



GORDEMITZ BIOMETHANE PLANT COOPERATION PROJECT

WIN-WIN-WIN



The story behind this project is so unusual that it would make an exciting Hollywood screenplay.

It's about rise and fall, a long spell of hardship, adversaries who become allies, fighting for what is good and meaningful, and ... a happy ending. These are not exactly the words you would normally expect when describing a biomethane plant project!

LET'S START AT THE BEGINNING

One step at a time.

Let's start in 2010. Back then, when EEG 2009, the German Federal Renewable Energy Sources Act, was in force, the biogas world was in full bloom and building biogas plants was still quite attractive. However, the introduction of EEG 2012 brought an end to this booming growth. Whereas some 4,400 new biogas plants were built from 2008 to 2012, this fell to just over 900 in the comparable period from 2012 to 2016.

It was in this first period, between 2010 and 2013, that the plant near Gordemitz (10km north-east of Leipzig) was designed, as one of the last of its size. At the time, the project was commissioned by the Münster based company agri.capital, which was then one of the largest biogas plant operators in the market, while UTS Biogastechnik, as the company was known at the time, was awarded the job of designing and constructing the plant.

PAINFUL

Initially everything went according to plan, the ground-breaking ceremony was held in 2013, and it was planned that the project would be completed and the plant connected to the electricity grid and the natural gas grid in 2015. The project was running smoothly and the building activities

were progressing nicely. But then, in 2014, with the construction activities in full swing, there was some terrible news: agri.capital, the client and investor, had gone bankrupt! The work was stopped immediately and the unfinished project became part of the insolvent estate. This was a very unpleasant situation for everyone involved, including the neighbors who could do nothing but watch this promising project gradually fall into decline.

The chances of a turnaround and a fresh start were slim. But then suddenly, in 2018, two experienced biogas entrepreneurs from the German Westphalia district discovered the project for themselves, bought it, and energetically started to plan its reactivation. Their initial plan was to extend the existing permits, revise the concept, adapt the technology, and continue building the project on the basis of the existing built structure. However, there was yet another unexpected turn of events shortly before the project was to be restarted together with UTS. The Westphalian investors decided to sell the project again.

And, as a result, in late 2019, the plant became the property of BALANCE Erneuerbare Energien GmbH.

BALANCE ERNEUERBARE ENERGIEN GMBH?

Now we just need to take a short detour in order to give you a better view of the big picture. BALANCE is a subsidiary of the VNG group of companies, which is active throughout Europe, and has 20 subsidiaries in the energy market with a focus on the gas industry. Based on its group strategy "VNG 2030+", VNG has been investing in the energy transition and the future. The group's website says: "Consequently, we are also focusing on

the world of natural gas in the far future: for example, whilst what are known as green gases currently account for less than one percent of total natural gas consumption today, this ratio will be reversed within a few decades – with considerable effects on our business and the entire energy sector."

So now back to the project: from an abandoned ruin to a sign of hope in no time!

A MINOR HURDLE

As we mentioned earlier, the original project was planned by UTS Biogastechnik in 2010. The company was a direct competitor of Schmack Biogas GmbH, a subsidiary of the Viessmann Group, which, like UTS, built biogas plants to industrial standards. So actually, the companies had been competing for the same customers for many years.

Now fate can be so cruel: when BALANCE restarted the project, a new consortium suddenly emerged. After a total of nine years in which UTS had worked on this project with varying levels of intensity, the new owner BALANCE brought in the company now known as Schmack Biogas Service as an established partner. Would it be everyone with each other, or against each other, that was the question. However, after a thorough introduction of all the parties involved, it soon became clear that as far as the customer BALANCE was concerned, and given the tight time schedule and budget, the only option would be for UTS and Schmack to work together.

Schmack was to construct and coordinate the entire plant as the general contractor and UTS would be responsible for fitting out and constructing the raw biogas line,

from the input of solids to the gas output at the tank. But would this actually work out?

Well it did and it has actually led to a WIN-WIN-WIN situation for all the stakeholders.

Tobias Anzer, a sales engineer with Schmack said: "Naturally, I was a bit sceptical at first. We planned a first appointment where our 'territories' were staked out. Both sides had to compromise and work together. But this actually resulted in a good solution for the customer, which we are currently implementing. What I hear from our project team is that they see the collaboration as very good, professional and based on trust. We will definitely continue this in future projects."

Donato Cristaldi, Head of Sales & Service at UTS, is also enthusiastic about the cooperation with Schmack: "Our team, consisting of Christian Friedl, Thomas Braun and myself, and our colleagues from Schmack, from Mr Anzer to the management including Mr Götz, all got along together right from the beginning. It did not take long for us to realise that the Schmack team were also professionals who, despite their great belief in their own technologies, were open to the UTS technology approach that had already been planned.

I think both parties were pleasantly surprised by the honest and open interaction and by what the other party could contribute to the project. It quickly became clear to everyone that the project could be brought about more safely and quickly by working together than without the other party."

So what started out as a forced marriage has evolved into a true biogas romance.



THE PROJECT

In short, the goal is to build a biogas plant which will enable BALANCE GmbH to feed approx. 700Nm³/h of climate-neutral biogas of natural gas quality into the natural gas grid per hour. The “green gas” is stored in the grid, so to speak, making it available for use all over Germany.

To make this possible, a gas treatment plant from the Schwelm company brings the raw biogas from the biogas plant to a methane content of approx. 97%. The biomethane can then be taken from the grid and used wherever this makes sense. For example, as a climate-neutral fuel for public transport (natural gas-fuelled buses), as well as for “green” heat and power generation in CHP plants of hospitals, swimming pools, industrial companies or in district heating networks.

This makes the plant a further component of the energy transition through green gas for BALANCE and an example of how the future can be shaped to achieve a WIN-WIN-WIN situation from both a climate and an environmental point of view.

THE PLANT

Well it’s large, as the performance data suggests, but compactly built. But let’s start from the beginning:

at the substrate which is fermented to biogas in the plant. The substrate consists of renewable raw materials such as corn and grass silage, as well as approx. 10-15% of dry chicken manure from regional farms. Some 45,000-50,000 metric tons of input materials are processed in the plant under full load per year, resulting in approx. 700Nm³ of biogas being produced or fed into the grid per hour, enough to supply approx. 3,000 to 4,000 households with energy.

5 DIGESTERS

Overall, the plant consists of two pre-digesters and three main digesters. In 2014, UTS Biogastechnik provided the two pre-digesters with concrete ceilings in order to ensure intensive mixing, proper desulphurisation, a stable gas pressure and low heat losses, while excluding any weather influences.

Two Havelberger solids feed-in systems with capacities of 120m³ and 150m³ and the conveyor technology that is typical of UTS plants feed two pre-digesters and two of three main digesters with solid substrate.

Besides being very robust, the Havelberger scraper chain conveyors with milling rollers and the installed conveyor technology offer the advantage that they can convey fibrous material into the tanks without

any obstructions and with low energy consumption. If required, liquid manure can also be supplied and introduced via a preliminary pit.

14 PSM MIXERS

The contents of the five digesters are mixed by a total of 14 state-of-the-art UTS PSM mixers with gearless direct drive and intelligent DMC control. These mixers not only provide the necessary thrust and mixing, but thanks to their power consumption of approx. 7 - 9kW, they are also one of the most energy-efficient mixing systems on the market.

FURTHER HIGHLIGHTS

A total of 17 Service Boxes Pro enable easy and safe access to the mixing equipment at any time and feature integrated and frost-protected overpressure/underpressure safety devices, as well as “clean” gas tapping points far above the substrate level. Pump structures with progressive cavity pumps and a UTS ZPS (central pumping station) and numerous pumping options in all directions ensure sufficient operational flexibility.

Two UTS FSP-B 78/15 separators ensure high solids separation of already fermented material and enable the dry matter content to be regulated by returning the filtrate to the digesters or, optionally, to the fermentation product storage.

The entire set of equipment is designed to achieve the efficient, trouble-free, economical, and above all safe operation of the plant throughout the fermentation process.

ALL’S WELL THAT ENDS WELL

The Gordemitz plant became operational by late 2020, and it will start to actively contribute to environmental and climate protection by end of January 2021. This has been a challenging project, which, given its rather uncommon start and project set-up, initially required a lot of good will.

At the start of this article, we referred to a happy ending. UTS, Schmack, BALANCE, and Mr. Kellermann from greenValue managed to combine their competences and capacities to optimum effect. This made it possible that the project was completed “in time and according to budget” and at a consistently high technical level. Donato Cristaldi, Head of Sales & Service at UTS said: “Achieving a goal sometimes takes stamina. I am very happy with how successful the project has been and how well we have been working together with Schmack. The Gordemitz plant means a lot for many colleagues who already worked for UTS when it was first planned, and we are proud and happy to see this plant finally go into operation, even if it is six years later than planned.”

The plant will soon be connected to the mains in Gordemitz and it is a showcase project in many respects. Not only that, but in the end, there will only be winners: BALANCE as an operator, UTS & Schmack as contractor, local farmers, gas consumers and, last but not least, the climate. **WIN-WIN-WIN.**

All that remains is for the heroes of the film to ride off into the sunset together... ■

