



Eldora - New Providence Schools Eldora, IA



Technical Specifications

750 kW NEG Micon
160 ft. tubular tower

Project Cost: \$800,000

AERLP: \$250,000

Loan Term: 10 yrs.

Lender: Hardin County Savings
Bank, Eldora, IA

Lender Share: \$550,000

O & M Cost: \$12,500

Est. Payback: 10 yrs.

Installation Date: October 2002

Since October 2002, the Eldora-New Providence School District has consistently offset all their electricity usage with wind energy while selling excess power to Alliant Energy. The district's 750 kW NEG Micon turbine powers their elementary, middle, and high school buildings, as well as their administrative offices and athletic fields.

Project History

The district originally planned in 1997 for a 250 kW turbine connected only to their high school, their biggest energy user. Unable to secure a net-metering agreement with Alliant, they took their case to the Iowa Utilities Board in 1998, which eventually ruled in their favor.

In early 2001 they put the project out to bid and found no takers; a blossoming wind industry meant that manufacturers were focusing on more profitable larger turbines. The district performed a new feasibility study for a 750 kW machine and found Alliant amenable to consolidating all district meters to accommodate the larger production even though they were not required to do so.

The district superintendent at the time, Bill Grove, was often quoted as saying that a friendly working relationship with Alliant eventually worked to their favor in spite of the more than three years it took to resolve the net-metering issues. He felt the key was approaching Alliant initially without demands, but rather an invitation to work together to help the district save money on utility expenses.

System Performance

The district has been pleased with the overall performance of the turbine. It generated more than 1300 MWh annually through 2006, or nearly 87 percent of the 1500 MWh they expected each year.

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Project Performance						
Year	Production (kWh)	School Use (kWh)	Production/Use (%)	Production Value (\$)	REPI ¹ (\$)	Total Value (\$)
2003	1,270,800	1,095,841	116.0	85,386	0	85,386
2004	1,357,920	1,101,515	123.3	87,375	0	87,375
2005	1,250,640	1,102,756	113.4	91,747	1,874	93,621
2006	1,323,000	1,126,777	117.4	102,809	0	102,809
totals	5,202,360	4,426,889		\$367,317	\$1,874	\$369,191
avg.	1,300,590	1,106,722	117.5%	\$91,829		\$92,298

Note: estimated production = 1,500,000 kWh.

The district had hoped for revenue in excess of their \$97,729 annual loan payments, but production value has been hampered somewhat by the slight shortfall in performance, as well as by the failure of the Department of Energy's Renewable Energy Production Incentive (REPI) to deliver an expected \$.018 per kWh for excess production sold to Alliant. The under funded REPI program did net the district a partial payment in 2005.

On the other hand, the district has benefited from a rise in electricity rates from \$0.0747 in 2003-04, to \$0.0805 in 2005, to \$0.0878 in 2006. Each kWh they offset thus has a greater value, and their net-metering agreement earns them an additional \$0.02 per kWh on excess production.

"On the whole we think we're in good shape, and once our loans are paid we will feel very good," says current superintendent Randall Nichols. "Over the lifetime of the turbine I think we'll see a great deal of value."

Operation and Maintenance

The district hoped the turbine would achieve 95 percent availability. Through 2006, the turbine was on-line between 96 and 99 percent of the time each year.

Aside from a \$612 charge to replace fuses destroyed by lightning in 2003, the district has reported virtually no maintenance costs beyond those for annual service. During the first five years they paid \$8000 annually to NEG Micon (now Vestas) for scheduled maintenance, and they spent an additional \$22,500 during project startup to extend their two-year warranty by three years.

The district signed another five-year service contract for \$19,000 per year in 2007, retaining full replacement coverage.

Perhaps the only major frustration came during installation. As a crane raised the tower base into place the construction crew learned that the wrong model had been provided. A two-month delay ensued while the district waited for the correct unit to arrive.

Overall Satisfaction

The district began considering wind energy in 1995 primarily as a way to save on energy costs, but they also wanted to model environmentally friendly energy use and provide learning opportunities in the schools.

Nichols says the turbine has probably not been used much in the classroom after some initial interest early on. But he thinks the turbine serves the goal of modeling clean energy production very well.

"I think every kid in our schools can point to the turbine and tell you that that's where the schools' electricity comes from," he says.

While he wasn't involved in the project's early days, Nichols says he believes it would not have been undertaken without low-interest financing, including a no-interest loan from the Iowa Energy Center's Alternate Energy Revolving Loan Program.

"It was critical to selling [the idea] to the school board and the community, and I think people now see a great deal of benefit from the project," he says.



The Iowa Energy Center's Alternate Energy Revolving Loan Program (AERLP) plays a supporting role in stimulating renewable energy development within the state. Since its inception in 1996, the AERLP has supported numerous wind, biomass, solar, hydro, and hybrid projects.

Successful applicants receive a low-interest loan from a combination of Energy Center and lender funds. The Energy Center provides loan funds equal to 50% of the projects financed cost (up to \$250,000) at 0% interest. Matching financing must be obtained from a lender of the applicant's

choice. The maximum loan term for the Energy Center's funds is 20 years.

The lending institutions are responsible for financially qualifying the borrower, while the energy center assists in technically qualifying the borrower. By partnering with expertise from lending institutions the Energy Center is able to cost-effectively process the loans in a timely manner and maximize the impact of the loan program.

Eligibility

The AERLP is open to all individuals and groups who want to build renewable energy production facilities in Iowa. Utilities that are not required to be rate-regulated are not eligible. AERLP loan funds may not be used to refinance an existing loan or be applied to existing alternate energy facilities.

Application Deadlines

January 31
April 30
July 31
October 31

For more information

Contact the Iowa Energy Center,
(515) 294-8819
www.energy.iastate.edu

The Iowa Energy Center is dedicated to improving Iowa's energy efficiency and use of renewable energy through research, demonstration, and education.

