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Jenbacher J624 gas engines provide high efficiency and low emission solution for a new convention center's CCHP plant

Wuhan International Convention and Exhibition Center
Hubei Province, Wuhan, China

"The center's CCHP plant provides a superior heat and cooling solution compared to a coal-fired boiler plant," said Mr. Zhou Min, GM, Wuhan Guobo New Energy. "This compact, efficient solution can deliver significantly reduced energy costs and low emissions."

Mr. Zhou Min, GM,
Wuhan Guobo New Energy

Background

The large, modern Wuhan International Convention and Exhibition Center is located in the bustling commercial area of Hankou in Wuhan, China. Ideally situated and designed for large-scale exhibitions, the fully furnished 180,000 square meters foot venue is a sought-after destination for a broad array of exhibitions, conference meetings, and activities.

To meet its significant power, heat and cooling needs, the facility required a highly efficient combined cooling, heat and power (CCHP) solution with a small footprint to fit in a limited-size, underground location. Additionally, to satisfy China's country-wide initiative to switch from coal-to-gas fuel, the solution needed to meet tight emission limits while delivering highly reliable energy.

Solution

The Wuhan Guobo New Energy Co., Ltd chose a trigeneration solution using three of INNIO*'s 4.4 MW two stage-turbocharged Jenbacher* J624 natural gas-fired engines to cost-effectively and efficiently generate cooling, heat and power for the convention center. The Wuhan Baiyang Energy Company acted as the engineering, procurement and construction (EPC) company for the power station, delivering a turnkey solution. INNIO provided the gas engine generator sets and related commissioning through its distributor Shenfa to the EPC.

Phase one of the 13.2 MW CCHP plant includes one unit with 4.4 MW commissioned in June 2017. The engine's waste heat is utilized to provide both cooling and hot water for the exhibition facility depending on the seasonal needs. The other two remaining units are expected to begin commercial operation in the mid of 2019.

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Result

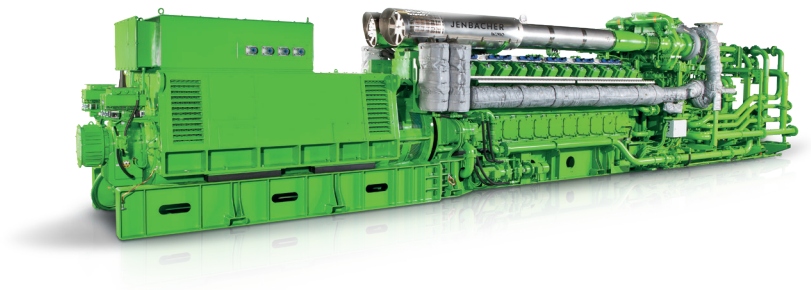
INNIO's J624 two-stage turbocharged gas engines feature a lean-burn combustion that simultaneously achieves high efficiency and very low emissions. The three J624 gas engines CCHP solution achieves as much as 88% total efficiency for the plant, all in a compact design that fits into the center's underground space.

Customer Benefits

- High total efficiency of around 88%
- Low emissions
- Highly integrated CCHP solution to provide economical heating, cooling and power
- Low CO_2 emissions compared to coal-fired plants

Key Technical Data

Number and type of units	3 x J624 2-stage-turbocharging units
Electrical output	13.2 MW
Total efficiency	~ 88%
NOx emissions	< 250 mg / Nm³ at 5% O_2
Fuel	Natural Gas
Commissioning	1 x J624 gas engines in 2017 2 x J624 gas engines expected in the mid of 2019



INNIO* is a leading solutions provider of gas engines, power equipment, a digital platform and related services for power generation and gas compression at or near the point of use. With our Jenbacher* and Waukesha* product brands, INNIO pushes beyond the possible and looks boldly toward tomorrow. Our diverse portfolio of reliable, economical and sustainable industrial gas engines generates 200 kW to 10 MW of power for numerous industries globally. We can provide life cycle support to the more than 48,000 delivered gas engines worldwide. And, backed by our service network in more than 100 countries, INNIO connects with you locally for rapid response to your service needs. Headquartered in Jenbach, Austria, the business also has primary operations in Welland, Ontario, Canada, and Waukesha, Wisconsin, US.

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