

# TURNING LANDFILL GAS INTO CLEAN ELECTRICITY

## Innovative biogas power plant is reducing methane gas pollution in Ecuador

### Background

Gasgreen Energía<sup>1</sup>, headquartered in Málaga, Spain, operates in the environmental and non-conventional renewable energy sector with a focus on developing new technologies that mitigate environmental liabilities associated with urban waste and converting those liabilities into usable resources.

At Gasgreen's landfill sites in Quito, Ecuador, a plan was under way to develop an effective solid waste management policy to help fulfill the company's zero-waste vision. According to Santiago Andrade, manager of the Empresa Pública Metropolitana de Gestión Integral de Residuos Sólidos (EMGIRS-EP), the capital city of Quito was producing about 2,000 tons of garbage per day, including 1,000 tons of organic matter that produced biogas during decomposition. And, because the landfill gas is about 50% methane, it is more polluting than CO<sub>2</sub>. These factors pointed Gasgreen to a power plant solution running on landfill gas that could deliver high electrical efficiency at high altitude—2,850 meters above sea level—while also reducing pollution associated with escaping methane gas at the landfill sites.

### A first-of-its-kind solution in the country

This first landfill gas power plant project in Ecuador sits high in the country's Andean region and delivers clean renewable power across the country. In 2016, the El Inga I phase of the project put two of INNIO's Jenbacher J320 gensets to use to deliver 2 MW of power running on renewable landfill gas. Based on the success of El Inga I, three Jenbacher J420 units producing 3 MW were added in 2017 in the El Inga II phase.

»We are very proud of our El Inga landfill project, which is delivering renewable power while significantly reducing environmental pollution in Ecuador. This achievement is largely based on the advanced, high efficiency Jenbacher technology, along with the exceptional turnkey project provided by AB Energy. With the success of this installation, we are now considering installing additional Jenbacher gensets to efficiently turn landfill gas into power at other landfill sites.«

Juan Diego Rivera, operations manager, Gasgreen Energía



Designed, engineered and packaged by AB Energy, the project's Jenbacher gensets were selected based on their proven output and electrical efficiency at high altitude as well as competitive pricing and an extensive installed base in landfills around the globe by AB Energy. The project was completed on time based on the schedule established by Gasgreen.

## Results

Today, the power plant is delivering a combined 5 MW of electricity to power more than 25,000 homes in Ecuador and saving 26 million cubic meters of landfill gas from being released into the environment. By turning renewable landfill gas into power, the plant prevents 250,000 tons of CO<sub>2</sub> from entering the atmosphere each year—the equivalent of removing the CO<sub>2</sub>-pollution generated by 250,000 cars each year<sup>2</sup>.

<sup>1</sup> www.gasgreen.com

<sup>2</sup> Source: <https://www.emgirs.gob.ec/index.php/noticiasep/398-quito-se-destaca-en-el-ecuador-al-producir-energia-electrica-de-la-basura>



## Key technical data

Installed engines	2 x J320, 3 x J420
Electrical output	up to 5 MW
Total efficiency	39.6%
Energy source	Landfill gas
Year of commissioning	2016, 2017



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## Customer benefits

Gasgreen is greatly benefiting from its Jenbacher-driven landfill power plant:

- Proven performance operating on a renewable energy source—landfill gas
- High availability compared to other solutions
- Excellent efficiency of nearly 40% operating on landfill gas, even at high altitude
- A greener solution that avoids as much as 250,000 tons of CO<sub>2</sub> emissions annually\*

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 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 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](http://www.innio.com)

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