

guest opinion

Wind harvest in Iowa is just the beginning



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What a year of growth for the American wind power industry!

Wind power is the fastest growing source of energy in the nation. New installations have expanded total U.S. generating capacity by 45 percent and injected over \$9 billion in new investments into the economy in 2007.

These new wind projects accounted for about 30 percent of the entire new power-producing capacity added nationally in 2007.

According to our figures at the American Wind Energy Association, installed wind power capacity in the U.S. is now over 16,800 megawatts, and the future looks bright. With every wind turbine that goes up, America's dependence on fossil fuels for power generation goes down. Wind energy represents a tremendous opportunity to use a non-polluting, inexhaustible source to meet our electric power needs.

Wind energy could help stabilize natural gas prices, ease the threat of global warming, and improve the nation's energy security. While only one percent of the nation's electricity is currently being supplied by wind power, we expect double digit growth of the wind industry to continue for many years.

States such as Iowa know which way the wind is blowing and are encouraging accelerated development of both wind energy production

and wind turbine manufacturing to capitalize on wind resources and the growing opportunities of renewable energy.

Rows of elegant wind turbines are springing up in the open fields of Iowa, producing a new harvest of reliable income to agriculture from land leases. About 337 megawatts of wind generating capacity came online in Iowa last year, raising Iowa's wind output to 1,273 megawatts.

The wind energy resources in the United States are vast and can do a lot more for our economy if we pursue them. Using today's technology, there is theoretically enough wind power flowing across the country to supply all of our electricity needs.

We won't capture all of that energy, but by 2030, a strong national effort could lead to wind providing as much as 20 percent of the nation's electricity, and support nearly 500,000 new jobs in the wind industry, in manufacturing, construction and operation.

Wind power is already bringing new jobs, new investment, manufacturing, construction and business opportunities across the state of Iowa. With the locations and announcements by Siemens, Acciona, Hendricks, Clipper, TPI Composites and other companies, Iowa, due to its proactive outreach, leads the nation in attracting wind energy manufacturers. ■

THE NEWS IS BIG

Windpower's potential in Iowa is even bigger



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Strategic advantages lure investment

Major manufacturers of wind energy equipment are selecting Iowa for component manufacturing because of the state's competitive advantages in the North American market. Clipper Windpower, Siemens, Acciona Windpower, TPI Composites and Hendricks Industries are among the latest wind energy companies locating or planning expansions in Iowa. Typically these companies cite the following strengths for making their decisions:

MARKET POTENTIAL. Continued strong growth in wind generation is projected to continue in the upper Midwest area for years to come. A middle projection between high and low views expects 5,350 new large wind turbine installations in the 12-state area by 2013. This potential gives a major push to companies to manufacture wind generation components in the state of Iowa. (Ask the Iowa Department of Economic Development about this market study, 800.245.4692).

QUALITY WORKERS. The largest sector of the Iowa economy, manufacturing is continually increasing the available base of skilled, productive workers. This labor pool brings to the job Iowa's traditional values of manufacturing excellence.

TECHNICAL TRAINING. Community colleges and universities are responding to skilled staffing needs of the wind energy industry with industry focused training. For example, Iowa Lakes Community College in Estherville offers a two-year program in wind energy technology, the only program in the nation that has its own wind turbine for maintenance training. The University of Iowa's college of engineering has both

graduate and undergraduate education in wind turbine design and wind energy management.

COST EFFECTIVE LOGISTICS. Whether by interstate highways, transcontinental railroads, or river barges, shipping options from Iowa impress manufacturers who need cost effective shipping for large wind energy components.

IMPRESSIVE SUPPORT. The \$500 million dollar Iowa Values Fund offers tax credits, incentives, loans, and regulatory assistance to foster business development in renewable energy, advanced manufacturing, and other targeted industries.

LOWER BUSINESS COSTS. The 2007 Cost-of-Doing Business Index of the Milken Institute compared such costs as utilities, premises, insurance, and taxes among the states. Iowa is ranked on the index as having the second lowest business costs in the United States.

QUALITY OF LIFE. Iowa demonstrates a strong appeal for skilled professionals seeking to live in a place where they can have more balance between career and family. A combination of lower housing costs, excellent schools, safe neighborhoods and shorter commutes bring huge returns in peace of mind and more free time to spend with family and friends, enjoying the leisure time amenities of Iowa. ■

Acciona Windpower gets busy in Iowa

World's largest developer and constructor of wind parks selects Iowa for wind turbine manufacturing facility



Seven short months after announcing its intentions to build a wind-turbine manufacturing facility in the eastern Iowa community of West Branch, Acciona Windpower's first wind turbine rolled off the production line.

After a \$23-million rebuild of an existing 100,000-square-foot facility, Pamplona, Spain-based Acciona's wind turbine manufacturing plant produced the first of its proprietary AW-1500 model turbines—a 1.5 megawatt turbine generator with the capacity to produce enough electricity for 4,500 homes.

When the West Branch location hits full capacity and creates all of its 110 jobs, Acciona will produce 400 turbines annually in Iowa. And according to Adrian LaTrace, Acciona's North American vice president of manufacturing, the West Branch facility will soon begin production of its proprietary 3 megawatt turbine without any further expansion to the facility.

"This is a milestone for Acciona to be able to begin production here in the U.S. and I'm very proud of the team we've assembled in Iowa," says LaTrace. "We have a great workforce, a great facility and a great product. It's time to get busy."

Acciona is one the world's largest developers of wind parks and a global leader in the development of renewable energy. It recently completed its largest wind-energy project, the 180-megawatt Tatonka wind farm in South Dakota. The company has also launched Nevada Solar One—a 64-megawatt solar thermal power plant—one of the world's largest solar-energy projects ever built.

According to LaTrace, Acciona looked at sites throughout the upper Midwest. Iowa was selected due to its excellent logistical proximity to a large number of Acciona wind power projects in the United States, and also due to factors such as the nearby industrial supplier base, an available and skilled workforce, technical training centers, and support from state and local governments.

Acciona's expansion received a series of awards from the Iowa Department of Economic Development. They included a \$2 million float loan and \$500,000 investment from the Community Economic Betterment Account (CEBA), plus a \$350,000 award from the Physical Infrastructure Assistance Program (PIAP), as well as tax benefits from the High Quality Job Creation (HQJC) program.

As one of several wind energy manufacturers discovering Iowa's business advantages, LaTrace says Acciona is not concerned by the growing number of competitors within the state. "Actually this is very synergistic for all of us to have this industry cluster here. In fact, I think there will be component suppliers that will migrate to Iowa to supply the industry."

Iowa Governor Chester Culver has proposed a new renewable energy standard for Iowa of 25 percent by the year 2025. Iowa currently ranks third, behind Texas and California, in the amount of wind-energy capacity installed and under development. ■

TPI Composites brings a gust of energy to Iowa

TPI Composites, one of the nation's leading wind turbine blade suppliers, brought central Iowa an early Christmas present with its December announcement that the company will build a new 316,000 square foot facility in Newton. When the \$56-million project is completed, approximately 500 new jobs will be created. According to Steven Lockard, TPI president and CEO, the Newton plant

within a 600-mile radius of Newton. With plants worldwide, Lockard says Rhode Island-based TPI could have expanded anywhere but was impressed with the skilled, experienced and available workforce in Newton. "Iowa and the upper Midwest are also a prime location for wind energy farms because of the region's windy conditions," says Lockard.

"These are exciting times in the wind industry, and we are very pleased to work with GE to meet the challenges that lie ahead," said Lockard at the announcement ceremony attended by approximately 200 residents including Iowa Governor Chester Culver (pictured right). "The Newton facility will significantly enhance our capacity to support the requirements of GE's wind business."



will support the company's recently signed agreement with GE Energy to produce blades for GE's 1.5-megawatt wind turbines, which are among the most widely used wind turbines in the world, with more than 6,500 installed.

TPI Composites has manufacturing sites in Warren, R.I.; Springfield, Ohio; Juarez, Mexico; and Taicang, China. When production begins in mid-2008 at the Newton facility, the company will reach an estimated 1.1 million square feet of manufacturing space.

"We applaud TPI and GE for bringing these new jobs to Newton," said Culver. "As governor, my goal has been to take full advantage of Iowa's natural resources, along with our incredible manufacturing base and workforce, to make Iowa the renewable energy capital of the nation."

According to Lockard, blades made at the plant will be up to 150 feet long and weigh up to 20,000 pounds. The blades will be transported by truck to wind turbine sites

The \$56-million project also received incentives from the Iowa Department of Economic Development. TPI was awarded \$2 million from the Economic Development Set-Aside (EDSA) and Physical Infrastructure Assistance Program (PIAP), and a series of tax credits and benefits from the High Quality Job Creation (HQJC) program.

Interest in the production of cleaner, wind-generated electricity continues to soar in many countries around the world. According to the American Wind Energy Association, the U.S. wind energy industry installed 4,000 megawatts of wind-energy capacity in the U.S. in 2007, generating enough new electricity to power the equivalent of more than one million homes.

Since 2004, GE has experienced a 500 percent increase in wind turbine production, and expects its wind business revenues to exceed \$4 billion this year. Over the past two years, GE wind turbines have been responsible for more than 50 percent of the new wind capacity across the U.S. ■

Clipper Windpower finds an outstanding location in Iowa



Jim Dehlsen, Clipper chairman and CEO

"Outstanding." That's what the U.S. Department of Energy (DOE) calls Clipper Windpower's 2.5-megawatt Liberty Turbine.

Manufactured in the eastern Iowa community of Cedar Rapids since 2006, DOE acknowledges Carpinteria, Calif.-based Clipper for "its outstanding contribution toward industry advancements" and recognizes the Liberty wind turbine for its "unparalleled levels of efficiency and reliability and reduced energy costs. Clipper's Liberty is the next major step in the evolution of wind turbine design."

What makes the Liberty so revolutionary is a turbine design that promises less down time and lower overall operating and maintenance costs. "The larger the diameter of the spinning blades or rotors is, the more energy that can be generated," says Jim Dehlsen, Clipper chairman and CEO. "The Liberty turbine has a 305-foot rotor span, and towers approximately 250 feet high. Further, the 140-ton turbine enclosure, or nacelle, is about one-third the weight of a comparable 2.5-megawatt turbine manufactured by our competitors."

And according to Bob Loyd, Clipper's Cedar Rapids plant manager, the company has found an outstanding workforce in Iowa. Using Lean Manufacturing and Six Sigma strategies, they are efficiently

producing the highest quality turbine on the market today. "We're drawing on younger people who have been trained at our local community college as well as workers who have been in the manufacturing sector for 25 to 30 years. They understand computers and technology and our team is learning new things each and every day and that makes for an exciting working environment," says Loyd.

Clipper's Cedar Rapids facility, which employed 12 when Loyd joined Clipper in early 2006, now employs over 300 Iowans. When the plant is running at full capacity, Loyd estimates that 500 turbines will be manufactured annually. "The U.S. is coming to grips with the need to develop alternative sources of energy," says Loyd. "Wind will be a growing part of the overall portfolio that utilities are developing to supply their customers' needs."

All of the components of the wind turbine nacelle—generators, rotors and other equipment—come to Cedar Rapids for final manufacturing. "And that's one of the many strong points of being in Iowa," explains Loyd. "We're centrally located in the U.S. and manufacturers such as John Deere, Rockwell Collins, PMX and others have developed a good supply base. When you're producing a turbine a day, you need suppliers that will get the parts here on time."

Start up of Clipper's \$22-million manufacturing facility was aided by a \$500,000 award from the Iowa Department of Economic Development's Community Economic Betterment Account (CEBA) program, a \$2 million CEBA float loan and \$346,000 from its Physical Infrastructure Assistance Program (PIAP). ■



Access to \$3.2 Billion Annual Market

An independent study projects that \$3.2 billion will be invested in wind turbine installations within a 600 mile radius of Iowa every year through 2013.



How has Iowa jumped out in front?

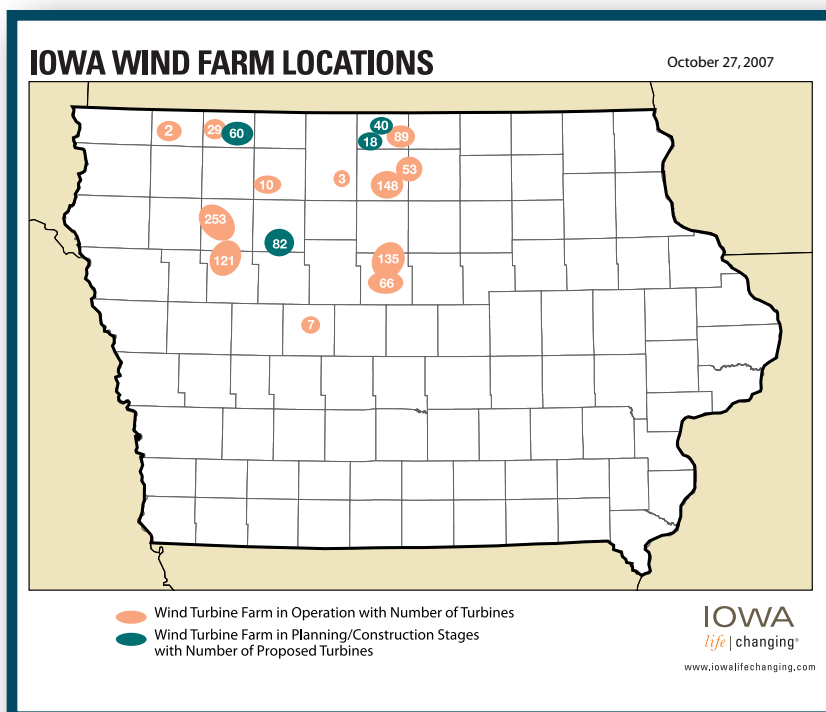
An abundance of strong, steady winds over much of the state and the general enthusiasm for this renewable, non-polluting source of energy continue to move Iowa out in front as a leader in wind energy development.

About half of Iowa has significant areas of the Class 3, 4 and 5 winds needed for commercial scale wind generation. Estimates show Iowa has the potential to generate five times its current electrical use from wind power and become an energy exporter to other states. Large areas of the state have the combination of adequate electric load and wind resources that can accommodate widespread development.

Iowa has had progressive support for wind development for many years. This support extends to the willingness of farmers to lease sites to energy companies for the erection of giant wind turbines on their property.

State goals for renewable energy output and financial incentives also are driving wind energy development in Iowa. Wind Utility Consulting and Wind Energy Management LLC, in their study "Projections of Wind Generation in the Upper Midwest," judged Iowa to have the best set of wind generation incentives.

For a copy of this consulting study, contact the Iowa Department of Economic Development, 800.245.IOWA (4692). ■



Where Iowa wind farms are locating

This wind farm map shows the approximately 1,273 Megawatts (MW) of wind power capacity now installed in the state of Iowa and the additional 105.2 MW of capacity under construction. When the total installed and under-development capacity is compared with other states, Iowa ranks third in the nation in generating capacity of wind turbine farms.

Siemens expansion powers southeast Iowa

Eighteen-month-old manufacturing facility undergoing \$33 million expansion; 287 new jobs to be created

A highly skilled and available workforce, a central U.S. location and supportive local and state governments—those were the overriding factors when Siemens Power Generation selected the southeast Iowa community of Fort Madison for its wind turbine manufacturing facility a year and a half ago.

And according Mike Revak, Siemens PG's director of wind power in the Americas, those same reasons are why—after only 18 short months—the company is in the midst of a \$33-million expansion project that will result in the addition of 287 new jobs. "We looked from Texas to the Canadian border," says Revak. "We feel it's the best solution for us to expand at our existing facility in Iowa."

The Iowa Department of Economic Development helped leverage the expansion with a \$1.6 million award from the Economic Development Set-Aside (EDSA) program and tax incentives from its High Quality Jobs Creation (HQJC) program.

When the company began production of its massive 12-ton, 148-foot-long wind

turbine blades in fall 2007, Siemens was looking to grow its overall capacity. "While wind power represents just one percent of U.S. electricity generation, market forces could grow that figure to 20 percent in just 12 years."

Those forces include tax incentives for "green" energy, state mandates requiring electricity providers to obtain a percentage of their power from renewable sources, consumers demanding renewable energy and the volatility of fossil fuel prices.

Siemens PG's 311,000-square-foot facility, which currently employs 254 Iowans, sits on a 126-acre parcel, giving the company ample room to pursue its expansion needs. Revak says the company's three-year expansion project will add 75,000 square feet to its existing building, construct a second 125,000-square-foot plant and establish a rail yard. Doubling the size of the workforce will occur over three years as well. "We've been very successful in finding the right kind of worker and there are a lot of the right people in southeast Iowa," says Revak. ■