

Penkun: World's largest Biogas Plant goes online

EnviTec Biogas builds 40 Modules at 500kw each for the NAWARO BioEnergie AG



Dr. Balthasar Schramm

Interview with Dr. B. Schramm, Chairman of the Board of NAWARO BioEnergie AG:

■ Dr. Schramm, in Penkun the largest biogas plant of the world is being built. What makes you so sure that the project will be successful?

We have found excellent conditions in Penkun. In the immediate neighbourhood of the biogas park alone more than one third of the area of the county of Uecker-Randow and almost 60% of the county of Uckermark are used agriculturally. With this more than 230,000 hectares of farmland can be found in the direct vicinity of the Biogas Energy Park. The supply with agricultural raw material (especially corn silage) by the neighboring farms is hereby secured by long-term contracts. We have entered a real partnership with the farmers; this has

proven to be of value from the beginning. Even in a difficult crop year, like 2006, there are no problems. Last but not least the excellent cooperation with the officials on location has tipped the scales for erecting the first plant with model character for more projects, in Penkun. Since the company depends on a good cooperation between communities and authorities when developing and erecting its plants and acquiring qualified staff, the management emphasized building rapport from the very beginning. Additionally electricity can be fed into the grid through existing, nearby points of delivery without any problems.

■ Right from the design- or planning stage of the park you have decided in favour of EnviTec. Which reasons turned the balance? When planning, building and

operating its bio energy parks NAWARO places emphasis on sophisticated, dependable and established technologies of affiliated businesses. For this reason we have decided in favour of EnviTec plants. These plants have convinced us because EnviTec consistently offers well-engineered modular technology and especially because they can show well functioning plants as reference. The permanently solid utilization of the plants is crucial; in this area EnviTec has the most convincing propositions. Biogas technology is not provided by large plant construction companies at the moment but is in fact a speciality of mid-size companies. Concerning this matter we have examined the market thoroughly and as a result of this evaluating process we have decided for EnviTec.

■ Penkun is supposed to be only the beginning of your business ventures. Where will the next biogas parks be erected?

At this moment NAWARO BioEnergie AG plans additional projects in Mecklenburg-West Pomerania, Brandenburg (especially the county of Spree-Neiße and also Märkisch-Oderland), Saxony Anhalt, Thuringia and Schleswig Holstein.

■ Will you collaborate with EnviTec once again?

As I had explained before, we focus on the established standard technology of EnviTec and are also planning the next parks with EnviTec. In this context I would like to emphasize the trustful and pleasant cooperation with this company.

INFORMATIVE

About the NAWARO BioEnergie AG

The NAWARO BioEnergie AG was founded in 2005 by experienced entrepreneurs. The company plans, builds and operates bio-energy parks. In these, industrial standards are applied and energy is produced from renewable resources. This approach is unique in the field of renewable energy. The first bio-energy park is going into service in Penkun and more facilities are scheduled.

Special energy plants from the region, like corn for example, are fermented into biogas in the NAWARO plants. The gas is used for generating electricity and is fed into the grid. From the remaining fermentation pulp, premium depot-fertilizer is made.

NAWARO shows that renewable energy can be produced profitably, economically and reliably on the basis of bio-pulp to measure up to industrial standards. The industrial approach permits a CO₂-neutral energy production on the basis of renewable raw materials.

Additional we render an entrepreneurial contribution: Each location will provide approximately 50 qualified jobs.

Dates and Facts

15 hectares developed area or 20 football fields – this is the expanse of the biogas park.

20 megawatts electricity is produced by the park per hour.

40,000 households can be supplied by the park.

78,000,000 Euros is the amount that the NAWARO AG invested in the park.

35,000,000 Euros is the amount of the contract with EnviTec.

50 metres in diameter and 15,000 qm is the size of each storage tank for the fermenting residue.

150 up to 200 people from 30 different companies work on site.

25,000 cubic metres of concrete is used in construction, enough to build approximately 250 single family houses.



2,500 tons of steel are used in building the plant.

80,000 metres of steel wind around the fermenters and provide perfect statics.

100 days allows EnviTec for the construction of each single biogas plant.

92,000 cubic metres of biomass fit into 40 fermenters.

84,000 tons of manure are projected to be processed in the plant per year.



40 standardised 500kw modules make 20 mw – that is the largest biogas- plant- park of the world.

EnviTec on the way to the

After finishing Europe's largest Biogas Park in Anklam EnviTec b

Penkun – The corn is softly blowing in the wind in the undulating hills of West Pomerania. Time and again luscious rows of trees disrupt the fields. It is almost harvest time. Soon the corn will find its final destination – the 40 fermenters that nestle into a hill 15 km away from the Polish border like oversized cooking pots and thus making an impressive plant. In this part of Germany, EnviTec is building one of the largest biogas parks of the world. Long gone are the times when only single farmers tried to secure a profitable, additional income by operating a biogas plant. Now, big investment companies are appealed by the idea that power can be produced by biomass.

Joachim Karschuck, Hans-Jörg

Electricity for a small town

Börger and Jens Heinemann are standing by the hand rail of the gray concrete tank and look upon the construction site in Penkun. Starting next spring 40 power stations on the surface area of approximately 20 football fields will produce electricity that would be sufficient for the complete power supply of a small town. Karschuck and Börger, main project leaders with EnviTec and Heinemann, main site manager can hardly believe it sometimes. “When we had heard about this plan two years ago, we looked

surprised”, Karschuck admits. The 40 year old is considered a professional in the industry. Since 2001 he projects biogas plants for EnviTec, before that he had built waste treatment- and sewage plants.

In May of this year construction for the biogas park “Klarsee” began and now the three men are facing the largest project that the booming industry has ever seen. For inspecting the construction site they have to climb a fermenter or take the car. The topping-out

ceremony will be on 6th October. The first four biogas modules are planned to go into operation by the end of the year then an additional module will be initiated in each of the following weeks.

Five more parks are scheduled

The plan originates from NAWARO a company based in Leipzig. The stock corporation has been founded only one and a half years ago and aims at building six biogas parks in Germany (see



They have everything under control: Jens Heinemann (left) and Hans-Jörg Börger oversee the biogas park in Penkun.



Builds the World's largest Park in Penkun

World-Championship Title



2A total of 25,000 cubic metres of concrete are being processed.

page 1). EnviTec is responsible for the “ready to use” construction as well as the following biological and technical support.

The main project leader calls it “crazy” that Karschuck and his colleagues are entirely on schedule. Europe’s largest facility in Anklam (West Pomerania) consists of merely 5 power stations. Joachim Karschuck has organized the project schedule. For this purpose he created an almost 3 metre tall map that is now attached to the wall in the office container on site. Heinemann and Börgers primarily see to it that the craftsmen are in the right place at the right time. “We

work simultaneously on more than 30 fermenters.” While the craftsmen are already working on the heating engineering of the first installations the cranes are putting up huge concrete parts in the rear part of the park. The fact that they almost exclusively cooperate with craftsmen and suppliers that have already helped putting up previous plants, helps the planners. Presently, the fermenting residue tank for which the cranes have already put up the concrete walls and which are nerved by steel ropes, demand Karschuck’s full attention. The tank with a diameter of 50 metres has to bear up against the weight of 15,000 cubic metres of fermented corn, crop and liquid manure, once it is in use. From here the material is transported to further utilization. A part of the biomass goes back into the plant, the rest is used to make high quality depot fertilizer. In order to offer sufficient protection for

Sufficient protection for farmers

the supplying farmers, EnviTec builds a central receiving place with sanitizing for liquid manure at the entrance of the park. “In this plant we make the liquid manure aseptic”, says the 40 year old. While Jens Heinemann can be found on site every week, Joachim Karschuck and Hans-Jörg Börgers share their job.

The Technology

After completion of the NAWARO project “Klarsee” in Penkun 40 modules will provide electrical power of 20 mw. 40 standardised 500 kw plants of the Saerbeck company EnviTec will come into operation. “Our client put special emphasis on the greatest possible planning reliability” Joachim Karschuck justified the application of standardised modules. “They enable us to keep all components on stock that are important for the operation of the plant.” This is the best precaution

against all sorts of downtimes. For the safe management of the biological processes – the pre-requisite for top performance – EnviTec exclusively applies single level fermenters. The substrata are inserted in a liquid mode by means of a weighing mixer.



main project leader Joachim Karschuck

That makes it possible to get an exact dosage. Each of the 40 modules provides for an output of about 600,000 to 650,000 Euros through the feeding into the grid alone. Additionally thermal energy is produced to the same extent which the operator can apply according to the particular requirements: for heating, drying, for steam generation or for cooling. In the NAWARO project thermal energy is applied to process the residue in the NAWARO fertilizer plant which is being built on the same compound. Furthermore the operator can fall back on the thermal energy when sanitising the incoming manure so that the energy expenses for the complete installation can be kept at a marginal level.

EnviTec scores with quality and performance

Besides Europe the company now also conquers the Indian market



Construction of one of the 40 fermenters in Penkun

Highest quality – and safety standards as well as an exceptional performance of its facilities have made EnviTec one of the most successful companies in this branch of business. 140 staff members at both sites in Saerbeck and Lohne are responsible for financing, planning, implementing, operating and servicing biogas facilities. There is an increasing number of safety-conscious investment-companies focussing on the advantages of standardised construction who assign their projects to EnviTec.

Technological Advance

This year alone the company will put 80 new facilities into operation. With a total power of 80 MW by the end of the year EnviTec is the market-leader in Germany according to its own estimate. Many of these projects were accomplished by recommendations of satisfied operators of existing facilities. References can be found on the company's web site (www.envitec-biogas.de) EnviTec owes its special placement on the market to its know-how in the agricultural and industrial area. Associates and staff belong to the pioneers of the biogas branch and dispose of more than 30 years of experience in the construction of facilities for water- and waste water-treatment as well as in the development and

construction of sewage sludge facilities. This knowledge is coupled with skills in industrial operations and the requirements for production reliability. With the remote monitoring of biological processes in the fermenter as well as the offering of a biological and technical service EnviTec offers its operators the prerequisites for exceptionally high performance and a basis for results that can be calculated well in advance. In EnviTec installations these results are not falsified by long downtimes: Due to standardised construction all downtime relevant parts can be kept on stock. The plants designed by EnviTec are based on standardised 500kw modules that can be extended optionally – up to the largest facility in the world with



(left to right) EnviTec Management Tobias Schulz (Visbek), Kunibert Ruhe (Lüschke) and Olaf von Lehmden (Lohne) with Minister of Energy Shinde at the biogas plant "Stricker" (Vechta). At the right: EnviTec Sales Manager Roel Slotmann.

20mw, which is currently under construction in Penkun. With this construction method you can realise the highest profitability in proportion to the energy production. This is also true for the one-level construction of the fermenter which leads to a solid guide conduct of the biological processes. Exclusive partnerships, like with the Visbek specialist 'System-Technik Schulz', in the area of electronic control facilities secure another technological head start for EnviTec. In the area of facilities' safety, EnviTec sets standards by CE-labelling all its parts. Meanwhile the know-how of the company is very much sought after. In The Netherlands, Italy, Hungary and The Czech Republic EnviTec is represented by its own companies. With round about 80 million Euro turn-over in Germany it is one of the most successful in its branch. For 2007 EnviTec Biogas GmbH is aiming at a turn-over volume of 150 million Euro. In September of this year the new affiliated company "EnviTec Biogas (India) Private Limited" was founded. Associates are, at 50% each, the EnviTec Biogas GmbH in Lohne and the Malavi Power Plant Ltd. (MPPL pltd) in Bangalore.

EnviTec plans to build biogas plants in India. The Indian sister

company MPPL contributes the projecting of plants with an overall performance of 16 mw to the joint venture, the German side adds its engineering know-how

Biogas in India

EnviTec is the first company in the biogas branch with a commitment of this size on the Indian subcontinent. The closing of this contract was the reason for a visit of the Indian energy-minister Shinde in Germany who was very impressed during a visit of a facility on the Stricker farm (County of Vechta).

IN BRIEF

New website

Have a look at our re-designed website containing new features, a login-area and more: www.envitec-biogas.de

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