



Green Energy

Windmill watching over Freiamt

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Schneider farm

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According to Yale and Columbia's Environmental Performance Index (EPI), although it might lag behind some nations in curbing gaz-guzzling cars, "Germany is No. 1 among countries making themselves green by design". Of course, it helps that the country has a vigorously active Green Party. But, interestingly, it was a conservative politician, the country's first and highly enlightened Environment minister Klaus Topfer, who started Germany's environmental campaign. His blueprint, drawn up in the 1980s, holds even today. As Topfer preached: clean technologies and renewable energies are the mantra for environmental success. The politician also insisted that it was vital to work in tandem with industry to help the environment.

Today, German companies are leaders in photovoltaics, wind turbines, waste management and recycling. German companies specializing in eco-friendly tech reportedly already have a turnover of €150 billion a year, with growth averaging 8% a year. According to expert studies, green tech will pass cars to become the country's biggest industry by 2020 and account for 16% of German GDP by 2030.

Best of all, thanks to pro-green legislation as well as benefits offered by the government to those promoting renewable energy, many ordinary farmers and villagers have taken to using green energy in a big way.

During a recent study tour of German environmental projects, I visited two villages that have achieved outstanding success in this field: the apple village of Neuenfelde in the Finkenwerder area near Hamburg in the country's north and the farming village of Freiamt in the Black Forest near Freiburg in the south.

In Finkenwerder there are windmills sticking out of the apple trees. In Freiamt, which is a cluster of five villages with a populace of about 5,000, there are windmills poking out of the pine trees as well as watermills rising out of the river and biogas plants out of grass fields. What's more, Freiamt's villagers – especially the Reinbold and Schneider families – have impressed the world with their simple but innovative ecological measures to save and generate energy.

Apart from investing in the four community windmills and installing solar panels on their roofs, the Reinbolds have invested in a “biogas fermenter” that uses enzymes to turn the grain and grass (that they grow) into methane to make up for shortfalls when the sun doesn't shine or the wind doesn't blow. The gas, in turn, fires up an electricity generator. And rather than release heat generated during the process into the air, like conventional power plants do, their generator funnels the waste heat into nearby homes, where it is used for water and room heating, through pipes laid by volunteers.

Even more creative are Helga and Walter Schneider, 50 and 55, who own a dairy farm a kilometre up the hill from the Reinbolds. In order to harness the energy set free when the milk from their 50 cows is chilled before transport, the Schneiders have installed a heat exchanger that uses the heat from the fresh milk to warm the water needed for bathing and for heating the house.

It's a simply amazing system – as I saw for myself when I visited their farm later that wintry day. Helga Schneider had just finished supper and was tugging on her overalls and thick brown galoshes. “Come, wear my spare boots,

then you can watch me work with the cows,” she said to me matter-of-factly. A few minutes later we were out in the cow pen littered with straw and dung. She herded seven fat cows (at a time) into a tiled alcove abutting the pen, and fixed rubber hoses to their swollen udders. Within seconds, milk was gurgling through a maze of tubes to a copper-plated box, the size of an oven, where the warmth is promptly siphoned off and stored for heating.



Helga Schneider with her cows

The Schneiders supplement the heat they generate from cow milk with a zero-emission wood-chip boiler installed in their basement. “The boiler is fired scraps of wood littering the forest floor behind our house,” said Walter, who is acknowledged as the most innovative farmer in Freiamt. “Earlier, the scraps would just rot, now they help produce energy.”

The couple has also invested over 10,000 euros into the community windmill project and installed photovoltaic solar panels on the roof of their farmhouse and on two barns. The

panels alone produce about 30,000 kilowatt hours of electricity a year: 50% more than they use. By feeding this to the national grid, they earn about 15,000 euro annually. “That's not a lot, but the money helps fill the gap left by low wholesale milk prices and allows us to save for our retirement,” revealed Helga. “We are in a global recession, as you know, and we need to ensure our safety in old age.”

The farmers of Freiamt are not rich, but they are motivated and creative, as local activists Erhard Schulz and Ernst Leimer, who started the renewable energy movement in Freiamt a decade ago, pointed out proudly. Schulz, who lives in the nearby town of Emmendingen, is founder-director of the Innovation Academy, an organisation that lobbies for and promotes the use of renewable energy. Leimer is a chemist in a nearby town and heads the wind energy association of Freiamt.

“Over the last decade, the people have shown people what is possible with green energy. And their turn towards green energy has not been about grand ideals, but about implementing simple and clean new technologies that can fetch them a fair return while protecting the environment,” observed Schulz. “They have proved that going green is not a terribly complex or costly proposition.”

As Schulz showed us around Freiamt's four windmills and important eco-projects, he told us about their green adventure. “It started when some Hamburg investors showed interest in setting up windmills in Freiamt. The



Freiamt village in Black Forest draws thousands of eco-tourists

villagers wanted no outsiders muscling into their land, so they decided to erect the windmills themselves. Within a month or two, they raised the down-payment of 1 million euro. The banks loaned them the rest of the 6 million euro required to install the wind turbines,” said the activist, who escorts visitors to these windmills almost every day. “The turbines were a success from the first day.”

Today, together with other renewable energy projects such as bio-gas and watermills, Freiamt’s windmills generate 4.3 million kilowatt hours per year – 2.3 million Kwh more than the village needs. So, the village sells the surplus to the national grid. That fetches it an annual return of 10%, thanks to Germany’s feed-in tariff law, which requires electricity-grid operators to buy renewable energy at a premium rate, explained Schulz. A share of the profit is ploughed back into creating more green energy in the village.

Way up north in Neuenfelde in the Finkenwerder area of Hamburg, it is a similar story. The 20-hectare Stehr apple



Red apples and white windmills at Stehr farm

farm with its seven windmills is a must-see for those interested in wind energy. The only difference is that Peter Stehr, whose orchard has been in his family for five generations, is an affluent farmer. He raised the 10% down payment on a bank loan of 4.25 million euros for his seven windmills with the help of two partners. Six of the windmills were installed in 1996 and one in 2002.

“We have a big loan to repay but it is not difficult because we’ve earned a good income from the start from the windmills,”

said Stehr, as we walked through his apple trees with Hamburg’s wind energy chief, Heinz Otto. “In 2008 we produced 6.7 million Kwh of electricity, which earned us 600,000 euro from the local grid. Our earnings were substantially higher than our pay-back to the bank, so there is every reason to smile.”

There are other apple farmers who have also introduced windmills in Neuenfelde but the Stehrs have the biggest number. But these are private windmills. Freiamt is special in the sense that its windmills belong to all the villagers. And they are proud to show the rest of their country and the world that they are quite capable of thriving without intravenous feeding from the national power grid.

Environmental activists and Green Party members hope that more and more villages will follow Freiamt’s sterling example, and that Germany will be able to meet its target of producing 20% of its electricity from renewable sources by 2015 and, eventually, to meet the EU target of reducing emissions by 30 to 40% by 2020. ■