

# RENEWABLY POWERING EUROPE'S LARGEST CITY

## Biomass plant in Turkey advances environmental objectives while providing 37 MW of electricity to Istanbul

### Background

As a subsidiary of Istanbul Metropolitan Municipality, Istanbul Enerji offers innovative and environmentally conscious fuel, lighting, recycling, and energy solutions in Istanbul, Turkey. One example of the company's innovations is its new Seymen Biomass Power Generation Plant, located in Silivri County, which is part of the Istanbul province. The multi-engine landfill gas plant turns vast quantities of waste generated from Europe's most populated city—home to more than 15 million residents—into usable energy for the region.

Located on the grounds of the Seymen Solid Waste Storage and Disposal Plant, where the household wastes of Istanbul's European Side region are stored, the new plant produces energy by burning the landfill gas formed from stored waste. Because this type of renewable solution helps reduce the release of greenhouse gases—specifically methane gas, which is even more potent than carbon dioxide (CO<sub>2</sub>)—from the landfill, the Turkish government offers support to companies joining the growing trend to convert waste into energy.

### A sustainable energy solution

Based on INNIO's previous successes with landfill gas applications in Turkey, Istanbul Enerji chose the proven performance, reliability, and availability of the Jenbacher J420 engine for this large-scale project. The construction of the biomass plant began in mid-2018, with the first 12 Jenbacher engines commissioned in September 2020. Multiple expansions brought the plant to a capacity of 37 MW at the end of 2021 and the beginning of 2022 with a total of 26 J420 engines running on landfill gas.

The engines are installed in an approximately 60,000 square meter area. The massive plant's total indoor area is about 13,000 square meters, comprising administrative, control, production, workshop, command, and security buildings as well as 154 kV



switchgear and a 1,200 cubic meter buffer storage system. Designed for capacity increases to accommodate the region's growing population, the plant is future ready, too.

As the authorized distributor of INNIO for Jenbacher engines in Turkey, Topkapı Endüstri provided project support and supervision during the sales process and continues to supply after-sales service and spare parts for the plant.

To help improve the operational performance of the facility's Jenbacher engines, INNIO's myPlant Performance solution provides live remote monitoring and predictive analytics to detect and correct even the smallest deviations at an early stage.

## Results

By combining its renewable energy source with sustainable technology, the Seymen Biomass Power Generation Plant is delivering energy to meet the needs of about 190,000 households, or 760,000 individuals, in the region annually. Not only is the new plant already supplying 37 MW of power to the people of Istanbul, but it also is providing substantial environmental benefits as well.

By burning landfill gas, the plant eliminates methane emissions that are equivalent to the greenhouse effect of 1.45 million tons of CO<sub>2</sub> annually. According to the customer, these impressive environmental impacts will be backed up upon evaluation by the Gold Standard organization. The emission reductions are comparable to removing 940,000 vehicles from local roads, or supplying the greenhouse gas protections afforded by an additional 37,000 trees.\*

\* <https://enerji.istanbul/en/renewable-energy/biomass-power-plants/>



## Key technical data for Seymen Biomass Power Generation Plant

Installed engines	26 x J420
Electrical output	26 x 1.4 MW
Buffer storage system	1,200 m <sup>3</sup>
Electrical efficiency	41.3%
Energy source	Landfill gas
Year of commissioning	2021, 2022



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»By increasing the use of renewable energy sources, Istanbul Enerji's new biomass plant is helping to make Istanbul a cleaner, greener, and healthier city. We are proud of our role in creating more awareness about green industry and green cities while we promote our goal of being a more sustainable, effective, efficient, and environmentally responsible scientific and technologically based energy company. INNIO's technology is helping us achieve our goals in this respect while also helping to ensure the reliable and efficient operation of our power plant.«

Yüksel Yalçın, general manager, Istanbul Enerji

## Customer benefits

Jenbacher engines offer numerous advantages:

- Sustainable, proven technology operating on a renewable energy source—landfill gas
- Enhanced reliability with myPlant Performance live remote monitoring
- Exceptional service from the authorized distributor of INNIO for Jenbacher engines in Turkey, Topkapı Endüstri, with fast response for spare parts and repairs as needed

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 the INNIO website at [www.innio.com](http://www.innio.com)  
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