

Double Output Thanks to New Containerized Cogeneration Power Plants

The Regenerative Energies department of Gebrüder Nooren GbR has purchased eight containerized MWM biogas cogeneration power plants, doubling the installed electrical output of its existing biogas plants.



Gebrüder Nooren GbR is a medium-sized agricultural business in Germany's federal state of Saxony-Anhalt. Apart from crop farming and animal husbandry, the company's business fields also include the production of biogas. Biogas plants are run to utilize the animal waste in a climate-friendly way. Within a period of about two years from late 2018 to April 2020, eight locations were furnished with containerized MWM cogeneration power plants. "Upgrading our cogeneration power plant locations with MWM TCG 3016 V12 and V16 containers was quite a huge project. Within about two years,

we more than doubled our installed electrical output from 5.2 MW to 10.8 MW", says Tobias Jäsch, Project Manager Biogas at Nooren Bioenergie Verwaltungs GmbH, who is responsible for the rollout and coordination of the extension. The new MWM TCG 3016 gensets in the ready-to-use containerized cogeneration power plants are to facilitate the buffering of peak loads by way of flex operation. The existing cogeneration power plants, most of which are powered by MWM engines of the last generation, serve the generation of the base load.

"In view of the good experiences we had gained with MWM engines, we did not hesitate to decide in favor of the MWM TCG 3016 gensets with their high availability."

"As with every entirely new system, a number of minor glitches were encountered at the first location, but were resolved speedily", says Tobias Jäsch. "Starting from the second location and engine, everything worked out smoothly, and this has not changed so far. To date, we have not experienced any serious outages or malfunctions of any of the new containerized cogeneration power plants, and we are still impressed by the reliability and high availability of the TCG 3016 gensets."

Following an in-depth examination, the Nooren Group opted for the MWM biogas containers. The advantage of these systems is that all components are fine-tuned to the requirements of biogas operation. Besides the standard MWM container with its genset, peripherals, and control panel, the package includes a special gas treatment system. "For us, the solution with the MWM biogas containers was the most efficient way to double the output of our existing cogeneration power plants and equip them for flex operation", explains Jäsch.



Dr. Matthias Mönch-Tegeger (r.), Head of NOOREN Bioenergie Verwaltungs GmbH and Tobias Jäsch (l.), Project Manager Biogas at NOOREN Bioenergie Verwaltungs GmbH.

Mega Project: Eight Biogas Plants Expanded in Less Than Two Years

The power produced from biogas at the eight locations is fed into the public grid. The heat from the power production is used on site, e.g. to heat the pigsties, production buildings, offices, and recycling facilities. The substrate required for the production of biogas consists of liquid manure, corn, and other energy plants, most of which are supplied by the company's own operations.



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Technical data CHP

Go-live:	2019 – 2020
Engine type:	TCG 3016 V12 and V16
Control:	TPEM
Gas type:	Biogas
Substrat:	Liquid manure and corn
Plant builder:	MWM
Electrical efficiency:	42.0 – 42.4 % (depending on the location and engine type)
Thermal efficiency:	41.8 – 42.1 % (depending on the location and engine type)
Electrical output:	5.4 MW
Thermal output:	5.4 MW
Total efficiency:	84.1 – 84.2 %
Cogeneration power plant output:	V12: 600 kW _{el} ; V16: 800 kW _{el}



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Quick Solutions Through Cooperation

Thanks to the bundled knowledge and experience of the operating staff of the eight biogas plants, minor problems or malfunctions can often be solved by simply calling a colleague. Furthermore, the team members regularly exchange information about technical changes or new features. Major maintenance work is handled by the MWM Service Center in Erfurt under maintenance agreements.

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