



By Steve Werblow

PUMPING GAS

This entrepreneurial dairyman taps into the gas market

David Albers was sick and tired of hearing about methane digesters. A third-generation dairy producer and environmental lawyer based in Bakersfield, Calif., Albers found nearly every time his dairy clients went through the environmental permitting process—which requires public comment—someone would insist that the dairy needed a digester and electrical generator. And rarely did it pencil out profitably.

“What we figured out was that a digester in a dairy would be expensive,” Albers says. “It would produce more power than the dairy needed.” Burning digester gas also opened up a new

can of worms for dairies—the need for air quality permits for the nitrogen oxide emissions of the generators.

But in 2006, talking with executives from Pacific Gas & Electric (PG&E) about California’s Renewable Portfolio Standard, which requires the state’s utilities to source at least 20% of their energy from renewable sources by 2010, the game changed in an instant.

New model. “They asked me, ‘what if we buy your gas instead of your electricity?’” says Albers. “That sparked a discussion.”

Unlike electricity, natural gas may be stored until demand arises, notes Ken Brennan, who oversees biomethane connections for PG&E.

Within months, Albers turned that discussion into a new business plan for methane digesters, and signed a 10-year agreement to sell up to 3 billion cubic feet of biomethane to PG&E at a premium over fossil-based gas. The methane would be produced in digesters on dairies, cleaned to the same specs as the utility’s natural gas, and injected into PG&E’s gas pipeline.

Albers put his money where his mouth was—dairy number one was his own Vintage Dairy near Riverdale, Calif., where he milks 2,600 head on a flush-lane operation that happens to be sitting on PG&E’s pipeline.

Albers’ operation, though built to grow to 4,500 milking cows, isn’t big

►**Above:** BioEnergy Solutions has purified and pressurized its biomethane and injected it into a Central Valley gas pipeline since October 2008.

enough to spread out the cost of the gas-cleaning and pressurizing equipment. His model calls for creating clusters of dairies in a 5-to-15-mile radius—representing 20,000 to 80,000 cows—that tie into a central scrubbing facility. Each dairy has a storage and covered digester system that suits its operation and a skid-mounted blower/chiller that pumps its raw biogas into a low-pressure PVC pipeline.

Rather than string together easements from private landowners to build the low-pressure pipelines, Al-



►**Above:** This 37-million-gallon digester extracts methane from manure in a 40-day cycle. The gas helps satisfy California’s demand for renewable energy. ►**Left:** David Albers, a dairyman/lawyer, created a new model for digesters and a win-win for producers, utilities, and the environment.



near Chowchilla and Hillmar, Calif.—the hydrogen sulfide is converted into water and elemental sulfur that is applied to surrounding farmland. A pressure swing adsorption unit, operating at 850 psi, acts like a molecular sieve to capture CO₂. Then the pressure of the newly scrubbed gas is lowered to 650 psi and injected into the PG&E pipeline.

Share revenue. Under the BioEnergy Solutions model, the company installs the digesters and blower/chillers on each participating dairy and owns the central scrubber.

“You don’t have any costs,” Albers tells fellow producers. “We analyze the best type or digester and integrate it into your operation. We share revenues from the sale of gas. We and the producers get a percentage of the carbon credits as well.”

In fact, carbon credits could be a huge part of the revenue stream, he notes, especially if federal law pushes industrial facilities to buy credits to offset their own emissions. By capturing methane—a greenhouse gas 21 times more potent than CO₂—BioEnergy Solutions’ digesters could be a rich source of credits.

“Our approach is to give this industry a new story and a new source of revenue, and make it sustainable in the long run,” says Albers. ■