

# Cogeneration plant: Gas turbine enables continuous power and steam for beverage manufacturer

Natural gas is converted to useful energy at a fraction compared to grid power

## CHALLENGE

Provide a reliable and cost effective power and steam solution for beverage processing facility, 24 hour, 7 day per week of 3.2 MW of power

## SOLUTION

Install a Vericor ASE50 Gas Turbine in cogeneration with a fired heat recovery steam generator

## RESULTS

Cogen plant with Vericor gas turbine has logged about 77,000 hours with an equivalent energy cost that is a fraction compared to grid power and conventional boilers.

## OVERVIEW

One of Japan's major beverage manufacturers has successfully employed gas turbine cogeneration to provide plant electrical power and baseload steam production for various heating applications throughout the process. Installed on the exterior of the main processing facility is a state-of-the-art cogeneration system that supplies reliable and high quality electrical power 3.2 MW and 20,000 kg/hr of 13.7 bar(g) saturated steam.

Vericor's packager in Japan installed one of their own natural gas fired ASE50 Gas Turbine Generator Sets to offset grid power and to produce steam in lieu of conventional boilers. The exhaust heat is captured and combined with a supplemental duct burner to satisfy the high steam demand of the beverage manufacturing process.

The ASE50 engine is capable of starting from stop to full load in less than a few minutes, giving remarkable flexibility to the operators to mitigate unknown power and fuel outages in this critical application.



Fukuoka, Japan



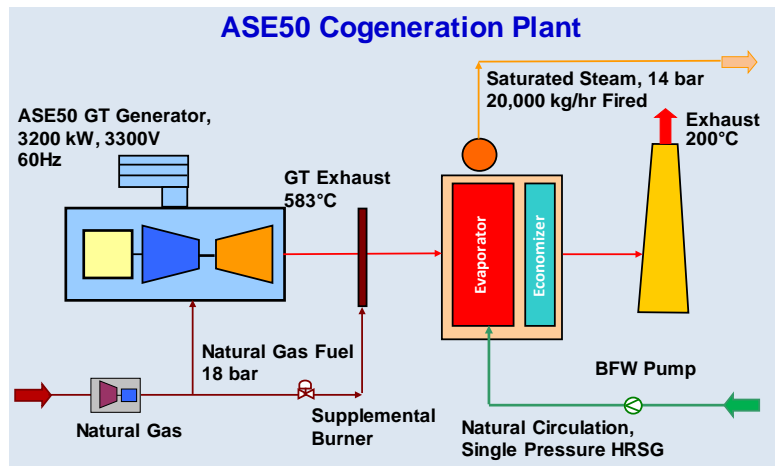
The ASE50 gas turbine is used to offset expensive grid power and to convert wasteful heat to useful steam for beverage processing

### Case Study details and the benefit of an aero-derivative gas turbine

In 2005, Vericor's packager in Japan installed a cogeneration plant in an existing facility to provide power and steam to a beverage manufacturing facility.

The cogeneration plant operates 24 hours a day, 7 days a week, with minimal downtime for maintenance, resulting in a reliable system with high availability.

A natural gas compressor boosts the fuel to approximately 18 bar and water injection is used to control NOx levels of the emitted exhaust.



The ASE50 gas turbine was selected as the best-fit to satisfy a heat and power requirement of this remarkable facility.

The ASE gas turbines are adapted from Honeywell's proven aero-engine designs and specifically configured for power generation use.

Advantages of using these gas turbine systems for cogeneration and power generation applications are great:

- Compact size allows for easy on site installation and change out
- High operational readiness
- Fast cold start characteristics
- Low emissions and vibration
- Flexibility to efficiently burn a variety of fuels
- High reliability and low maintenance requirements

The modular nature of these engines allows for easy inspections on site. This ease of care approach simplifies stocking of spares and lowers downtime and maintenance periods. Recommended maintenance cycles for each ASE gas turbine are 30,000 hours for a hot section overhaul and 60,000 hours for a major overhaul.

