

Schoolyards and Wind Turbines: Bureau Valley School District Installs a Wind Turbine

Locating a power plant in a schoolyard would have probably caused quite an uproar at PTA meetings everywhere a decade ago, but this is 2006 and times have changed. Keith Bolin, a hog farmer from northern Illinois, not only supports the idea, he took the lead in developing such a project in his hometown. Bolin, a father of three and a new grandpa, knows the importance of a good education and a quality school district. That is precisely why he spent two and a half years working to get a 660 kW Vestas wind turbine constructed at Bureau Valley High School.



He and his wife, Barbara, operate an outside farrow-to-finish hog operation in Bureau County and raise corn, oats, and alfalfa. Keith has farmed there since 1978, and he knows the land. He realized how windy it was in his area and started to

discuss the possibilities of wind energy with his wife over the dinner table. They began to look into it together and after learning about successful turbines powering schools in Iowa at an American Corn Growers Association Conference in 2000 they were finally convinced that they had a viable site and good match with Bureau Valley High. They began to talk seriously with other people about the idea.

Bolin met Jesper Michaelsen from Vestas at a wind conference in Chicago and got him excited about the project. They applied for their first grant in July of 2002 and received \$20,000 from the Illinois Clean Energy Community Foundation. They used those funds to hire consultant Jay Haley of EAPC Architects and Engineers to perform their wind resource assessment. Haley did an extensive study of the site and also took advantage of data from Monmouth College and the nearby Crescent Ridge commercial wind farm. That first grant was crucial to get the project moving. The school would never have been able to invest that much money just to see if the project was feasible. But with the study complete, and wind resource data in hand,

they were confident that they had a good project and could move forward.

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And he continued to lead the way. "I'm just a dirt hog farmer. I'm not the smartest guy on the block," Bolin said, but "somebody had to take the bull by the horns." Bolin views his greatest contribution as a trust builder between the local people of Bureau Valley and the "outsiders, the corporate people" who came to build the turbine. "For a community project, it takes a person or a group that really believes in it to lead and organize and to spur the professionals on. Somebody has to volunteer to be the leader. Paid professionals usually have other obligations - the superintendent has to focus on educating children, the engineer has other projects. That means a volunteer has to keep everything moving." And keep it moving he did.

Bolin was able to secure an additional \$480,000 from the

Illinois Clean Energy Community Foundation and the Illinois Department of Commerce. He and his wife secured financing for the rest. "When it came time to find the term lender, Barb and I shopped around for the best rates on the remainder and ended up getting financing for \$450,000 from Union Bank using tax free bonds at a rate of 3.37%." They were still a little short, but made up the difference with the school's operation and maintenance fund.

The school planned to use the turbine primarily to offset their electricity generation. Any excess generation will be sold to the local utility at their avoided cost of three cents. "We didn't really negotiate with the local utility (Illinois Power), they're just paying us their tariff rate. The real value of our project comes from reducing our electricity costs rather than selling the extra power. This was another reason we chose the 660 kW turbine. For us there's not much advantage in producing much more electricity than we use. The fastest pay back comes from us not consuming \$0.08-0.11/kWhr electricity since we can only sell it at \$0.03 or so per kilowatt-hour." Altogether Bolin expects total revenue for the project to be about \$1.6 million. That could increase if the electricity rates go up faster than they estimated, or the turbine lasts longer than the expected 20 years.

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The public raised some concerns during the process about noise, construction, and danger to birds in open-forum town meetings, where the turbine's architect, lawyers, and supporters were present to answer questions. Bolin said such consistent, informative communication minimized anxiety and skepticism about the project. "People need to be informed," he said. "They want to know, 'How's it doing?'" He added, "They're pretty proud of what they've done." Eventually, the community embraced the project, said Superintendent Rick Stoecker. "We could have put bleachers out there" during construction, lots of people were watching."



Once the project was approved, the site was prepared and the turbine was installed in two months. The turbine went on-line in January of 2005, making Bureau Valley High School the first school in the state to install a turbine. In the first seven months of operation, the turbine's computerized records showed that it produced 646,397 kilowatt-hours of energy for the school and consumed only 2,715 for itself. Stoecker estimates that the turbine has saved the school district approximately \$100,000 each year. "That's two teacher's [salaries] a year," says Bolin.

The district considers the turbine to be a great way to earn some money, teach students about renewable energy, and help the environment. Bolin's next project was to incorporate the turbine into the school's curriculum, possibly as a business model, an agricultural project, and a study in engineering. Principal Terry Gutshall liked the idea and planned to start with physics class.

The project has inspired many other schools districts to look into wind energy for themselves. Stoecker has had so many calls about the project that he "doesn't have time to name them all... We've had lots and lots of calls." With so many other districts looking to cut costs around the state, Bureau Valley will create an exhibit and presentation that will be touted at state school board conventions, he said.

"This is probably the most significant thing I've ever done that's made a difference," Stoecker said of the turbine. "I'm real proud of it." Bolin is equally proud and has no regrets. "I would certainly do all this again and I wouldn't really change much. We've tried to involve the community, politicians and the media; it's been a very positive experience."