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[Home](#) > [News](#) > News Detail

### From Cow Pies to Kilowatts: Maine Dairy Farm Turns Poop into Power

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by Jay Field

[MPBN news story](#)

Say you live down the road from a dairy farm. You really love your land and your house, the rural, rustic beauty of it all, but the smell is starting to wear on you. But what if the manure producing that strong odor was also heating your house, keeping your lights on, making your car run and becoming less stinky in the process? A spinoff company at a dairy farm just north of Bangor is running a renewable energy system that hints at a day when these things might be possible.

Stonyvale Farm is a fifth generation, family milking operation in the town of Exeter. Roughly 1,000 cows call the place home. They produce about 7,900 gallons of milk a day and around 30,000 of manure. The milk ends up on the shelves at the grocery store in the gallons or quarts sold by Garelick Farms and Hood.

As for all that the poop? About 70 percent of it goes into pipes that run underground to a pair of wide, red silos covered by black mesh.

They're anaerobic digestion systems. Sitting side by side, they look like one gigantic contact lens case. "They're 400,000 gallons apiece. Inside those domes is where all the magic happens," says Adam Wintle, who runs the firm Biogas Energy Partners.

Wintle says the manure gets mixed with organic food waste and is carefully metered into the two domes. "The mixture is heated to about a 105 F (Fahrenheit)," he says.

It's at that temperature, and that temperature only, that the methane bugs--tiny microbes that rode over in the manure flow--begin to do their thing. "The bugs actually start producing biogas," Wintle says. "That's the whole vehicle behind this project is creating biogas and sending it to an engine that can burn it."

Burn it to produce electricity and a renewable alternative to heating oil. This project has its roots in some of the market forces sweeping the dairy and energy industries in the U.S.

Dairy farmers face increased pressure to find other sources of revenue to offset the swings in milk prices that can lead to annual losses and the erosion of business equity. Federal and state standards on manure management and air emissions are expected to become more stringent as the years pass.

And demand for renewable energy alternatives in the U.S. will continue to grow, due to unstable oil prices and the growing market for renewable energy certificates and carbon credits.

"With the changes in technology that have happened, we felt it was the right time to take this project on," says Travis Fogler, who runs the dairy operation at Stonyvale Farm.

The farm formed a spinoff company, Exeter Agri-Energy, which secured funding from Efficiency Maine, the Farm Credit of Maine and the U.S. Department of Agriculture. Exeter Agri-Energy runs the anaerobic digesters. A second firm, Biogas Energy Partners, handles all the business activities.

The project generates enough heat to replace 700 gallons of heating oil a day. It also produces enough electricity daily to heat 800 homes. Power is sold to the grid and then routed back to the farm. And Fogler says the project has helped save the farm money in other ways too.

"After the manure has been processed in the digester, we run it through a separator to separate the solids out of the end product," Fogler says. "And that solids we are able to use as bedding for the cows. So it's reduced our bedding cost."

Reduced them by a about \$80,000 a year. Walt Whitcomb, Maine's Agriculture Commissioner and a dairy farmer himself, says the technology holds more promise than other renewable energy alternatives, for one simple reason: "It's not like the wind. It doesn't stop and start. These cows never stop," he says.

More than a hundred similar experiments are going on in other states around the country including Vermont, New York and California. Anaerobic Digestion is much farther along in Europe.

[to top](#)

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[to top](#)

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