

Manure entrepreneur turns dairy waste into green energy

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The back end of a cow provides the front end of the green-energy business that Kevin Maas is slowly expanding in Western Washington and Oregon.

With missionary zeal, he and his brother Daryl build modest electricity-producing projects that help family-owned dairy farms preserve their key role in the agricultural ecosystem.

Their company, Farm Power, turns [manure](#) into electricity, fertilizer and bacteria-free animal bedding in Mount Vernon and Lynden. Another plant is slated to break ground this summer in Enumclaw, Wash., and two are planned in Tillamook, Ore.

The technology is fairly simple. What's hard about a manure digester is linking farmers, bankers, regulators, environmentalists and utilities.

"An urban liberal would get laughed off the farm" for trying to convince risk-averse dairymen they can save money while benefiting the environment, said the lanky, bearded 35-year-old.

But with rural roots, as well as an MBA, Maas seems uniquely suited to the task.

"Whether anyone else could have carried this off I don't know," said Don Wick, executive director of the Skagit County Economic Development Association in Mount Vernon. "I had to admire their

tenacity and boldness. They really believed in this."

Maas' fervent push for digesters grew from seeing family dairies slowly disappearing, despite their central place in the farm economy as sources of year-round jobs, natural local fertilizer and, of course, milk. His uncle in Minnesota recently gave up on dairy farming.

"It's tragic," Maas said.

He himself has never milked a cow, though he raised a calf as a 4-H project. Still, growing up in Mount Vernon, both he and his younger brother worked summers for nearby farmers who grew everything from tulips and blueberries to spinach and hay. Their parents came from farm families, as did many friends at Mount Vernon Christian School.

"There were a lot more farms and a lot more cows" in Skagit County back then, Maas said. "At that point everybody milked 30, 40, 50 cows. ... Now you can't make a middle-class income with that."

Even dairies with several hundred cows are being squeezed by urban sprawl, environmental regulations and spiking feed costs. Adding electricity to the mix of farm products can help them survive, Maas said.

Yet Washington, with nearly 500 dairy farms, has only five digesters.

Maas was teaching high-school history in southwest Minnesota when he saw farmers setting up wind turbines on their land to generate electricity and supplement their income.

"It was really exciting to see these \$2 million projects going in, and local guys owned them," Maas said.

He and his brother tried to get a wind project going on their uncle's farm

but lacked the financial savvy, Maas said.

So he enrolled at Bainbridge Graduate Institute on Bainbridge Island, which calls itself the first MBA program in sustainable business.

Farm Power's business plan was his final project at the school. Daryl, after finishing a tour in the Air Force, joined him in 2007 to form Farm Power. That first digester wasn't easy. "It took us two and a half years from when we started the company to when we made the first kilowatt-hour," said Maas, who is Farm Power's president.

Working through environmental regulations, utility contracts and bank-loan requirements was one challenge; persuading farmers to get on board was another.

"Dairy farmers are very nervous about somebody showing up and telling them there's a better way," said Daryl, Farm Power's CEO, who now lives in Redding, Calif.

Being local boys helped. "The Maas family comes with a great reputation in the community. I've known the father for years," Wick said.

Maas said he was confident Farm Power could pull it off, but "there were times that were a little scary" - like discovering the utility lines to deliver their electricity to Puget Sound Energy would require a six-figure upgrade.

Two adjacent dairy farmers, who milk 1,200 cows south of town in an area called Rexville, agreed to supply the manure. Farm Power's initial project opened in August 2009.

Now a large red generator hums loudly inside a spartan metal building.

Bright-yellow pipes feed in methane gas that rises off the digester's sealed outdoor pool of slurried cow manure.

Burning that potent greenhouse gas, Farm Power's Mount Vernon and Lynden generators produce enough electricity for about 1,000 homes. The methane kept out of the atmosphere equals the annual greenhouse-gas emissions of 3,000 cars.

The digesters also yield nutrient-rich liquid fertilizer and pathogen-free fiber - straw and such that survived the cows' digestive process - that the farmers use for bedding in their dairy barns. The two Mount Vernon farms save about \$100,000 a year because they don't need to buy straw or sawdust for cow bedding, Maas said.

"It's just a big old circle. And when it's done right, that circle is very beneficial to us," said Jason Vander Kooy, the 35-year-old farmer whose dairy sits north of the Mount Vernon digester. "We're very happy with it."

The firm sells electricity to Puget's Green Power program, supported by utility customers who voluntarily pay extra to help sustainable energy projects. Farm Power also sells carbon offsets, which help pay off its loans while enabling other companies to claim credit for the greenhouse-gas reductions.

Maas layers a variety of funding sources for each digester, which typically costs \$3 million. The first 10 or 20 percent comes from investors; most of the rest comes from bank financing guaranteed by the U.S. Department of Agriculture.

Farm Power last fall raised about \$750,000 in a private stock offering. Rather than trying to tap big money from the big city, "We are funded Midwestern style, by middle-class investors, mostly right in the area,"

said Maas. Those 58 investors recently got a small dividend as Farm Power reported its second annual profit, but it plows most of its earnings back into the business.

Troy Wallin, who milks 300 cows and farms 350 acres near the planned Enumclaw digester site, said, "There's been four different companies that were gonna come in and do this." The others were stymied by King County's stringent environmental rules, among other things, he said.

Farm Power seems to be succeeding where others didn't, he said, because "those Maas brothers are goers - they're putting the legwork in."

The digester would cut his expenses and reduce the work of managing the dairy's manure, thereby improving his chance of continuing the way of life he grew up in, said the 41-year-old farmer.

Maas shares that hope.

"They want to be there for generations," he said, "and so do we."

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