



Poultry Power

Marie Therese Schulte Spechtel and Christoph Brüggemann have been running a biogas plant on their Dorsten-Wulfen farm since April 2010. The heat it produces in generating electricity (Combined Heat and Power unit) keeps not only the couple's home warm, but a nearby sports complex as well.

They don't get up with the chickens on the Schulte Spechtel farm – they get up with the turkeys. Marie Therese Schulte Spechtel and Christoph Brüggemann have been running a turkey farm in Dorsten since 1992; the husband-and-wife team currently has around 9,600 of the birds in their care, plus a herd of bulls at a second location. The couple also enjoys an additional source of income: a PlanET biogas plant they began operating in April of 2010.

Decision to invest

"Over the previous ten years," says Marie Therese Schulte Spechtel, "we kept toying with the idea of using a biogas plant to generate electricity. After all, raising animals involves a whole lot of manure. We were obviously attracted to the idea of not just using it as fertiliser, but also converting it to biogas and turning it into electricity and heat." Still, it wasn't until 2009 that they decided to actually take the plunge – and even then, it was a fairly spontaneous decision: while on a skiing holiday, the couple discussed the subject with other farmers, and then quickly resolved to make the investment. "Another factor was that the Renewable Energies Act was amended at the beginning of 2009," says Christoph Brüggemann. "The changes made the investment a very safe one for us."

Since Schulte Spechtel's brother had already worked with PlanET Biogastechnik GmbH to construct a biogas plant of his own, the couple turned to the Vreden-based firm straight away. "For us, there was actually no question about who

AT A GLANCE

Operators: Marie Therese Schulte Spechtel and Christoph Brüggemann

Operations: Turkey and cattle farm

Farm location: Dorsten-Wulfen, Germany

Why biogas?

To make productive use of agricultural residues (substrate) on hand, such as turkey and cattle manure

Why PlanET?

Positive experiences with PlanET project on another farm

Why UniKipp®?

Low consumption of generated power; low operating expenses; sturdy construction; ease of maintenance

What for?

Feed electricity into public network; heat own residence and sell heat to local school

we were going to build with," notes Marie Therese Schulte Spechtel. "We knew that my brother's experiences had been entirely positive."

Solid financial calculations

The agricultural professionals began by sitting down with a PlanET representative and working out how profitable they could expect a biogas plant to be on their farm. The factors they considered included the types and amounts of substrate they would have available, the financing terms open to them, and the levels of compensation they could expect for feeding electricity into the grid. For comparison purposes, the couple asked the Chamber of Agriculture for a second opinion. Since their results were a fairly close match with the biogas technology company's calculations, the couple went ahead and asked PlanET to apply for the necessary building permissions; as soon as those were in place, construction began. The system was hooked up to the power grid shortly before Christmas. "Unfortunately, it was so cold that winter that we had to halt construction for a few weeks after that," says Brüggemann. "So we didn't have the whole plant up and running until April 2010, somewhat later than we'd planned."

Since then, farm personnel have been filling the 36 cubic-metre Unikipp® feed-in module once or twice a day

with turkey and cow manure along with silage made of corn, sunflowers and other intermediate crops. From there, the substrate lands in the first fermenter, where it is mixed with additional liquid manure from the preliminary tank. The resulting methane gas and the fermented solids are

then piped into a gas-tight effluent storage tank for secondary fermentation. There, the substrates are removed so they can be used as high-quality fertiliser; the gas flows through an underground pipeline to the CHP station, which is equipped with a 250-kW pilot injection unit and converts the gas into Electricity and heat. All of the power the system generates is fed into the public power grid. The couple uses the heat given off by the motor to heat their own home and their employee accommodations; they also use a local heating

pipeline to deliver the energy to a nearby school, which uses it to regulate the temperature inside their sports centre. "So far, we're totally satisfied with our results," says Schulte Spechtel, "so we can certainly imagine ourselves expanding the system later on in the future – by adding a satellite CHP unit right by the school, for example. That would allow us to supply renewable energy to the whole school."

THE BIOGAS PLANT

Commissioned:

April 2010

Substrate:

Turkey and cattle manure; liquid manure; maize silage; intermediate crops

Solids feed-in module:

PlanET UniKipp®, MultiRotor

Preliminary tank:

150 m³ gross volume

Fermenter:

2.078 m³ gross volume; wall and floor heating;
2 PlanET eco® turbo submersible motorised mixers;
1 PlanET eco® paddle mixer; wooden structural beams with net, air-supported roof structure incl. desulphuration

Gas-tight effluent storage unit:

4.241 m³ gross volume; 3 PlanET eco® mix submersible motorised mixers; wooden structural beams with net; air-supported roof structure incl. desulphuration

CHP station:

250-kW pilot injection unit, additional 250 kW gas engine planned



Economic, comfortable and sturdy – the PlanET UniKipp®



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