

CONVERTING WASTE TO RENEWABLE ENERGY IN CHINA

The new organic waste treatment center in Hefei City relies on two Jenbacher J420 gensets to turn kitchen waste into green power

» This has been an ambitious renewable energy project, and we are very pleased with the results. It is the first project of its kind in the Anhui Province to turn kitchen waste into biogas, using the biogas to fuel the whole process. Not only are two Jenbacher gensets powering the project, they also are supplying additional power to the local grid. And they generate a great deal fewer greenhouse gas emissions than a similarly sized coal plant would. «

Xianhai Zhang, Deputy GM, Anhui Haoyue Renewable Resources Utilization Co. LTD



Background

An ambitious project in China's Shushan District in Hefei City, Anhui Province, is turning 800 tons per day of catering and kitchen waste into renewable power. The Hefei Xiaomiao Organic Waste Treatment Center Project is a 728 million RMB (more than \$100 million USD) effort. The organic waste is pre-treated and turned into biogas through anaerobic digestion at a nearly 67,000-square-meter facility. The biogas supplies both the facility and the local grid.

A sustainable energy solution

This first kitchen waste-to-biogas power generation project in Anhui Province relies on proven Jenbacher technology. The biogas power generation solution supports the facility's pretreatment, wet and dry anaerobic treatment, sewage treatment, biogas residue dehydration and drying, and odor treatment systems, as well as public and auxiliary facilities.

The project is centered on two Jenbacher J420 1.5 MW gensets running on biogas, with a total installed capacity of 3 MW. The engines were commissioned and put into grid-connected operation in 2021.

Results

The efficient commissioning of the Hefei Xiaomiao Organic Waste Treatment Center Project overcame the challenge of kitchen waste disposal in the western region of Hefei City while also providing self-generated power to drive the process and supply the local grid. In fact, the project delivers significant economic and social benefits by providing as much as 24 GWh of greener electricity every year, reducing greenhouse gases in the region with much lower emissions than those of a similar capacity coal plant. According to the customer the biogas plant prevents about 7,900 tons of CO₂ emissions, which equates to burning about 2,950 tons of standard coal each year.

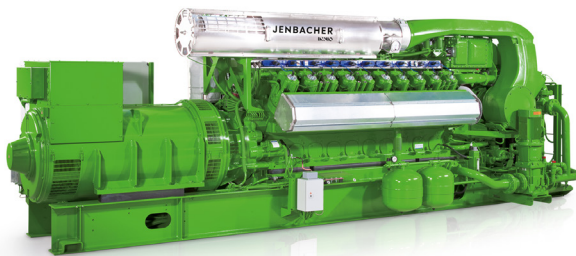
The project also offers an important demonstration opportunity, promoting the scientific management and effective treatment of catering and kitchen waste in the region. As demonstrated, these projects can make a positive contribution to reducing urban greenhouse gas emissions in the quest for carbon neutrality.

Customer benefits

- Centered on two Jenbacher J420 gensets, the Hefei Xiaomiao Organic Waste Treatment Center Project will provide as much as 3 MW of power as well as heat used for waste biogas residue dehydration
- Operating on biogas, the J420 gensets deliver a total efficiency of approximately 85%
- The plant helps reduce greenhouse gases in the region with much lower emissions than those of a similar capacity coal plant

Key technical data

Installed engines	2 x J420
Electrical output	3 MW
Total efficiency	85%
Energy source	Biogas
Year of commissioning	2021



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

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