



Wind GENERATION

A newsletter for Michigan's wind energy pioneers

Michigan Wind I

● About 100 people gathered in late February to dedicate the Michigan Wind I commercial wind farm in Ubly.

The crowd included officials from Consumers Energy, which is purchasing electricity generated from the Huron County facility that's owned and operated by John Deere Renewables, LLC., and began operating in mid-December.

The energy delivered by Michigan Wind I supports Consumers Energy's voluntary Green Generation program, which offers customers the opportunity to help fund the development of Michigan-based renewable energy projects by paying a small premium on their monthly bill.

Vice president of generation and engineering services Jack Hanson, left, helps state Sen. Jim Barcia, D-Bay City, center, and David Drescher, vice president of John Deere Wind Energy, cut the ribbon on the Michigan Wind I wind farm near Ubly on Feb. 26.



"Michigan Wind I

is, by far, the biggest contributor to our Green Generation program," said Jack Hanson, vice president of generation engineering and services. "We consider the 13,000 customers enrolled in our Green Generation program to be true environmental leaders. They've demonstrated that renewable energy has an important role to play in our state's energy future."

The Michigan Wind I farm includes 46 turbines, each capable of producing up to 1.5 megawatts of electricity.

Michigan Wind I created about 250 jobs during construction. The farm will generate millions of dollars in local tax revenues and payments to land owners over the next 25 years, according to John Deere.

Government Jumpstart

● The American Recovery and Reinvestment Act of 2009 contained \$16.8 billion for energy efficiency and renewable energy.

Some of the key measures for renewable energy include:

- A U.S. Department of the Treasury grant program for energy developers.
- A long-term extension of the wind energy production tax credit, which is worth 2.1 cents per kilowatt-hour of wind energy produced. It now runs through Dec. 31, 2012.
- A U.S. Department of Energy (DOE) loan guarantee program for developers and manufacturers.
- An expansion of DOE funding for renewable energy research and development.
- A tax credit for advanced energy manufacturers.

Source:
American Wind Energy Association.



Building a Balanced Solution to Michigan's Energy Needs

Renewable power sources, energy efficiency and new baseload generation are keys to providing state with affordable, reliable electricity for decades to come

CONSUMERS ENERGY RECENTLY filed plans with the Michigan Public Service Commission (MPSC) detailing the company's commitment to renewable energy and energy optimization measures. Those elements, along with new and cleaner baseload generation, form a balanced strategy to meet the state's future electricity needs.

Sweeping reforms passed in late 2008 by the state Legislature created a Renewable Portfolio Standard (RPS) requiring 10 percent of Michigan's electrical supply to come from renewable sources, such as wind, by 2015.

The new law also calls on utilities to develop energy optimization programs that help customers reduce their demand for electricity and natural gas.

Consumers Energy's MPSC filing proposes a strategy to meet those requirements and projects the cost of complying with the new laws.

"Consumers Energy has a long history of delivering clean, reliable and affordable electricity to Michigan customers," said John Russell, Consumers Energy president and chief operating officer. "Expanding our renewable energy portfolio and helping customers use electricity and natural gas more efficiently are the next steps in fulfilling our commitment."

About 4 percent of the electricity Consumers Energy currently supplies to customers already comes from renewable sources, including wind, hydroelectric, biomass and anaerobic digesters. The company estimates it will add more than 900 megawatts of renewable generating capacity, which will come mainly from wind, by the end of 2017.

Consumers Energy will build and own half of this new capacity, buying the remaining half from third-party suppliers. The goal is to supply customers with about 3.6 million megawatt-hours of electricity from renewable sources by 2015. The company has secured more than 40,000 acres of easements to develop wind farms in Mason and Tuscola counties, the first of which is scheduled to go into operation in 2013.

Hand in hand with expanding renewable energy is helping customers reduce demand for electricity and natural gas. Improving energy efficiency in homes and businesses is clean, relatively cheap and creates few, if any, environmental risks.

The law requires utilities to help customers reduce their electricity use by about 6 percent and their natural gas use by 4 percent, both by 2015.

"It may seem counter-intuitive for a company to help its customers reduce the amount of the product it provides," Russell said. "But encouraging a more efficient use of energy is key to our strategy to balance the needs of our customers, Michigan's economy and the environment."

Using less electricity helps reduce emissions, stabilize volatile energy prices and boost energy security. It also helps the economy by saving money for customers.

Consumers Energy's energy optimization plans include: rebates for residential customers who buy products such as compact fluorescent light bulbs and energy efficient furnaces; partnerships with local agencies to provide weatherization measures for low-income customers; and rebates for business customers who make energy efficiency upgrades.

Sweeping energy reform legislation passed last fall requires 10 percent of the state's electrical supply to come from renewable sources, such as wind, by 2015.

"Expanding our renewable energy portfolio and helping customers use electricity and natural gas more efficiently are the next steps in fulfilling our commitment."

— JOHN RUSSELL



Toes Tapping in Tuscola

Sally and Barry Hedley stand in front of the meteorological tower recently raised on their farm in Tuscola County.



Now, the recently retired couple is anxious to help Consumers Energy plant the seeds for green energy. The Hedleys granted the company easement rights to their 280 acres, where a meteorological tower was recently raised to measure wind speed and direction.

Soon, the couple hopes wind turbines will spin in the sky above the soil they've worked for so long.

"Let's get those suckers up," Sally Hedley said with a laugh. "If we've

"If we've got the power here, why not use it? It's time this country made a commitment to renewable energy and stuck with it."

— SALLY HEDLEY

got the power here, why not use it? It's time this country made a commitment to renewable energy and stuck with it."

Barry Hedley, 66, was raised on the land he and his family have farmed for decades.

Placing wind turbines on his property makes sense for the economy and the environment, he said.

"If it's something that's feasible, we should try to supply our own energy and not have to buy it," he said.

Barry's father, Donald, 87, also granted easement rights on his nearby farm to Consumers Energy and hopes to witness the dawn of a new energy age.

"He's chomping at the bit to get a turbine," Barry said. "We took him over to see the meteorological tower and he said, 'where's the spinners?'"



Generating Growth

● In 1998-99, the average size of an installed wind turbine was .71 megawatts.

Today's state-of-the-art turbines generally range between 1.5 and 2.5 megawatts.

Source: U.S. Department of Energy.

Pillars of Potential

● Symbols of Consumers Energy's and Michigan's alternative energy future are cropping up on the state's skyline.

The company has constructed nine meteorological towers in Mason and

Tuscola counties, where it has secured more than 40,000 acres of easements to develop wind generation farms.

The towers — six in Mason County and three

in Tuscola — will collect data over the next two years to help determine the best locations to place wind turbines. Identifying ideal sites depends on many factors, including wind speed and direction, and air temperature.

Wind energy is an important component of the balanced energy approach outlined in Consumers Energy's Growing Forward strategy, which calls for investing more than \$6 billion in the state over the next five years.

The American Wind Energy Association ranks Michigan 14th in terms of wind production potential.



Meteorological tower

After four decades of farming, Hedleys eager to begin harvesting wind energy

SALLY HEDLEY CAN hardly wait for the wind to arrive. The 63-year-old Tuscola County woman feels excitement in the air whenever she hears President Obama talk about the potential of wind-generated electricity.

"I listen to the president and I figure, 'it's coming, it's coming,'" she said.

Sally Hedley and her husband, Barry, farmed their land in Michigan's Thumb region for more than 40 years, growing corn, soybeans and wheat.

Bat Check

CONSUMERS ENERGY is working to make sure its wind turbines don't take an unintended bite out of bat habitat.

The company has teamed up with Eastern Michigan University to study bat behavior in Mason County, where Consumers Energy has secured thousands of acres of land to develop wind energy farms.

"The ultimate goal is to place the wind turbines correctly so that we have minimal impact on bats and other wildlife."

— MARGARET PARKER

EMU biology professor Allen Kurta, a bat expert, is helping the company track the presence of bats as well as their flight, foraging and feeding habits in Mason County. The research focuses specifically on finding evidence of the endangered Indiana bat.

"The trick is to avoid where the bats will be feeding," said Margaret Parker, a senior environmental planner. "The ultimate goal is to place the wind turbines correctly so that we have minimal impact on bats and other wildlife."



Consumers Energy is already monitoring bat activity in Mason County to make sure its wind turbines are properly placed.

One of the first steps was to place sonic detection and ranging devices on each of the six meteorological towers plus on an additional tower that was set up strictly to monitor bat activity in the area.

The devices measure sound waves in the air to detect the presence of bats, which forage for food and water over open fields and ponds at night.

In June, researchers will use "mist nets" to capture the bats and catalog them according to species and sex before releasing them. The fine mesh nets, which measure roughly 30 by 40 feet, can be used only for brief stretches on nights when the temperatures are above 50 degrees and there is no precipitation.

The company plans to monitor bat activity before siting wind turbines and continue to track for potential impact, if necessary, after the farms are operational.

Did You Know?

● Though Germany is still the world leader in installed wind generation capacity, the U.S. has led the world for three consecutive years in annual wind capacity installations.

U.S. wind energy installed capacity increased 6.5 times between 2000 and 2007.

Source: U.S. Department of Energy

Next Steps

● Read more details about our plans and progress in the next issue of *Wind Generation*.