

CASE STUDY

ON-SITE POWER

Small Wind



Ledge Farms harnesses the wind to produce 100 percent of its electricity needs



Endurance wind turbine at Ledge Farms. Credit: NYSERDA

Customer
Ledge Farms

Location
Basom, NY

Installation Date
2012

Equipment
50-kW Endurance E-3120
wind turbine on a
140 foot lattice tower

Energy Generation
138,050 kWh annually

Background

Ledge Farms is a third-generation, family-owned farm in Basom, NY (Genesee County) and just a few miles north of the New York State Thruway. Located on 98 acres of land, the farm is home to 25,000 egg-laying hens and also produces grain for feed and sale. Because a typical hen will eat about one-quarter pound of feed per day, the whole brood will consume more than three tons daily. The grain must be thoroughly dried before it can be sold or consumed.

Challenge

Farmers survive on tight profit margins. Because there is little opportunity to increase the sale price of commodities, Ledge Farms looked for ways to reduce operating expenses. Sam Scarborough, the owner of Ledge Farms, knew it was always windy at the farm and wanted to put that wind to work. He contacted one of the wind turbine installers enrolled in the New York State Energy Research and Development Authority's (NYSERDA) incentive program, Thom Fleckenstein, president of Niagara Wind and Solar. Thom, who is also from a farm family, explained to him that a 10-kW system would be too small to meet his needs, and a 50-kW system would produce too much electricity without other adjustments. Ledge Farms was using a propane-fired grain drier and with this type of equipment, great care must be taken not to over-dry the grain. Over-drying grain leads to a poor quality product that loses market value, is less palatable to its consumer, and also increases its cost. The farm could install an electric dryer, eliminate propane bills, and use all the electricity the 50-kW turbine would generate.

"I always hated the wind storms that we would have because they would make life harder in some way. Now I can take advantage of what used to be a negative and turn it into a positive cash flow. It makes life more enjoyable when you can turn a negative into a positive."

— Sam Scarborough,
owner of Ledge Farms



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An electric dryer uses fans to circulate air through the grain and remove moisture. This process is slower, but easier to control the final moisture content of the grain. Typically, propane is cheaper than electricity, but not when electricity is generated on-site. As Sam states, “We produce all the feed for our hens and quality feed leads to better eggs.”

Solution

At a height of 140 feet, this site has an average annual wind speed of 13.85 mph (6.19 m/s), which is quite exceptional in New York State. A wind speed of at least 10 mph (4.5 m/s) is considered the minimum average annual wind speed necessary to make an installation economically feasible. It was estimated that an Endurance 50-kW turbine would generate 138,050 kWh annually or 100% of the needs of Ledge Farms, if they installed the electric grain dryer. NYSERDA support is based on the estimated annual energy output of the turbine. For this project, NYSERDA contributed 48% toward the cost of the wind turbine system, which is slightly less than the program cap of 50%. Ledge Farms was also eligible for a federal 1603 Tax Grant. With accelerated depreciation, the payback should be about four years.

Results

This was the first Endurance E-3120 wind turbine installed in New York State. During the first eight months of operation, this system generated 90,000 kWh of electricity. In New York State, the months of October through January are windier than average, and while only 33% of the duration of a year, they typically account for almost 40% of a turbine’s annual output. Thus, the annual output is expected to be close to 150,000 kWh.

The response from neighbors has been very positive. In fact, after seeing Sam’s turbine, one of his neighbors decided to have one installed. There are now two Endurance 50-kW wind turbines less than a mile and a half apart. Once again, neighbors help and learn from each other.

Get Started

Visit nyserdera.ny.gov/small-wind or call **1-866-NYSERDA** to learn how you can reduce your energy consumption and costs.



Credit: NYSERDA

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