

Village Goes Bio

The village of Jühnde near Göttingen has become a model in the use of bio-energy. The commitment of its inhabitants has led to a change in their energy supply and, during the process, they themselves were changed.

Text: Julia Koch, Photos: Wolfgang Beisert

At first glance there is nothing extraordinary about Jühnde. It is one of many villages that are scattered over the flat landscape of Niedersachsen. Its 750 inhabitants cannot support the local trade, so the last bakery has given up and even the only pub is closed. There is not even a regular bus service, for why would anyone stop here? Now there is a reason.

100 Percent Biomass

Jühnde has become special for being the first village in Germany meeting its whole energy demand through biomass. Since 2005 it has produced electricity and heat with its own biogas plant, supplying 75 percent of households with renewable energy. Heat is transported to consumers as hot water at around 80 degrees via a

newly installed district heating network. Electricity is fed into the public grid, getting the village a substantial income. As a model village for biomass technology, Jühnde now gets 7,000 visitors annually and is internationally known.

To achieve something like that people have to be extraordinary. And the first to be noted here is the former mayor August Brandenburg. Born in Jühnde, he was mayor for twenty years till 2006. He was 70 years old when in 2000 the University of Göttingen asked him – as well as 21 other villages – if Jühnde was interested to take part in a model experiment. In a time when prices for agricultural products were low the university wanted to help farmers find a second leg to stand on.

How many 70-year-olds would take on a project like that, get acquainted with a fairly new technology and get a whole village up and going?

August Brandenburg did. He visited biogas plants, and in January 2001 he held a first meeting to inform villagers. 120 people came. "A very high percentage," Brandenburg says. Several farmers live in Jühnde. It appeared that some of them had already given biomass a thought, but nothing had come of it so far. Villagers started inspecting biogas plants all over the coun-

try and returned full of enthusiasm. Their commitment was one of the reasons why the university finally chose Jühnde over other interested villages. "They seemed very dedicated and a lot of inhabitants declared that they would participate," says Professor Dr. Hans Ruppert of the Interdisciplinary Centre for Sustainable Development. Brandenburg and everyone else did the entire work voluntarily. The project also strengthened the community.

"I wanted to get something started," August Brandenburg explains his own commitment. He got most villagers to stand behind the project by getting everyone involved from the first. "People have al-



August Brandenburg convinced his neighbours from the benefits of an innovative technology based on very traditional materials.

ways got to feel that they have a say. We didn't do anything without a consensus." To inform people there were village meetings and street meetings. There was a question hour every week, and old people who could not go out were visited at home. "Some convincing was necessary," says Brandenburg. That nobody was going to be cold, for example. That there would be no liquid manure in the pipes. That they would save a lot of money instead.

There Was a Lot to Do for Everybody

In the end, his efforts were mostly successful, though not everyone decided to take part. Today, about 75 percent of the hous-

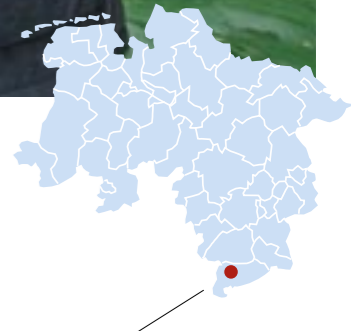
es in Jühnde are connected to the new heating network. "Some people wanted to wait and see. But we said, it's either now or never," says Brandenburg.

There was much more to do. Eight teams worked on questions like "How big is the plant to be?", "How much energy crops will we need?", "Will the whole thing pay off?" To find out how much heat would be needed, villagers were asked to fill out questionnaires. While in other places only ten percent returned the questionnaires, in Jühnde two thirds did.

Brandenburg, not a farmer himself, has become an expert on biomass and related technology. With his fellow campaign-

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August Brandenburg, former mayor of Jühnde



The bio-village of Jühnde in the south of Niedersachsen has only 750 inhabitants.



How horses and cows are contributing to power supply of Niedersachsen



"That was our baby. We wanted to do it ourselves. And not to leave all the details to companies from outside."

August Brandenburg, Jühnde

ers he has visited various plants in several countries, occupying himself with all the details. They did not want to leave everything to one company – an offer made by some firms "somewhat snobbishly" as he recalls. "That is our baby. We wanted to do it ourselves." So they decided on the various components and then asked a company to put them together.

Today, Jühnde owns a biogas plant producing five million kilowatt of electricity and three million kilowatts of heat a year. It feeds on 9,000 cubic meters of liquid manure and on 12,000 tons of energy crops. Farmers provide the manure for free and get the fermented residue as fertilizer. The energy crops are cultivated on their or neighbouring farmers' fields, never more than seven kilometres away, otherwise transport would be too expensive. They sell them to the co-operative that was founded to manage the plant. The advantages are that farmers need fewer pesticides and harvest time extends over a longer period since crops begin to be harvested already at the end of June.

To ensure that the households' heating needs would be met in winter, a biomass plant feeding on wood chips was built, too. It produces 1.5 million kilowatt of

heat per annum. The chips come from nearby woods. Excess heat is used for a new drying plant.

The heat of both plants heats the water to 80 to 90 degrees. It is then carried through the district heating network to Jühnde households where it serves as hot water for domestic use and provides heating. In consequence, villagers could sell their old heating systems and use the space otherwise. Someone else built in a sauna, someone else a party room.

Villagers are not only protecting the environment by preventing about 3,300 tons of carbon dioxide from being released into the atmosphere every year, which would have been the case with conventional heating methods. But as costs for oil and gas are rising, villagers are also saving a considerable amount of money: consumers pay a yearly basic fee of 500 EUR and 4.9 cents per kilowatt hour. That would compare to an oil price of 35 cents per litre – yet today oil costs about twice as much. So villagers save up to 750 EUR each year.

Dark Days, Open Doors

The co-operative earned about 700,000 Euros in 2007 by feeding electricity into the grid. According to the Renewable Energy Sources Act the local energy supplier will have to pay them 17.33 cent per kilowatt-hour for the next twenty years. The profit is used to pay off credits for construction. Total costs amounted to 5.4 million EUR. 28 percent were financed through public sponsorship. Also every house owner connected to the network contributed by paying 2,500 EUR: 1,000 EUR as a connection fee and the rest for three co-operative shares of 500 EUR apiece.

Everything has gone well since the biogas plant started working in September 2005. "We are all very happy with it," says Brandenburg who acts as chairman of the co-operative's supervisory board. He has observed how the attitude towards biogas has changed over the years: "Back then we had to break through some heavy doors. But we did not give in. Today doors are opening."