



## Energy Co2 : Renewable Energy

### Biogas: Power Ranchers

**Germany is trying to reduce dependence on coal, oil, and nuclear power, but renewable energy is limited in many parts of the country. Many farmers discover biogas as an alternative.**



Josef Pellmeyer and some of his renewable energy sources (Photo: Allianz)

For people with a strong sense of smell, hanging around an energy plants that ferments manure, biodegradable waste, or feedstock to produce biogas can be, well, a challenge. But for anyone with a nose for climate-friendly energy, biogas carries the aroma of potential.

In 2006, some 3,500 biogas plants produced less than one percent of Germany's electricity. According to forecasts by the German Biogas Association, that figure could climb to ten percent by 2020. To encourage this kind of development, Allianz and its subsidiary Dresdner Bank have started to finance and insure biogas plants.

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While many of the existing plants use methane produced by landfills and other waste deposits, farmers like Josef Pellmeyer, who is also president of the German Biogas Association, brew their own special mixture to produce energy. Huge fermenters are loaded with a mix of energy plants, food waste, grass cuttings, old hay, and a good dose of liquid manure, and within a few days, they start to produce biogas.

#### Feeding power to the grid

As in a cow's stomach, decomposition of the organic material produces gas containing about two thirds methane and one third carbon dioxide. Burnt in a cogeneration plant, this gas can produce enough energy to power a huge farm and feed excess power to the local grid. The waste heat can be used to warm fermenters or buildings.

Satisfied with his first plant, Pellmeyer decided to install a second biogas plant on his farm in 2006. The loan for it came from Dresdner Bank, and the insurance coverage from Allianz. Klaus Schmuck, head of the Renewable Energy Competence Center at Dresdner Bank, sees Allianz and Dresdner as leaders in financing and insuring biogas projects. Allianz and Dresdner, he says, provide "an all-round package including insurance, financing and technical advice – no one else on the market can offer that."



### Picture Gallery (click the image to start)

How sustainable are biofuels? See five of the most important crops and whether they help to fight climate change

This is all good news for farmers. Awareness about climate change, renewable energy, and the role that farmers can play has improved their image among the general public. "It's given our confidence a great boost," says Pellmeyer.

### Finding the right balance

Until last year, Pellmeyer farmed his 150 hectares near Munich Airport the traditional way. Now 70 percent of his harvest goes to energy production, the rest being used as feed for his 200 cattle. Almost all the electricity generated by his plant is fed into the local power grid; he needs only ten percent to power his farm.

Biogas may also help reduce Germany's dependence on energy exports. According to the Biogas Association, even if only ten percent of the arable land in Germany was used for energy production, and cultivation and exploitation methods were optimized, biomethane could replace half the natural gas imported from Russia.

### Energy vs. food production?

By 2030 some 4.5 million hectares, ten times the land used today, could be made available for the cultivation of energy-yielding plants. One quarter of cultivable land in Germany would then be used for energy production. "And that's without cutting food production in any way," adds Pellmeyer.

OECD-experts argue that energy production from biomass uses more energy than it actually produces. Biogas plants like those installed on Pellmeyer's farm, however, are more efficient than other plant-based energy systems. One hectare of land can produce enough biogas to run a car for 70,000 kilometers - three times more than could be achieved with biodiesel, the most common biofuel in Germany.

The news about biogas has apparently spread. In 2004, China's Premier Wen Jiabao took a tour around Pellmeyer's farm. For China's rural population, biogas production could prove a new source of income,

while for the country as a whole, biogas could satisfy some of China's ever-growing energy needs.

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