

Posted: Thursday, August 12, 2010 9:00 AM

Bureaucracy stifles dreams of digesters

Manure offers profit and energy -- but permits drag process out for years

By [WES SANDER](#)

Capital Press

LODI, Calif. -- The thick rubber sheet covering the 2-acre lagoon of Larry Castelaneli's digester here billows upward during the summer, when the microbes underneath churn out methane.

Castelaneli can walk across the puffy covering to check several release valves, which often allow gas to escape. The valves are necessary because more methane comes from the manure beneath the rubber than Castelaneli's generator can use.

The electrical generator, a large engine sitting adjacent to the lagoon, produces about 300 kilowatts by burning the methane. Castelaneli's household and the 1,600-head Castelaneli Bros. dairy use about half that. The rest is sold to utility PG&E, which signed a "lucrative" contract to buy the electricity, Castelaneli said.

Castelaneli said his financing for the digester -- about half of its \$1.5 million cost, the rest paid for by grants -- will be paid off in about five years. Maintaining the generator's emissions-reduction system according to strict regulations can run up costs; otherwise, keeping a digester running is inexpensive.

"Why more dairies aren't doing this is beyond me," Castelaneli said.

Part of the answer to that question lies in the cost. But in California, the other, more often-cited reason is the regulatory climate in the San Joaquin Valley, where most of the state's dairies reside.

Regulatory hurdles have slowed adoption of the technology in California, many dairy owners and industry observers say.

Long, costly process

Producers describe a process of permitting with the valley's Air Pollution Control District that takes 18 months and usually requires hiring a consultant. Some say they would never have taken on the expense if they'd known how long it would take.

The unpredictable nature of the permitting process introduces considerable risk when dairy owners must line up hundreds of thousands -- even millions -- of dollars in financing, said J.P. Catiuela, program coordinator with Dairy CARES, a conservation-oriented industry group.

"Right now, the risk is ridiculous," Catiuela said. "The folks who have been successful at it have been the folks who have been able to manage that risk."

Their numbers remain small. Allen Dusault, program director of the farm-oriented nonprofit Sustainable Conservation, said only about a dozen digesters currently operate in the state, with another four in development.

Dusault works with regulators and the dairy and energy industries to reduce the costs of permitting and connecting with the local energy grid. While farmers once built digesters themselves, most now contract with third-party developers, who have access to venture capital, to build and operate the facilities.

"Dairymen are in the business of producing milk, and the energy business is not a simple business, and I think they're discovering that," Dusault said.

But financing is difficult in California without environmental permitting in hand, and circumstances have caused some developers give up on California, Dusault said.

Streamlining permits

In an attempt to smooth the process, dairy producers, environmentalists and the valley's air and water boards are hashing out a permitting formula that will standardize the process to make it shorter and less costly.

After a public-comment period wraps up this month, the state-run steering committee -- composed of the agencies involved and a list of stakeholders -- is expected to produce a draft by autumn, with possible approval by the water board, which functions as the lead agency, by December.

The document would provide a template of requirements for digester permitting, streamlining the process. Many in the carbon-trading industry are keeping an eye on the process, anticipating the growth that might occur if it suddenly becomes easier to permit a digester in California, the nation's leading dairy state.

Dairy-digester technology dates back to the energy crisis of the 1970s, and attention has returned to it in recent years.

Many have third-party certification as carbon sinks, allowing them to sell offset credits in the nation's growing carbon markets. But the big advantage comes from the surplus energy sold back to local utilities, which face pressure from California's global-warming laws to expand their renewable-energy portfolios.

Kathryn Goldman, who oversees agricultural programs for Climate Action Reserve, said the nonprofit has registered 47 livestock operations under its protocol nationwide, nearly all of them dairy digesters.

The U.S. Environmental Protection Agency rates the San Joaquin Valley's air as some of the nation's worst, a designation requiring the state to apply strict rules to the region.

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Larry Castelaneli, of Castelaneli Bros. Dairy in Lodi, Calif., looks over readings that show how much methane is feeding into the generator of his dairy digester on Aug. 6.

An effort by the industry, environmentalists and the San Joaquin Valley's air and water boards could standardize the permitting process for digesters, reducing the time and cost involved. Considering the environmental benefits and profit opportunities associated with digesters, Castelaneli says it defies reason that regulations are slowing their adoption in California. "Why more dairies aren't doing this is beyond me," he said.

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Nitrous oxide, commonly known as "nox," is produced when material is burned, including the fuel in an internal-combustion engine. While the air board imposes the same pollution-control rules on cars as it does on digester engines, the latter haven't been standardized into a familiar form. Because every case is different, the air board's permitting process for each digester draws out into a long, costly process, said Dave Warner, the air board's permitting director.

Nox emissions in the valley are "pretty much everything for us," Warner said.

Warner disputes the notion that the air board stifles creativity, citing examples in which digesters have been permitted using new technology.

But the board must follow rules requiring best-available technology for controlling emissions, and finding the right fit for digesters -- which often possess unique elements of design -- is often a complex process, Warner said.

Warner says the board is optimistic about the permit-streamlining effort.

"I think there's a really important place for this (environmental impact report), in that it can address virtually all of the air district's concerns," he said. "It's terribly important that nox emissions be controlled as well as they can."

Concerns remain

John Fiscalini, who runs Fiscalini Farms and Fiscalini Cheese Co. near Modesto, Calif., said he wouldn't have embarked on his digester odyssey had he known how difficult permitting would be.

Fiscalini made a larger investment -- about \$3 million -- in his digester, an above-ground design that offers greater efficiencies and the potential for bigger returns. It's said to be the only digester of its kind in the Western states.

But Fiscalini said in order to get ahead of the loan payments, he needs to digest other materials such as tree prunings, which he could import from neighboring farms. But water-quality rules are getting in the way of that effort, and Fiscalini once again finds himself in a drawn-out process.

"A lot of what we're doing is hopefully going to benefit agriculture," Fiscalini said. "But we don't want to be penalized" by regulations.

Fiscalini hired Fresno-area consultant Nettie Drake to help pursue his original permitting, which likewise involved a year-and-a-half effort with the air board. Drake said she emerged with a pessimistic view of the air board's rigid approach.

In April, Drake became a member of the steering committee, and has since become more optimistic. While the air board has continued to display rigidity in its proposals, the board seems more amenable to the process than she had anticipated.

"My concern is that they're really harping on standards and equipment that is, again, not proven," Drake said. "(But) I don't feel like it's going to be a show stopper, if you will."

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