



Vermont-based Farmers Host Large AD Operation, Supplying Neighboring College With Renewable Natural Gas

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A Vermont farm, neighboring college, and utility are partnering with Vanguard Renewables on a project that has capacity to convert about 180 tons of food and beverage waste and 100 tons of manure into renewable natural gas (RNG) each day. The anaerobic digestion (AD) operation, reportedly the largest in New England, comes with advantages unique to each party's interests, while giving Vermont food producers an outlet for mega volumes of scraps.

For facility host and Goodrich Family Farm co-owners Danielle Goodrich-Gingras and her brother Chase Goodrich, a large impetus was a better, more environmental way to manage the massive tons of manure their cows produce. It's achieved through a phosphorous (reduction) system; which helps protect the Otter Creek Watershed that feeds into Lake Champlain from nutrient loading.

The manure comes back to the farm for fertilizer, which is basically digestate left after the AD process, once the phosphorus is extracted. But the product is of a better quality because it was co-digested with food scraps. Solids are spun out to produce dry bedding for the cows.

“[The arrangement] works well for us as dairy farmers. We just supply land and our cow manure, says Goodrich-Gingras.

“So, we are free to do what we want from day to day, and that’s be dairy farmers. It’s caring for our cows, land, and employees, and managing our manure more efficiently,” Goodrich-Gingras says.

Vanguard has staff on site operating the system five days week and on call 24/7. They feed the microorganisms that break down organics, ensure the necessary chemistry and biology, and monitor the mechanical energy conversion systems.

She sees the project as one means to work toward a tall goal; staying sustainable, environmentally and economically, to survive for the long haul while benefiting the community.

“We can take manure and food that would otherwise rot in a landfill and use it to produce high-quality crops. At the same time, we support our neighbor, Middlebury College [who receives the RNG to heat its campus].”

Goodrich-Gingras would tell other farmers to be open minded if they have opportunity to invest in a project like this.

“The way we farm changes daily, and I think the more we can focus on the environment and being sustainable, the better we will be able to adapt,” she says.

Vermont Gas System pulled six miles of pipe, which goes to a hub, with two-thirds of Vanguard’s RNG output going to Middlebury College and the remainder providing green power to other utility customers.

Purchasing the lion’s share will help the college realize its commitment to reach net zero carbon emissions by 2028, after achieving carbon neutrality in 2016. Among key components of the 10-year energy initiative, which launched in 2019, is to source 100 percent of its heat from local, renewable energy. About 60 percent of that will be RNG, says Jack Byrne, dean of Sustainability and Environmental Affairs, Middlebury College.

“Middlebury’s participation in the RNG project resulted in the creation of a new local source of energy that did not previously exist. And by using RNG, Middlebury is further diversifying its fuel sources,” Byrne says.

The educational institution’s sustainability interests extend beyond working to decarbonize its operations.

Middlebury runs one of the oldest undergraduate environmental studies programs in the country. Students learn about and engage in sustainability work in and out of the classroom and have been involved in this RNG project in ways from touring the facility, to doing research and producing videos, to joining conversations on project goals.

“Middlebury's focus on the environment though projects like this aligns with our mission, which includes preparing students to address the world's most challenging problems, and one of the most significant of these is the [climate] crisis facing the planet,” Byrne says.

The school's buy in was big in advancing the project in Vanguard's eyes.

“The college is a key thought leader in the community. It is an intellectual institution, and that Middlebury supported the project was very helpful in coalescing community thinking around RNG and in explaining this was a smart thing to do,” says John Hanselman, Vanguard Renewables founder and chief strategy officer.

As important was onboarding food manufacturers, retailers, distributors, and grocers, which wasn't hard when they saw their would-be discards were not waste but a misplaced resource.

“Once we said you are helping the farm, the environment, and yourself by being true to the mission of sustainability we got a strong adoption rate.

We were able to say look at the story you can tell your customers. And that was powerful,” Hanselman says.

The regulatory environment was right, as Vermont has one of the most comprehensive and robust laws around food waste. The state's Universal Recycling Law – Act 148 – bans this material from landfill.

Adding manure to the mix has enhanced the process. It has a good density of microorganisms that efficiently break down feedstock to convert to biogas, while helping farmers through a rough, changing economic landscape.

Fertilizer costs have risen fourfold since Russia's invasion of Ukraine, according to Hanselman. Goodrich and Vanguard's other farm partners get it at no cost and it's of a higher nutrient value than most imports according to Hanselman.

Beyond hitting such politically driven barriers, American farmers are increasingly getting pummeled by the climate crisis.

“When we can support them, we get a bigger whammy. We help farms, the environment, and the community. For us that's the most powerful thing we can do – to help American agriculture be more sustainable and more survivable.”