



Green Mountain Power: Cow Power

Vermont

Program Description

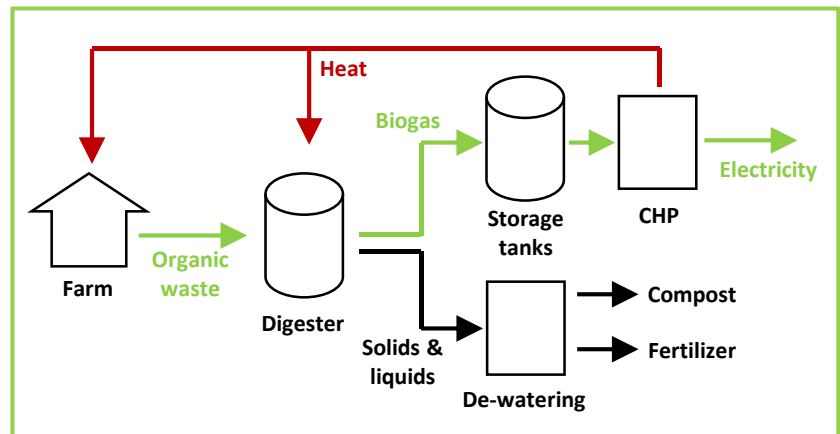
The largest electric utility in Vermont, Green Mountain Power Corporation (GMP), offers Vermont farmers a production incentive to generate electricity via anaerobic digestion of cow manure, thus the name “Cow Power.” Participants receive \$0.04/kWh produced, in addition to Vermont Standard Offer Program rates. Eligible systems must be connected to the grid and agree to sell renewable energy credits (RECs) (1 REC = 1 MWh) to GMP for five years. Although the Cow Power program specifies neither minimum nor maximum generation capacity, the Vermont Standard Offer Program limits participation to distributed generation systems between 150 and 2,200 kW. Vermont farmers also benefit from odor reduction, weed seed destruction, and “free” heat from the combined heat and power (CHP) system to heat farm buildings, domestic hot water, and greenhouses.

GMP offers the RECs and other environmental attributes such as carbon credits to the utility’s 265,000 customers via a \$0.04/kWh voluntary tariff added to a customer’s retail costs per the applicable rate class. GMP customers can purchase 0%, 25%, 50%, or 100% of their power through the Cow Power program.

If customers purchase more Cow Power RECs in a month than are actually generated that month, GMP will try to acquire and retire RECs from other regional renewable generation sources. If there are no \$0.04/kWh or cheaper RECs available in the regional market, GMP will deposit Cow Power payments into the GMP Renewable Development Fund, which incentivizes farmers to become more involved in the Cow Power program. In summary, GMP transfers the \$0.04/kWh voluntary tariff from the electric customer to the farmer; GMP does not profit from the program.

Quick Facts

LOCATION: Vermont
MARKET SECTOR: Agricultural
PROGRAM/POLICY TYPE: Production incentive
IMPACT: 73,000 tons of methane/year
PROGRAM START: 2004



Anaerobic digester facility diagram

Program Development

After receiving permission from the Vermont Department of Public Service, Central Vermont Public Service (CVPS) began offering a voluntary \$0.04/kWh “Cow Power” tariff so customers could purchase renewable power. Later, after a merger between CVPS and GMP, the opt-in Cow Power program became available to GMP’s 265,000 customers. The first farm to begin producing renewable power for the program was Blue Spruce Farm in Bridport, Vermont, which installed an anaerobic digester for manure from 950 milking cows in 2005. The second participant, Pleasant Valley Farm, joined the program in 2006 with 1,500 milking cows. The Cow Power program now includes 14 Vermont farms.

Program Outcomes

The Cow Power program decreases the amount of carbon emitted to the atmosphere by reducing the amount of fossil fuels burned. As of 2019, there are 14 farms and approximately 13,500 cows in the Cow Power program. Annually, the program removes approximately 73,000 tons of methane from the environment, which is equivalent to removing 15,420 passenger cars burning 8.2 million gallons of gas (i.e., nearly 1,000 tanker trucks of gasoline). The generated renewable electricity powers 3,200 Vermont customers who have chosen to opt into the program. In addition to selling power for a profit, farmers benefit from reduced heating bills, reduced bedding costs, reduced odors, destruction of weed seeds, and reduced fertilizer costs.



Green Mountain Dairy

Additional Program Examples

In 2015, the state of Minnesota established the Biomass Thermal Energy Production Incentive Program, which utilizes similar anaerobic digestion technology to convert agricultural by-products to a fuel source. Eligible facilities must have started production after July 1, 2015, and produce at least 250 million British thermal units (MMBtu) per quarter. Producers of biomass thermal energy receive reimbursement at a rate of \$5.00/MMBtu. Facilities may blend cellulosic feedstock with other fuels, but only the percentage attributable to cellulosic material is eligible for reimbursements. Perennial or cover crop agricultural cellulosic feedstocks are eligible for an additional 20 percent reimbursement for each MMBtu of biomass thermal energy produced. Total payments for an eligible producer may not exceed 30,000 MMBtu/year.

Lessons To Share

- Some consumers are willing to pay an extra \$0.04/kWh to support renewable fuel sources.
- A production incentive of \$0.04/kWh was sufficient to change farmers' market behaviors.
- Cow Power has additional benefits including odor reduction, minimal impacts to landscape, reduced bedding costs, reduced heating bills, and reduced fertilizer costs.

For More Information

U.S. DOE NEW ENGLAND CHP TECHNICAL ASSISTANCE PARTNERSHIP (CHP TAP)

David Dvorak, Ph.D., P.E.

(207) 581-2338

dvorak@maine.edu

More CHP Project Profiles:

www.nechptap.org

Date produced: June 2019