

# Make it Electric



Energy information to help you manage your operation • Volume 20, Number 3 September 2007



## Wind farms are good neighbors

### Change is blowing in the wind for rural communities

The large cranes that are helping to build a new wind farm in Cavalier County, North Dakota, bear the weight of something much more substantial than massive tower sections and turbines. With every hoist these cranes also are helping to meet the need for additional renewable energy resources and to boost the local economy.

The Langdon Wind Energy Center, under construction about six miles south of Langdon, will generate more than electricity even before it goes online. The positive economic impacts of wind development start with the first turn of the spade, continue into the first revolution of a turbine blade, and go on spinning for decades.

#### The tip of the turbine blade

Electricity is the most obvious of the economic and societal benefits of wind power, but there are more.

Wind turbines create jobs, contribute to manufacturing and transportation employment growth, expand local tax bases, increase income for

*“We are excited about the Langdon Wind Energy Center. In addition to allowing Otter Tail Power Company to provide more renewable energy to our business and residential customers, this site helps us fulfill another key part of our mission, which is producing electricity as economically as possible and supporting the communities we serve.”*

*Chuck MacFarlane  
President, Otter Tail Power Company*

landowners, and offset payments that flow out of a local economy for power.

According to the American Wind Energy Association (AWEA), the wind industry contributes to economies in 46 states and directly employs more than 2,000 people.

AWEA calls wind a good neighbor because the industry provides jobs and business for local suppliers as well as millions of dollars in easement payments. Landowners who lease their property to wind developers “...could earn \$2,000 to \$4,000 a year per turbine for

20 years,” according to North Dakota Sustainable Energy for Economic Development. “A fully developed section of land could return \$30,000 a year. And 95 percent of that land still would be farmable.”

#### A look inside:

- Rising costs and growing energy use drive Minnesota rate case
- Businesses make saving energy profitable

## Quick facts

### **Turbines:**

106 turbines, 1.5 MW each, manufactured by General Electric

### **Tower height:**

Approximately 250 feet to center of hub

### **Turbine blades:**

Variable pitch - 120 feet long

### **Cut-in wind speed:** 8 mph

### **Cut-out wind speed:** 56 mph

### **Maximum output:** 35-55 mph

### **Delivery point:** Langdon substation

Wind farms also add revenues to rural municipalities. According to the U.S. Department of Energy (DOE), property tax payments of 1 percent of the assessed value of a wind project equal approximately \$10,000 a megawatt for the community in which it's located.

## Langdon Wind Energy Center

For a better understanding of what all this means, consider the numbers from the Langdon Wind Energy Center: At least 50 people are engaged in building the wind farm, which is expected to create 10 permanent, full-time operations and maintenance positions. The wind farm will generate about \$500,000 in annual property taxes and another \$500,000 in lease payments and royalties to landowners.

"We are excited about the Langdon Wind Energy Center," said President Chuck MacFarlane. "In addition to

The \$225 million Langdon Wind Energy Center will be a 106-turbine facility with the capacity to generate 159 megawatts of electricity. That's enough to power 48,000 homes.

Otter Tail Power Company owns 27 of the wind farm's 1.5-MW turbines. FPL Energy, one of the world's largest wind energy developers and the developer of this project, owns the remainder. When blades start spinning in late 2007, it will be the largest wind farm in operation in North Dakota.

Otter Tail Power Company's turbines will have a nameplate capacity of 40.5 MW. We also have a 25-year agreement with FPL Energy to purchase the output from an additional 19.5 MW from the Langdon Center. Minnkota Power Cooperative, Grand Forks, North Dakota, has a contract to purchase the output from 99 MW.



*The existing 35 miles of 41.6-kv line between the Langdon and Hensel substations will be upgraded to 115 kv to help transmit the electricity produced at the Langdon Wind Energy Center.*

allowing Otter Tail Power Company to provide more renewable energy to our business and residential customers, this site helps us fulfill another key part of our mission, which is producing electricity as economically as possible and supporting the communities we serve."

## A step forward

Otter Tail Power Company has been purchasing wind power for years, but owning a portion of the Langdon Wind Energy Center is one step our company is taking toward meeting our resource plan target of 160 MW of wind-generated electricity by 2015.

AWEA notes that three-quarters of the states in the nation have wind resources that could be used for commercial electricity generation. The organization points especially to states in the Great Plains as having the most potential for generating wind power.

Industry experts call North Dakota the *Saudi Arabia of wind energy*, referring to its enormous, and so far relatively untapped, wind power potential. And Minnesota and South Dakota are not far behind.

## It's a wind rush

Combine that potential with advances in tower and turbine technology and efficiency, and growing public demand for renewable energy, and it's no wonder the rush is on.

Wind power is the fastest-growing form of energy in the world, according to the Department of Energy. AWEA also notes that today's state-of-the-art utility-scale wind turbines are generating electricity at competitive prices.

State renewable energy standards also are contributing to increasing wind development. For example,

Minnesota's recently passed Renewable Energy Standard requires that 25 percent of all electricity used in the state be generated from renewable sources by 2025. North Dakota's goal is to have 10 percent of its electricity generated from renewable sources by 2015, and the South Dakota Legislature is likely to pass a 10 percent objective in its next session. Meanwhile, several proposals for a national standard are before the U.S. Congress.

## More than electricity

"It takes patience, hard work, and good partners to move into ownership of wind generation," said MacFarlane. "In fact, it takes a lot of good partners, including an experienced developer, willing landowners, and forward-thinking community and government leaders. All have been involved in this project."

The Langdon Wind Energy Center is generating more than electricity. It's helping to meet the need for additional renewable energy resources, boost the local economy, and foster lasting partnerships. According to MacFarlane, "This project is a win for everyone."

# Businesses make saving energy profitable

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# Rising costs and growing energy use

## Driving forces behind Minnesota rate case

As demand for electricity increases and overall costs to run our business continue to rise, our goal still is to produce and deliver electricity as reliably, economically, and environmentally responsibly as possible.

To meet our customers' needs and ensure we have all the competitively priced electricity necessary, Otter Tail Power

Company will file a rate case in Minnesota on or before October 1, 2007. Currently, we intend to file a rate case in North Dakota by the end of 2008 and in South Dakota within the next two years, but we don't know the exact dates yet.

Contact your Energy Management Representative or Industrial Services Engineer if you have questions.



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