

New Biogas Genset for More Flexible Power and Heat Production

Norbert Hack is a typical farmer: Together with his wife Ilka, he cultivates 260 ha of agricultural area and keeps 180 dairy cows at his farm in Wentorf, Schleswig-Holstein, close to Hamburg. However, Norbert Hack is also an energy supplier whose biogas plant provides 50 inhabitants of Wentorf with heat for heating and hot water. Within the scope of this second pillar, which he has developed since 2012, he has now invested in state-of-the-art plant and engine technology in order to further expand his distributed heat network. By means of his investment in a new cogeneration plant and the new MWM TCG 3016 gas genset, he intends to reliably and efficiently deliver the heat that he generates from his biogas to additional households and companies in the region. "My engine dealer recommended purchasing the new MWM TCG 3016 genset to expand my heat network" says Norbert Hack. Previously, he had already been an MWM customer by way of a dealer. By purchasing the engine, he took up direct contact with the Mannheim-based company.



The new MWM TCG 3016 genset makes Norbert Hack's biogas plant in Wentorf even more efficient and flexible.

"I've been running the TCG 3016 for a few months. As far as I'm concerned, this is the most efficient engine currently available on the market. Compared to its output, its biogas consumption is astonishingly low." The engine is perfectly tuned to his needs and runs very quietly. He has already seen many other gensets and models at his colleagues' facilities, but "this engine's quality is truly outstanding – a genuine trendsetter", he feels. The new TPEM (Total Plant & Energy Management) control that Caterpillar Energy Solutions has developed specifically for the MWM gensets is also installed in his cogeneration plant. "The new development from Mannheim will doubtlessly make the interaction between the control and the engine even more effective. The TPEM offers more possibilities for reading out engine data, which will further improve the plant operation", he says.

Norbert Hack checks his biogas plant parameters twice a day and is thus able to react speedily in the event of deviations. With his new plant, he can react even more flexibly to the increasing or declining demand of his customers. "In addition to the TCG 3016, I also have a smaller MWM genset." The technophile farmer is fascinated by the innovative features of the new MWM engine: "Due to the reduced temperature of the lubricant during operation, the oil lasts longer and the oil change intervals have been stretched – all of this saves cash!"

He believes that the company in Mannheim has taken the right direction in the development of the new MWM TCG 3016, making the already very efficient gensets even more robust.

Hack spent about half a million euros on the construction of the new cogeneration plant with transformer and a new heat buffer storage unit. "When I modernize, I do it properly", he says. Each of his two cogeneration plants has its own gas train, consisting of a cooling, scrubbing, and compression unit. This gives him more operating security, as both gensets can operate independently. The biogas plant runs on a 50/50 mix of cattle manure from his own dairy cows and corn grown on his own fields. He also purchases corn from two colleagues. "Our region is predominantly a grain-growing location", he explains. "We don't have too many biogas plants, so there's enough room for all operators."

The digestate from the biogas production is spread out on his fields as fertilizer. Any excess quantities are sold. "In this way, the cycle is closed."

“With Our Biogas, We Take the Heat to Where It Is Needed“



Bioenergie Hack Verwaltungsgesellschaft mbH

Contact	Norbert Hack
Address	Schüttenmoor 2, 23898 Wentorf
State, country	Schleswig-Holstein, Germany
Substrate	50 % cattle manure, 50 % corn
Cogeneration plant output	600 kWh
Gas storage volume	1.500 m ³
Flex bonus	Yes
Plant operator	Norbert Hack



Cogeneration Plant Specifications

Go-live	2016
Engine type	MWM gas engine TCG 3016 V12
Control	TPEM
Electrical output	600 kW
Thermal output	604 kW
Electrical efficiency	41,6 %
Thermal efficiency	41,9 %
Overall efficiency	83,5 %



Engines Runs like a Sewing Machine

Following the installation of the new cogeneration plant on Hack’s farm, other biogas plant operators were given the opportunity to participate in an operator meeting at which they could take a look at the new engine model. “Some of them were noticeably envious. The colleagues were surprised at how easily the engine starts up and how quietly it operates”, he proudly explains.

Caterpillar Energy Solutions GmbH

Carl-Benz-Strasse 1
68167 Mannheim, Germany
T +49 621 384-0 | info@mwm.net
F +49 621 384-8800 | www.mwm.net