



Home Grown:

Iowa Lakes keeps wind power local

By Erin Huntimer

If you're going to dream, dream big.

Just look at the vision shared by the directors for Iowa Lakes Electric Cooperative. They wanted to support renewable energy by building a community-based wind project. By the time all the pieces came together, Iowa Lakes had the largest wind project constructed and owned by a distribution cooperative in the United States.

A dream that big comes with equally big challenges, especially when you're the one blazing the trail. Iowa Lakes found a friend in Basin Electric, who's also building wind projects. Together, they found innovative ways to work together, saving time and money, and smoothing the road ahead.

Hopes and hurdles

Iowa Lakes of Estherville, IA, is a Class C member of Basin Electric through District 4, Northwest Iowa Power Cooperative, LeMars, IA. However, the majority of Iowa Lakes' system is served by Corn Belt Power Cooperative, a Basin Electric Class D member from Humboldt, IA.

Rick Olesen, vice president of operations and engineering for Iowa Lakes, says the cooperative's board had been watching outside companies coming into Iowa to

harness the state's wind resources and saw an opportunity. "The board decided to capitalize on a local resource and produce a revenue stream that can help offset future rate increases," he says. The revenue stream comes from the sale of both the power and the green tags.

Iowa Lakes' wind project consists of 14 turbines at two sites with seven 1.5-megawatt turbines each. Each site serves an ethanol plant: the Lakota site is adjacent to Global Ethanol, and the Superior site is next to Green Plains Renewables' ethanol plant. Each site will generate about 37 million kilowatt-hours annually. That's enough electricity to serve all of Green Plains' needs, and about two-thirds of Global's. The project began commercial operation in March 2009.

Since Iowa Lakes is a distribution cooperative, staff worked with Corn Belt to make it possible to serve the ethanol plants. Mike Thatcher, vice president of generation at Corn Belt, says Iowa Lakes has an all-requirements power supply contract with them, so Corn Belt purchases all the power generated from both wind projects.

Two big pieces had to fall into place before the wind project could become an economic reality. First, Iowa Lakes applied for and received \$43 million in Clean Renewable

Energy Bonds, which helped make the project financially viable.

September Dau, vice president of finance and human resources at Iowa Lakes, says prior to the Energy Policy Act of 2005, which made the bonds available, there wasn't an avenue for cooperatives to get into the renewable energy business.

The other piece: Iowa Lakes had to get creative in procuring turbines. This is where Basin Electric comes in.

Olesen says the big wind turbine manufacturers like GE or Clipper won't accommodate small projects like the one Iowa Lakes wanted to build. "No one will sell you one turbine now. They don't want to sell you 10 turbines. . . . Their economics require 50 turbines or more per site."

Olesen spoke to Ron Rebenitsch, manager of alternative technologies at Basin Electric, about their dilemma, and they soon found a way to get Iowa Lakes the turbines they needed.

Basin Electric was submitting a request for proposal (RFP) for 100 megawatts of wind turbines for one of its PrairieWinds projects, so they added a 25-megawatt option to the RFP on Iowa Lakes' behalf. It took a few phone calls from Rebenitsch, but eventually GE responded with an additional 17 turbines. Iowa Lakes

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was able to take 14, so Basin Electric took the remaining three and will install them next to the cooperative's two Nordex turbines at Minot, ND, in a project called Minot Wind 2.

"We wouldn't even be in the wind business if it weren't for Basin, because we couldn't access the turbines," Olesen says.



Terry L. Bruns

Terry L. Bruns, Iowa Lakes president and CEO, credits Ron Harper, Basin Electric CEO and general manager, as the "key decision maker in

supporting Iowa Lakes' ability to access the wind turbines from GE."

Share and share alike

As the two cooperatives' respective projects progressed, they found even more ways to work together. Amanda Wangler, electrical engineer III and project engineer for Basin Electric's wind projects, and Kirby Berhow, Iowa Lakes' manager of renewable energy services, talked weekly during Iowa Lakes' construction. They shared information on everything from wind studies and foundation design to contractors and aviation lights.

"When they got to construction, I made sure to talk to Kirby as much as possible and find out where they are and what stumbling points they've had, so we can watch out for them when we start construction," Wangler says.

One example is the wind analysis. Basin Electric conducted its wind analysis in-house, so Wangler was familiar with the process and able to help Iowa Lakes interpret their wind

analysis results. Another example is the aviation lights on top of the turbines to warn approaching aircraft. Berhow got hands-on experience with different kinds of lights at a conference and shared what he learned with Wangler, giving her a head start in identifying Basin Electric's needs.

In February, a team from Basin Electric, including Wangler; Tyler Schilke, mechanical engineer II, and Mark Nygard, manager of construction, traveled to Iowa Lakes to visit the project. Olesen gave them a tour where they took measurements, examined drawings, inspected communications links and more.

The measurements were especially helpful to Basin Electric's projects. The cooperative is exploring adding service lifts to its new turbines. However, since Iowa Lakes' turbines are some of the first GE has sold with the new Electrical Simplification System package, the tower drawings weren't available yet.

"By going to Iowa Lakes, we were able to go into the turbine to see how much space is available for our service lifts and do some measurements to get a better feel for exactly what's there," Wangler says.

Another hurdle Iowa Lakes has helped Basin Electric overcome is the collector system voltage. The Minot Wind 2 and Iowa Lakes projects are the same voltage at 12,470 volts, but it's different from



Amanda Wangler and Rick Olesen discuss wind tower drawings during a meeting at Iowa Lakes' headquarters.

the larger PrairieWinds project and most other wind projects.

"Iowa Lakes had to work with GE to get them to accept that different voltage and the design for their collector system. . . . When we got to doing the collector system design for Minot Wind 2, it wasn't an issue since we're using the same voltage as Iowa Lakes is," Wangler says.

The two projects have so much in common, Basin Electric and Iowa Lakes are even exploring sharing spare parts inventory. They have already identified one major piece of equipment the two cooperatives can

share: a pad-mount transformer. Iowa Lakes has one on site, and Olesen says it's available to Basin Electric if needed.

The learning curve going into these wind projects has been steep for both

cooperatives, but the people and the partnerships have made all the difference. As Olesen says, "We had the right people in the right places. That's been important for us."

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Rick Olesen, Iowa Lakes