

Generating *inspiration*

Wind turbine brings higher education to college students

By Erin Huntimer

Wind turbines have a simple mission: capture wind, generate electricity. One turbine in South Dakota has been chosen to serve a higher calling: educate the next generation. It stands out among a field of 108 white machines. Black letters on the nacelle identify its owner and hint at its purpose to travelers on County Road 11.

Mitchell Technical Institute is purchasing the turbine from Basin Electric to give students in its Wind Turbine Technology program a taste of what's to come in their careers. It's a big step for the college's young program, one taken with help from friends in the cooperative family: Basin Electric and Class A member East River Electric Power Cooperative.

Evolution of a vision

When Greg Von Wald came on as MTI's president the summer of 2008, one of the first questions he asked was, "Do you have any plans for a wind program?" He saw developing demand for green energy and trained technicians, especially in South Dakota and the surrounding region. The college moved quickly, working with industry on a curriculum and recruiting experienced instructors.

By the fall of 2009, MTI started training its first wind turbine technology students. The program has two tracks: a nine-month certificate program, and a two-year associate degree with an internship. MTI also has a relationship with Sinte Gleska University in Mission, SD. Students there can attend wind turbine technology classes remotely via interactive television.

From the beginning, Von Wald envisioned a working turbine as part of the program. Initially MTI considered siting a small 3.7-kilowatt wind turbine on campus, and they had support from industry to do it. "It's just a little bugger. It would help with certain things, but it wouldn't give us the right stuff to train on," Von Wald says.

Von Wald and Jeff Nelson, both directors for the South Dakota Wind Energy Association, discussed the wind turbine concept at a board meeting, and a powerful question was asked: "What if?" Nelson, general manager of East River Electric, talked about Basin Electric's nearby Crow Lake Wind Project. Basin Electric subsidiary PrairieWinds SD 1 Inc. owns 101 of the 108 turbines. What if MTI bought one of the turbines?



Scott Parsley

“The role we tried to play was cheerleader and encourager to buy that 101st turbine, get those details worked out so the school could have access and make it a meaningful educational tool,” says Scott Parsley, East River Electric assistant general manager, Member Services.

Nelson brought the concept to Ron Rebenitsch, Basin Electric manager of alternative technologies. Rebenitsch worked to fine-tune the proposal for consideration by Basin Electric’s directors. By early 2010, MTI got the answer they were hoping for: yes, it’s doable. MTI would own the turbine, and Basin Electric would construct, operate and maintain it, and purchase the output.

Rebenitsch says safety and liability are issues that need to be carefully addressed, but ultimately the benefits of having strong relationships with the community and the college weighed heavier. “There’s also the potential for MTI to be a good resource for technicians trained on the same model wind turbine used in Basin Electric-owned wind projects,” he says.

Another benefit to the cooperative is GE’s continued support and involvement with the MTI turbine. “They will be experimenting with some of their technology development using this turbine. That type of experimentation will give us a frontline view of new technology so we can act quickly,” he says.

A funding odyssey

The price tag on the turbine: more than \$3 million. Wrangling up that much money would be no small feat, but MTI knew some funding was available in an Economic Development Administration grant through the U.S. Department of Commerce.

Von Wald says the college submitted an application – and was denied. They geared up for a second application, knowing there was risk. “They said if you submit a second time and get turned down, you’re dead; you’re not getting a look the third time.”



Instructor Stacey Eddy (with laptop) teaches second-year student Clayton Walsh of Kimball, SD, about motor controls in a classroom setting. Eddy is the head of the Wind Turbine Technology Department at MTI.

For round two, Von Wald and Parsley from East River Electric called upon then-U.S. Rep. Stephanie Herseth Sandlin. She met with the new director of EDA and arranged for the regional director to visit MTI personally. “Once we got them here, they saw we were truly doing what we said we’re going to do, rather than it being just some wish. Then it became, how do we do this instead of, are we going to do this. And that’s what really opened those doors,” Von Wald says.

On Oct. 21, Herseth Sandlin announced MTI received an EDA grant award of \$1.167 million, covering about one-third of the turbine. Additional funds for the project came from the Governor’s Office of Economic Development, stimulus bonds and GE. The sale of the turbine’s output to Basin Electric will also produce a revenue stream to help the college cover maintenance costs and loan payments.

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In his own words **Nick Hauck, 2nd year student from Pierre, SD**

“Wind turbine technology for me was very enticing, or maybe intriguing is the best way to put it. Ever since I was young, seeing these turbines put up around here just really excited me. ... We’re very lucky here at Mitchell to have a full-size production turbine. I’m very excited to go out and say I do have climbing experience on a full turbine. That really is a great resumé booster.”

As part of the EDA grant's requirements, MTI is prioritizing that 20 percent of its wind turbine technology enrollees be Native American, an initiative encouraged through the college's relationship with Sinte Gleska University.

"This is probably the best example of business, government and industry working together in education that you could ever imagine," Von Wald says.

Parsley says it's a good fit for cooperatives to support educational institutions like MTI. "These are things we should be doing – giving back to those institutions we depend on for training personnel to help us do our jobs better," he says.

Nelson and Rebenitsch both continue to serve MTI in advisory roles. Nelson serves as a member of the institute's Strategic Advisory Council, and Rebenitsch serves on the Technical Advisory Committee for the wind turbine technology program.

Best in class

MTI's turbine was erected in December 2010, complete with the institute's logo painted on the nacelle. Several staff and students were on site to see their new turbine topped off. Starting in March, eight students will travel 45 miles to their turbine each Friday to exercise the safety and technical skills they're learning in the classroom.

MTI is also moving forward with the installation of a 3.7-kilowatt turbine on campus through the "Wind for Schools" program. Mitchell High School students will also have access to the turbine and learn about it as part of their curriculum. Six entities supporting the project include Basin



President Greg Von Wald came to MTI from the telecommunications industry the summer of 2008. He promptly started building a wind turbine technology program, which took its first students little more than a year later.

Electric, East River Electric, Heartland Consumers Power District, Northwestern Energy, Xcel Energy and Mitchell Area Development Corporation.

"Our goal in this whole thing is to produce a best-in-class program for wind. To have a best-in-class program, you have to have an operating turbine to demonstrate what they learn in the classroom," Von Wald says. MTI's Wind Turbine Technology program joins an elite group of only a handful of programs nationwide that own their own turbine for students.

"This is going to give MTI a strong position nationally. When that wind turbine technician goes into the field, the employer knows that person has climbed a tower, worked on a nacelle 250-300 feet in the air, had those actual hands-on experiences. I think that gives that employer a lot of confidence in that employee they're hiring," Parsley says.



At a glance *Mitchell Technical Institute*

Mitchell Technical Institute was founded in 1968. MTI's 1,109 students attend classes in two campus locations in Mitchell, SD. A third building is under construction. The Wind Turbine Technology program accepts only 40 students annually. Learn more at www.mitchelltech.edu.

- Check out the wind turbine and utility technology programs at MTI on Basin Electric's blog, The Flip Side. See the Dec. 28, 2010, post titled "Learning the language of wind turbines."
- Visit the video gallery at www.basinelectric.com to watch "Mitchell Technical Institute trains students on real turbine."