, electrical efficiency up to 20% can be achieved in a large CHP plant that utilizes waste heat from large gas turbines. If there is a demand for heat locally, any excess energy can be delivered as heat to the local heat network, boosting the total efficiency of an available heat source to close to 99,5%.



The efficiency of an ORC system depends on the temperature difference between the system's hot and cold sides. ORC technology includes a turbine, set in motion by the pressure of a vaporized internal working medium, which drives an electricity generator. Againity provides a wide range of ORC turbines; many are currently in use across Scandinavia.

The role of SWEP BPHEs

With the help of SWEP BPHEs, ORC systems are able to recover heat from low-temperature sources, including industrial waste heat, geothermal heat, and biomass combustion. Compact SWEP BPHEs can be utilized in all positions within the ORC system, where they boost efficiency and improve cost-effectiveness. Stand-alone SWEP BPHEs can be installed as preheaters or included in the design of the evaporator.

Why choose SWEP?

ORCs are often manufactured as modules. SWEP brazed plate heat exchangers have successfully been used for all heat exchanger elements in all types of ORC systems. Our B-type brazed plate heat exchangers, which feature large ports and L-plates that reduce pressure drop, are ideal for many ORC applications.

SWEP's extensive experience with large refrigeration systems and passion for energy-efficient technology makes us an ideal partner to assist in the development of ORC systems for recovering waste heat to generate electricity. We offer a flexible, modular portfolio of BPHEs that are optimized for ORC systems.

More about Againity

Againity, based in Norrköping, Sweden creates sustainable, smart energy solutions that enable customers to generate their own electricity, contributing to a greener, weather-independent energy system. Againity's patented, proprietary turbine makes it possible to convert low-grade heat into electricity using an ORC system. Againity systems are pre-fabricated and can be installed using a simple pipe connection to the heat source and a cable to the power grid. The systems are fully automated, and a TCP/IP connection allows convenient monitoring and remote control. The turbine system consists of high-quality components, designed for a lengthy, maintenance-free life.

SWEP BPHEs