

LANDFILL GAS-TO-ENERGY

Biomont Énergie plant converts landfill gas into energy, significantly reducing emissions in Montréal

Background

Two renewable energy pioneers—Eolectric from Canada and Valeco from France—teamed up on a challenging project aimed at turning recovered methane and other pollutant gases from a landfill into useful renewable energy. The collaboration, supported by third-party minority partner Fondation, resulted in the Biomont Énergie SEC plant at the Saint-Michel Environmental Complex on the island of Montréal.

Given its unique proximity to a residential area, this 40-meter-deep urban landfill posed some serious challenges to the success of the project. To prevent the migration of landfill gas into neighboring homes, the gas extraction and collection system managed by the City of Montréal needed to be carefully integrated with the landfill gas-to-energy plant. Since its inauguration in September 2017, the Biomont plant has been converting the biogas generated from the anaerobic decomposition of organic matter into valuable renewable electricity and thermal energy.

Solution

Constructed within a 12-month period, the Biomont biogas cogeneration plant is centered on three advanced technology Jenbacher J612 engines from INNIO, each with a capacity of 1.6 MW of electrical output. Enerflex—INNIO's authorized Jenbacher distributor in Canada—delivered the complete facility, including all engineering, procurement, and construction under a complete turnkey contract.



Results

As part of its clean energy strategy, one of the major Canadian utility companies buys the green electricity produced by the 4.8 MW Biomont plant under a 25-year power purchase agreement, providing enough electricity to power the equivalent of about 2,000 homes¹. At the same time, thermal energy recovered from exhaust gases and the engines' cooling circuits is used to provide 5.2 MW of heat to surrounding buildings including the TOHU circus stadium and the headquarters of Cirque du Soleil.

By turning biogas into electricity and heat, this project converted what used to be a source of pollution that needed to be destroyed into a valuable renewable source of electricity and heat keeping the lights on in the St-Michel neighborhood of Montréal and allowing the creative minds of Cirque du soleil to develop new shows in a warm and comfortable environment.



Key technical data

Installed engines	3 x J612
Electrical output	4.8 MW
Thermal output	5.2 MW
Total efficiency	85%
Energy source	Landfill gas
Year of commissioning	2017



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¹ The Daily – Households and the Environment Survey: Energy use, 2019 (statcan.gc.ca)

Customer benefits

- With more than 25 years of experience in the combustion of landfill gas, Jenbacher engines provide stable power output with waste gas as an energy source.
- INNIO's Jenbacher J612 engines operating on captured landfill gas yield up to 43% electrical efficiency and 85% total cogeneration efficiency.
- The complete gas-to-wire solution from our official distributor Enerflex significantly decreases project risk, accelerates project schedule, and facilitates project financing.
- Converting landfill biogas to energy and heat significantly cuts greenhouse gas emissions.

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, 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. We are individual in scope, but global in scale. With our flexible, scalable, and resilient energy solutions and services, we are enabling 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 3,500 experts provides life-cycle support to the more than 54,000 delivered engines globally through a service network in more than 80 countries.

INNIO's ESG Risk Rating places it number one of more than 500 worldwide companies in the machinery industry assessed by Sustainalytics.

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

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