DOWN on the (WIND) FARM

Can Turbine-produced Energy Make an Impact?

By Matt L. Ottinger

In a state where residents' lawn displays are as likely to be uprooted by a wayward basketball as a wind gust, many Hoosiers may not think of Indiana as a potential hub for wind energy. Understandably, it's the open, rugged West – and its epic squalls that spit tumbleweeds and dust around like watermelon seeds – or the Great Plains that first come to mind.

Yet, when the American Wind Energy Association (AWEA) announced its wind power growth rankings in April, it was Indiana that was No. 1. The AWEA notes that the state is increasing its wind power at the fastest rate in the nation, going from zero to 130 megawatts in 2008 – with an additional 400 megawatts completed in the first quarter of 2009. And it was in Indiana where the largest facility east of the Mississippi River became operational in April, as the Fowler Ridge Wind Farm in Benton County began its quest to generate enough carbon-free electricity to power 120,000 homes while providing new jobs for Hoosiers.

That (industry employment) helps explain the Indiana Economic Development Corporation presence at Chicago's Windpower 2009 conference – the world's largest meeting of its kind – in May to recruit high-tech companies to Indiana.

Eric Burch, communications director for the Indiana Office of Energy Development, explains the state will be using just under 1,000 megawatts of wind energy by the end of 2009 – a number he says will double over the next two years. He also notes that the Midwest Independent Transmission System Operator, an organization headquartered in Carmel that oversees the electrical power grid for 13 U.S. states and the Canadian province of Manitoba, has 5,000 megawatts in its queue for Indiana. Still, wind currently makes up only a small percent of the state's total energy portfolio.

"At this point, it's a negligible amount compared to the total power generation in Indiana, which is 95% coal – with other sources including wind, biomass, natural gas and hydro," Burch explains. He does add that wind development of some kind is currently being considered or pursued in 15 Indiana counties.

But as businesses and environmental analysts consider the impact and expansion of wind power going – or blowing – forward, it's important to consider its benefits, while maintaining realistic expectations.

A breeze for business?

Though Quality Printing Company – an Anderson-based business – has been around for 40 years, its approach toward environmental awareness is likely considered quite progressive, even by today's standards. Three years ago, the company created the Earthtone Printing Initiative to promote greener printing practices. It featured the use of soy-based inks and energy-efficient production systems, but in January the company took green printing to a new level when its manufacturing facility became entirely wind-powered.

"We wanted our customers to know that we had an alternative energy solution," Quality Printing President Steve Harney explains. "Then (the initiative) continued to grow, and we wanted to reduce our carbon footprint."

Harney explains that through a national printers peer group he learned about Community Energy, which develops wind farms and supplies power directly to end users. Quality Printing now uses Community Energy's network to purchase wind-generated renewable energy certificates – also known as wind credits – verifying that the electricity it uses directly matches purchased wind energy.

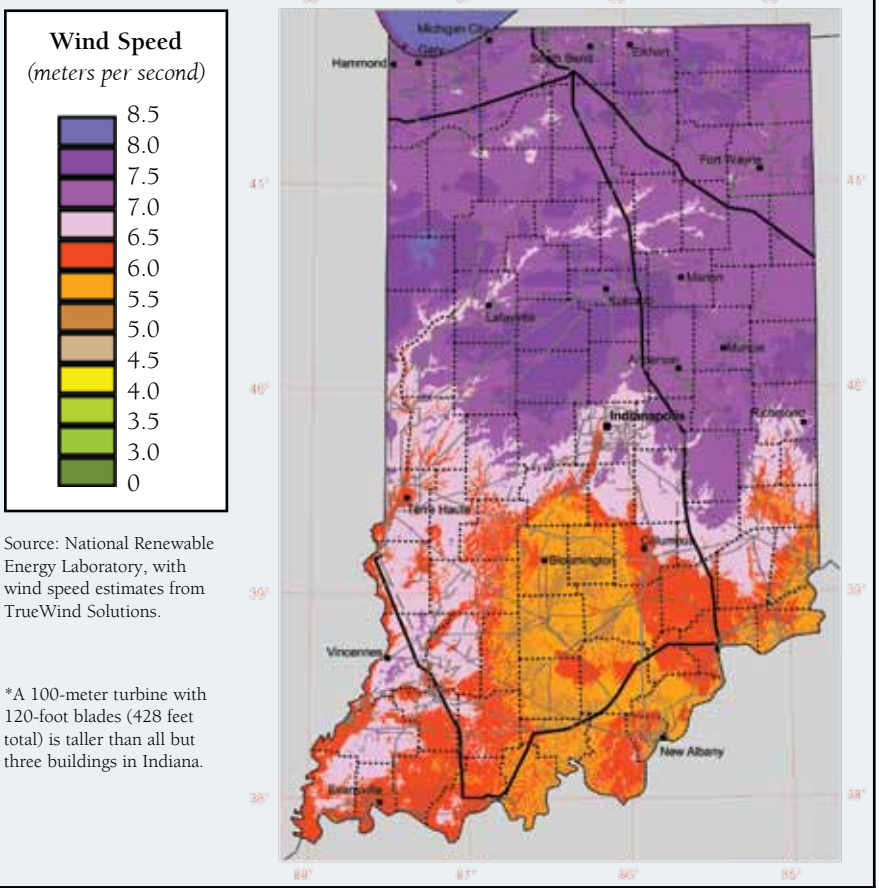
He claims that while costs are still being assessed, the positive attention from customers and the media has paid off – even in yen.

"We have a new client from Tokyo who found us all the way out here in Anderson, Indiana, because of our green initiative," Harney notes. "We've now produced over one million brochures for them."

Harney adds that the company's key focus is on education.

"This is still a fairly new concept in Indiana," he says. "Our staff holds workshops for clients to educate them about how to adopt greener practices."

Indiana Wind Speed *(at 100 meters above ground)**



Source: National Renewable Energy Laboratory, with wind speed estimates from TrueWind Solutions.

*A 100-meter turbine with 120-foot blades (428 feet total) is taller than all but three buildings in Indiana.

In general, annual wind speeds of 7.0 to 7.5 meters per second and greater can be considered useful for generating power with large turbines, though the exact amount of available wind power depends on site elevation and the distribution of the wind speeds.

In the energy game

Indiana Michigan Power (I&M) believes wind energy can be a valuable solution to the energy challenge – albeit just part of the answer. I&M agreed to purchase 50 additional megawatts (in addition to the 100 megawatts it already had) in February from the Fowler Ridge Wind Farm, and the company also has plans to sell Indiana wind energy to companies in Ohio and West Virginia, traditionally thought of as coal states.

"We support (wind energy) as a technology to keep carbon emissions low, and it's still an emerging technology that is important," says I&M Vice President Marc Lewis. "Our customers are showing more interest in wind energy, and it's important from an economic development standpoint in that it can help create jobs and a larger tax base in the areas we serve."

Lewis adds that I&M is also investigating the possibility of developing its own wind farm (roughly 60 turbines) in the Jay/Randolph county area that would create 120 megawatts of power.

"That's something we will do if the economics work out," he says. "Given the current capital situation, it's tough to fund projects like that – but hopefully we could have that in place by 2012."

Lewis also explains I&M is erecting a wind energy transmission line from North Dakota to Chicago, although completion is likely five years out largely due to challenges in the permitting process.

When asked what percentage of Indiana's energy portfolio could realistically be made up of wind power, Lewis estimates 5% to 10% would be a viable goal.

"(Wind) is part of the answer, but not the entire answer," he asserts. "It needs to be backed up by more readily available resources like coal, natural gas and nuclear power."

Who sets the gears in motion?

Lewis contends that government mandates that force businesses to comply with unrealistic expectations are not the way to build wind energy.

"I see people asking for mandates that wind makes up 20 to 25% (of the country's energy portfolio) by 2025, and it seems like these numbers are selected just because they sound good or because of alliteration," he argues. "But if you're seriously looking at integrating it, it really can't be that high."

When asked if government mandates are a necessity in

The production floor of Quality Printing's manufacturing facility may look similar to that of other companies, but it's powered from a unique source – wind energy.

spreading the growth of wind energy, Burch notes that Gov. Mitch Daniels' approach on most issues has been market-oriented, and wind energy is no different.

"Indiana has been proclaimed as the fastest growing wind developer in the nation by the AWEA, and that has come with no RPS (renewable portfolio standard, which requires states to generate a certain portion of energy from renewable sources)," he says. "Gov. Daniels is very market-oriented, and we've shown it can be done with no RPS. But will we one day face a national RPS? Maybe."

Burch contends the market will remain a driving force in wind development, surmising that economic conditions will play a key role in the process.

"The companies must want to be here," he offers.

Turbulence with wind energy

When asked what burdens his company has incurred from the wind initiative, Harney explains those are yet to be determined.

"We haven't really measured the impact in terms of hard and soft dollars yet," he says.

He estimates, however, that the company has spent over $50,000 on wind credits and refining the company's green practices.

Lewis explains that the key challenges with wind are largely based on transmission limitations in transporting the energy to populated areas. He offers that although Indiana officials are working diligently to make the Hoosier state a major wind energy source, obstacles exist.

"When you look at a wind map, you see Indiana is on the outskirts of the central plains and the wind-rich areas," he says. "There is availability here, but Indiana is not Texas."

WIndiana 2009

WIndiana 2009, a program orchestrated by the Indiana Office of Energy Development for individuals and businesses interested in wind power, is scheduled for July 21-22 at the Indianapolis Convention Center. The agenda will include presentations on wind development in Indiana and supply chain management opportunities for manufacturers.

Burch concurs that grid proximity can be a limiting factor.

"Transmission lines are a challenge," he says. "Wind development is located where it is based on access to the grid. There are some very windy spots that can't be used because they are too far from a transmission line. So, as it develops, that will come into play even more."

Lewis claims that another problem is not one of a technical nature, but of aesthetics.

"Some areas are not conducive to putting turbines up because they're too close to large populations of people," he offers. "You must be careful of property owners not wanting the landscape dotted with these machines. (The country) has seen pushback in Texas, Oregon and even Martha's Vineyard on this. When you're thinking about deploying these, say, on a 10 to 15% level, that's a lot of turbines, so that could be an issue."

An uplifting wind

Brevini, an Italian gear making company, recently announced it was moving its U.S. headquarters from Chicago to Delaware County (Muncie/Yorktown) – a move slated to create 455 jobs and generate $62.5 million in capital investment. In fact, construction of its main manufacturing facility was recently accelerated by six months and production is now projected to begin in the third quarter of 2010. The company's Brevini Wind USA division builds large gears for the main drive of wind turbines.

According to Terry Murphy, vice president of the Muncie-Delaware County Economic Development Alliance, Brevini's relocation will serve as a welcome boon to the area.

"These are good paying jobs, with an average rate of $46,000," he says. "So that's going to mean $20.9 million in payroll impact per year."

Murphy explains that wind energy is a key focus for economic development in the region and could help employ some who have lost their jobs in other sectors.

"As a general rule, those are skilled jobs, especially for people who were previously employed in automotive or tool and die," he says. "We've lost some automotive jobs in the area, so it will definitely help.

"It's also an opportunity for suppliers," Murphy adds. "We still have a high concentration of machine shops in the region, and it could give them an opportunity to diversify their customer bases."

Murphy explains the economic development organization has a five-year goal to recruit 2,000 new jobs to the community, and advanced manufacturing for wind power is a component of that goal.

INFORMATION LINK

Resources: Steve Harney, Quality Printing Company, at www.quality-printing.com

Marc Lewis, Indiana Michigan Power, at www.aep.com

Terry Murphy, Muncie-Delaware County Economic Development Alliance, at www.muncie.com

Eric Burch, Indiana Office of Energy Development, at www.in.gov/oed