

California's Dairy Industry Knows How to Cut Its Greenhouse Gas Emissions, But Can It Afford To?

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By Adam Ashton

[Greenhouse gas rules prompt California dairies to build methane digesters](#)

The rumbling of a tank-sized generator on the grounds of the Van Warmerdam Dairy is a sound of relief for the longtime farming family.

It's a signal that the Van Warmerdams won't have to change the way they do business much to comply with the looming air quality regulations that aim to slash the sizable carbon footprint of California's dairy industry.

Their Galt ranch is one of no more than 20 in the state that has a working methane digester, the expensive equipment that turns the greenhouse gas emitted by cow manure into a source of renewable energy.

"We didn't have to, but we thought if we can put it up and be environmentally friendly, we thought we'd be safe (from air quality regulations) for 30 years," said Peter Van Warmerdam, whose family won a grant that helped it open its digester in 2012.

Today, many more California dairies are trying to figure out how they, too, can cobble together enough money to buy their own digesters. They anticipate regulations that would compel them to slash methane emissions by at least 40 percent by 2030, the target set by a bill awaiting Gov. Jerry Brown's signature.

Hitting that target would require about 200 of California's 1,400 dairies to join the Van Warmerdams in building a digester, said Michael Boccadoro, president for the advocacy group [Dairy Cares](#).

Dairy advocates say it's a tall order.

Each machine usually costs several million dollars. The companies that build them are trying to meet the demand for their services. Full-time dairymen also have to find utilities to buy the power they can generate on their farms. Otherwise, they won't recover the cost of the equipment.

“The industry is concerned they’re getting set up for failure,” Boccadoro said.

Brown’s administration, through the California Air Resources Board, has been weighing methane restrictions for the past two years. The agency in April published a report calling for a 75 percent reduction in dairy methane emissions by 2030. Compared to manure, about an equal amount of methane is emitted from cow burps and flatulence – a source of emissions that digesters wouldn’t curtail.

The compromise bill the Legislature passed in late August set a lower goal. It’s not clear yet how the Air Resources Board will interpret the new law if Brown signs it, a spokesman for the Air Resources Board said.

Agriculture accounts for more than half of California’s methane emissions, making it an obvious industry for the air board to regulate as it tries to carry out Brown’s direction.

Methane is a less common greenhouse gas than carbon dioxide, although studies suggest it’s much more potent in trapping heat in the Earth’s atmosphere. It builds up in dairy manure pits, where farmers store waste for months until they can spread it on the crops they grow to feed their cows.

Digester systems tend to cover the manure pit with a tarp. As the waste decomposes, methane lifts and becomes trapped under heavy plastic.

Several times a day, a small power plant connected to the pit draws down the methane and burns it in the same manner that utilities use natural gas.

“We’re generating clean power, and we’re destroying a greenhouse gas. You can’t beat that,” said Daryl Maas, whose Redding-based [Maas Energy Works](#) manages the digester on the Van Warmerdam farm.

Since 2012, the air board has sought to encourage construction of more digesters by offering incentives through the state’s cap-and-trade program. For example, businesses that emit large quantities of carbon dioxide, such as oil refineries, can pay dairies with digesters to offset pollution elsewhere. Maas said he earns as much as a quarter of his California revenue from selling those offset credits.

But so far, the number of digesters has remained far below what environmental groups hoped to see.

“The state is pushing these projects. We as an environmental organization have been pushing these projects. There are really great environmental benefits to these projects, but we’ve had a number of projects that just haven’t been able to get started,” said Rachel Tornek, policy director at Climate Action Reserve.

One of the biggest barriers, she says, is that dairymen have full-time occupations managing farms with hundreds or thousands of cows, leaving them little extra time to operate expensive equipment outside of their expertise.

That's why some dairies have partnered with companies such as Maas Energy or Washington state's [Regenis](#) to build and operate digesters. The power company finds a buyer for the gas and keeps the equipment running. The dairy tends to receive rent from the business running the digester.

"You can only have so many 24/7 priorities," Maas said, empathizing with the dairymen.

Dairies that want digesters tend to do better if they can win a grant to help them get started. A 2014 study from the California Energy Commission found that the systems have not been economically viable without grants.

California expects to offer about \$50 million in methane reduction grants to dairies, according to a [spending plan for the state's cap-and-trade revenue](#). Boccadoro said that money would buy about 18 to 22 digesters. An early draft of the air board's methane reduction proposal called for the release of up to \$500 million over five years to [help dairymen reduce greenhouse gas emissions](#).

The Van Warmerdams received about \$900,000 from the U.S. Department of Energy and the California Energy Commission. Theirs is now one of five that help fuel the [Sacramento Municipal Utility District](#), which has courted dairies for the past few years.

"SMUD was very proactive" in winning over the Van Warmerdams, Peter Van Warmerdam said.

His family farm's digester is one of the smaller ones in the state. It's fed by manure from about 1,400 cows and can power about 400 homes when it's running at peak capacity, Maas said.

On a recent visit to the Van Warmerdam dairy, Maas and his son walked on the balloon-like tarp covering the dairy's manure pit.

Aside from the clean power heading to SMUD's electricity grid, the digester had one other noticeable benefit. With a tightly covered manure lagoon, the Van Warmerdam farm did not smell as pungent as most dairies.

"The farmer gets what he wants, we get what we want and it smells better," Maas said.

Reducing methane from dairies: Click on the red dots in the map below to see all the California dairies with working methane digesters (digesters at two dairies are in construction, shown as orange dots).

Read more here: <https://www.sacbee.com/news/local/environment/article101657322.html#storylink=cpy>
