NEW GENERATION

Jenbacher J420 E driving the energy transformation forward

»With the three new Type 4 Jenbacher units from INNIO, we're not only tripling the output of our Heizwerk Süd heating plant but also are rigorously implementing the requirements of the Renewable Energy Law and the heating transition. Although we're still running our combined heat and power plant on biomethane at the moment, we'll also be able to use green hydrogen in the future.«

Heiko Strittmatter, Head of Heat Supply and Power Generation, Stadtwerke Bad Säckingen

Background

Stadtwerke Bad Säckingen is a municipal utility company that combines over 130 years' experience with an innovative and progressive mindset. It wants to make Bad Säckingen a shining example of an environmentally sustainable town that is diverse in its innovation and a wonderful place to live. Based on the special responsibility it has toward the town's residents and the environment, as well as the economic strength of the surrounding area, Stadtwerke Bad Säckingen is committed to generating energy sustainably, reducing CO_2 emissions, and expanding a safe and advanced supply network for power, natural gas, drinking water, and heat.

Stadtwerke Bad Säckingen operates various hydropower plants and wind farms in the southern Black Forest region as well as several separate combined heat and power (CHP) plants in towns. A further milestone in the continuous expansion of the company's heat supply was the addition of three Jenbacher units to its Heizwerk Süd heating plant, including two latest-generation J420 E engines.

A pioneering solution

The original Jenbacher CHP plant in the Heizwerk Süd heating plant comprised one J312 and one J416 and was operated purely on a heat-driven basis to align with the heat demand in the district heating network. Stadtwerke Bad Säckingen's decision to expand came at just the right time to install the new J420 E technology. Adding the three Jenbacher units – an additional J416 and two latest-generation J420 E engines – has increased total output to 6.2 MW of thermal and 5.7 MW of electrical energy. A large buffer storage system with a capacity of 264,172 gallons (35,314 ft^3) has been constructed, allowing the system to be operated on a power-driven basis now too. This means that the individual CHP system modules are turned on and off depending on the power demand in the public grid and the feed-in of solar- and wind-generated power, thus ensuring power supply even during the "dark doldrums." The thermal energy generated can be stored temporarily and fed into Stadtwerke Bad Säckingen's district heating network as required.

This expansion to the CHP plant was carried out as a flexibilization measure in accordance with the Renewable Energy Law (EEG), because both the existing and the new CHP system modules run on biomethane – biogas that has been purified to natural-gas quality and fed into the natural gas grid – and thus represent major progress from an environmental perspective. The next step toward the objective of a carbon-neutral town will be to switch to green hydrogen as soon as it is available in sufficient quantities.

JENBACHER
INNIO

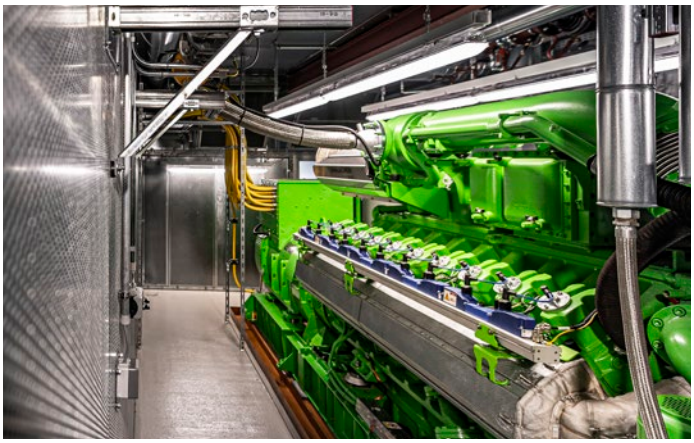
Outcome

Adding the three Type 4 Jenbacher CHP systems increased the output of the Heizwerk Süd heating plant by a factor of three, meaning that more than 4,000 households can now be supplied with electricity and a further 1,000 with heat. According to Stadtwerke Bad Säckingen, using the biomethane-powered Jenbacher CHP systems to generate both power and heat saves some 3,600 metric tons of CO_2 emissions compared to conventional heat generation using fuel oil. The electricity produced is fed into the public grid, while the thermal energy given off in the process is transported via the existing district heating network to the homes and public facilities connected to it.

Jenbacher's Type 4 has been operating successfully for the past 20 years. More than 6,000 engines have already been supplied all over the world. With its flagship project at Stadtwerke Bad Säckingen, INNIO is now demonstrating the significant improvement brought about by the latest generation of engines in the field too.

»I am convinced that the J420 next-generation engine will quickly establish itself, setting a new benchmark for economics and resource conservation. Running in CHP mode, it excels in energy efficiency—a key driver in the energy transformation.«

Heiko Strittmatter, Head of Heat Supply and Power Generation, Stadtwerke Bad Säckingen



Customer benefits of the new Jenbacher J420 E

- Up to a 1% increase in efficiency
- Nearly 60 cm shorter
- Can be converted to run on hydrogen
- Easier to maintain

Key technical data on the Heizwerk Süd heating plant at Stadtwerke Bad Säckingen

Engines installed	1 x J312, 2 x J416, 2 x J420 E
Electrical output	5.6 MW
Thermal output	6.2 MW
Buffer storage system	264,172 gallons
Fuel	Biomethane
Commissioned	2012, expanded: 2020

More information on the latest-generation J420 engine is available at:
www.innio.com/en/j420

Product video:
Scan the QR code to find out more about the customer benefits of the next generation J420 engine.

Bad Säckingen customer video:
Scan the QR code to find out more about our solution from Heiko Strittmatter in person.

INNIO is a leading provider of renewable gas and hydrogen-rich solutions and services for power generation and compression at or near the point of use. With our Jenbacher and Waukesha products, INNIO helps to provide communities, industry and the public access to sustainable, reliable and economical power ranging from 200 kW to 10 MW. We also provide life-cycle support and digital solutions to the more than 54,000 delivered engines globally through our service network in more than 100 countries. We deliver innovative technology driven by sustainability, decentralization, and digitalization to help lead the way to a greener future.

Headquartered in Jenbach, Austria, the business also has primary operations in Welland, Ontario, Canada, and Waukesha, Wisconsin, U.S.

Find your local support online:
www.innio.com/en/company/providers

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