

COMBINED HEAT AND POWER SYSTEM FULLY POWERS GREENHOUSE OPERATIONS

Efficient, cost-effective CHP plant supports energy- and heat-intensive hydroponic production while delivering a reduced carbon footprint

Background

AMCO Produce is a 100-acre (40.5 ha) greenhouse, growing tomatoes, cucumbers, and peppers in southwestern Ontario, Canada. To support its energy- and heat-intensive hydroponic production, the company was in search of an efficient, rapidly deployable and cost-effective power solution that also reduced its carbon footprint and met local emissions regulations.

An efficient, cost-effective solution

A single Jenbacher J316 engine running on pipeline gas is at the heart of the greenhouse's new cogeneration plant. Equipped with double-stage exhaust gas heat exchangers, the combined heat and power (CHP) package delivers 850 kW of power and 1.2 MW of heat to fully satisfy the greenhouse's significant electricity and heat requirements.

The CHP system is equipped with heat recovery on both the engine's loop and the exhaust gases. It is designed to allow for the use of the fuel's latent heat.

The project was developed, including the engineering and design, installed, and commissioned by Enerflex, INNIO Group's authorized Jenbacher distributor and service provider in Canada.



Result

The CHP plant supplies electricity to meet the AMCO Produce facility’s baseload demand and complements its thermal demand. Achieving overall efficiency of approximately 90%, the plant directs heat toward the greenhouse’s operations or to a 2.64 m. gal. (10,000 cubic-meter) hot water storage tank during summer months.

Because AMCO Produce does not yet have a connection agreement with the local utility, the cogeneration unit is operating completely in island mode. In the future, the plant can be connected to the grid for parallel operation.



Key technical data for AMCO Produce CHP plant

Installed engines	1 x J316
Electrical output	850 kW
Thermal output	1.2 MW
Total efficiency	90%
Energy source	Pipeline gas
Year of commissioning	2021



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Customer benefits

- AMCO Produce was able to launch its energy-demanding operations using on-site power generation
- The plant uses waste heat created during the engine’s operation to generate overall CHP plant efficiencies of approximately 90%, which increases the project’s return on investment (ROI) and allowed AMCO Produce to qualify for Governmental Grants.
- AMCO Produce has lower energy costs with the CHP making the Greenhouse more competitive against its peers.
- The plant’s new CHP system operates with low emissions level, in compliance with local regulations.

INNIO is a leading energy solution and service provider that empowers industries and communities to make sustainable energy work today. With our product brands Jenbacher and Waukesha and our digital platform myPlant, we offer innovative solutions for the power generation and compression segments that help industries and communities generate and manage energy sustainably while navigating the fast-changing landscape of traditional and green energy sources. INNIO is individual in scope, but global in scale. With our flexible, scalable, and resilient energy solutions and services, we enable our customers to manage the energy transition along the energy value chain wherever they are in their transition journey.


INNIO is headquartered in Jenbach (Austria), with other primary operations in Waukesha (Wisconsin, U.S.) and Welland (Ontario, Canada). A team of more than 4,000 experts provides life-cycle support to the more than 55,000 delivered engines globally through a service network in more than 100 countries.

INNIO’s improved ESG Risk Rating again secures the number one position across more than 500 companies globally in the machinery industry assessed by Sustainalytics.

For more information, visit INNIO’s website at www.innio.com

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