

SUPPORTING THE CONVERSION OF WASTE

to power and heat from RNG/biomethane

Background

BioTown Biogas, a renewable energy business with a long track record of success in the sector, has expanded its already impressive portfolio, turning agricultural waste into renewable natural gas (RNG) that is fed into the U.S. natural gas pipeline network.

The process starts with five farming groups located near the site of the new BioTown Biogas plant in Indiana, U.S. The local farms supply up to 400,000 gallons per day of agricultural waste slurry from the equivalent of about 22,000 milking cows. The waste slurry is used to feed the plant's digestors, which turn the waste into biogas that then is cleaned to gas grid injection standards as biomethane, an RNG.

To make all this magic happen, BioTown Biogas relies on highly efficient Jenbacher engine technology. The project was facilitated by INNIO Group's distributor Clarke Energy, a global business specializing in the engineering, installation, procurement, and supply of distributed power plant solutions, including maintenance and local service support.

A sustainable energy solution

The Jenbacher technology for power generation and heat recovery comprises a fully containerized Jenbacher J420 engine running on RNG, in addition to another six Jenbacher J320 engines operated with biogas. The Jenbacher J420 engine generates 1.4 MW of renewable power in either a prime or resilient isolated operation mode, providing 5,388 MBTU per hour of renewable heat to support operations and run the digestors at the BioTown Biogas plant. A three-stage membrane system is used to inject clean RNG, or biomethane, into the pipeline network.

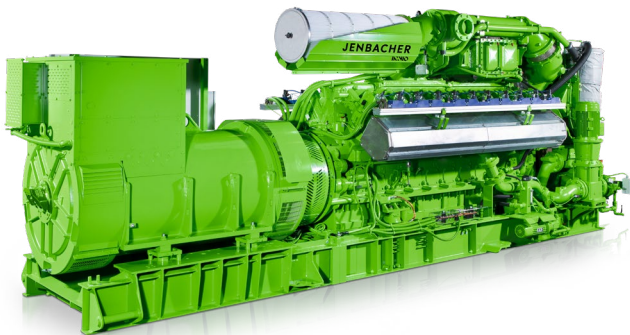


» For our first-ever project that incorporates technology to upgrade raw biogas into RNG, BioTown Biogas turned to Clarke Energy to deliver a full turnkey solution centered around the Jenbacher containerized J420 engine technology that delivers the renewable power and heat to drive the process.«

Chad Hoerr, General Manager, BioTown Biogas, Inc.

Results

The biogas from the plant's digesters is used for two functions. About 460 standard cubic feet per minute (scfm) of treated biogas fuels the Jenbacher J420 engine to generate renewable electricity and heat for the plant. Also, more than 1,500 scfm of raw biogas is cleaned and injected into the gas pipeline network, where it is marketed under the California Low Carbon Fuel Standard (LCFS) Program and tracked using D3 Renewable Identification Numbers (RINs).



Key technical data

Installed engines	1 x J420, 6 x J320
Electrical output	1,429 kW; 6,357 kW
Thermal output (hot water)	5,388 MBTU/hr; 12,751 MBTU/hr
Total efficiency	85.2%
Energy source	Biogas
Year of commissioning	2011, 2014, 2020, 2023

Customer benefits

- The cogeneration systems allows BioTown Biogas to operate its RNG production facility on 100% carbon-neutral fuel (biogas).
- With this highly efficient cogeneration system, BioTown Biogas can feed more than 1,500 scfm of RNG into the gas pipeline network, adding even more value by helping to decarbonize California's gas grid.
- The biogas plant uses the heat created during the Jenbacher engine's operation for the RNG production process, which can add up to an overall efficiency of more than 85%, depending on the plant's cyclical heat demand.
- Jenbacher technology delivers proven performance and high availability for stable operation over many years.
- Fast response for spare parts and repairs is delivered as needed.

About INNIO Group

INNIO Group is a leading energy solution and service provider that empowers industries and communities to make sustainable energy work today. With its product brands Jenbacher and Waukesha and its digital platform myPlant, INNIO offers 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 its flexible, scalable, and resilient energy solutions and services, INNIO enables its 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 INNIO's more than 55,000 delivered engines globally through a service network in more than 100 countries.

In March 2023, INNIO's ESG rating ranked first out of more than 500 companies worldwide in the machinery industry assessed by Sustainalytics.

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

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