

# RELYING ON REGIONAL BIOGAS

## to achieve a climate-neutral airport

### Background

Memmingen Airport, in Germany's Allgäu region, was developed from a former military airbase into Bavaria's third commercial airport. Here, just under 300 employees attend to the more than 2 million annual passengers flying to over 50 destinations. Bringing the concept of sustainability to life and turning good intentions into concrete action are key policy elements of Airport Energie Management GmbH, a subsidiary of Flughafen Memmingen GmbH and e-con AG. And, climate neutrality is its top priority. Founded in 2017 to make this objective a reality, the company has taken on the ambitious "Green Airport Memmingen" project, which aims to achieve net-zero CO<sub>2</sub> emissions by 2030. The switch to a Jenbacher energy solution from INNIO Group powered by regional biogas is a milestone in this endeavor. The concept development and planning were conducted by the energy supply specialist e-con in Memmingen, while the implementation was carried out by Alois Müller and ECONTEC MSR GmbH.



### Sustainable solution

Memmingen Airport's former heating supply was completely based on the fossil fuels oil and gas. To minimize emissions, the decision was made to install a highly efficient and flexible Jenbacher energy solution based on regional biogas. Since March 2023, a biogas-operated Jenbacher J420 combined heat and power (CHP) unit with an electrical output of 1.5 MW and a thermal output of 1.7 MW has supplemented an existing natural gas-fueled CHP unit. The new biogas flex CHP plant's fossil-fueled gas boilers were replaced by a 5-kilometer long biogas pipeline that delivers the fuel from nearby Hawangen. There, a slurry of manure and other renewable raw materials from the region is turned into climate-friendly biogas. This local combination of energy generation and consumption creates a win-win situation for everyone involved, including the environment and climate. The electricity-led, flexible Jenbacher CHP plant with an overall efficiency of more than 90% will only run when the produced green electricity is needed in the power grid, in particular when photovoltaic systems are not generating electricity. To make the best possible use of the heat from the CHP unit, two additional buffer storage tanks with a capacity of 150,000 liters each were installed. Peak load boilers and a pellet boiler also were installed for redundancy. And, the overall efficiency of the Jenbacher CHP unit is increased even further with two flue gas heat exchangers connected in series—rather than the typical single heat exchanger found in most other CHP units.

»Similar to other locations, biogas here is converted into electricity. But in contrast to decentralized biogas plants, the heat can be used almost entirely in the district heating network. This allows us to achieve an extremely high level of overall efficiency.«

Peter Waizenegger, Member of the Management Board of e-con AG

## Result

When compared to the former energy supply, the new biogas-operated Jenbacher CHP plant saves around 650,000 cubic meters of natural gas or 650,000 liters of heating oil per year and also reduces the airport's CO<sub>2</sub> emissions by about 1,600 tons annually<sup>1</sup>. In addition to the airport buildings, almost all neighboring industrial and commercial operations—along an approximately 7-kilometer stretch—are supplied with climate-friendly district heating from the new biogas flex CHP plant. Thanks to the modular and flexible structure of the heat supply and the network dimensioning, additional companies can be connected to the district heating network in the future and supplied with regional regenerative heat.



## Key technical data

Installed engine	1 x J420
Electrical output	1.5 MW
Thermal output	1.7 MW
Total efficiency	90.5%
Energy source	Biogas
Year of commissioning	2023



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## Customer benefits

- High-efficiency combined heat and power with renewable energy sources
- Economically viable flexible operation
- Climate-friendly local heating supply
- Fossil fuels replaced with regional biogas

### About INNIO Group

INNIO Group is a leading energy solution and service provider that empowers industries and communities to make sustainable energy work today. With its product brands Jenbacher and Waukesha and its 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. INNIO is individual in scope, but global in scale. With its flexible, scalable, and resilient energy solutions and services, INNIO enables its 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 INNIO's more than 55,000 delivered engines globally through a service network in more than 100 countries.

In March 2023, INNIO's ESG rating ranked first out of more than 500 companies worldwide 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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