



ACCIONA WINDPOWER TO BRING 3 MEGAWATT TURBINE TO NORTH AMERICA, WITH AN ASSIST FROM IOWA

Commercialization of Wind Turbine Technology to Maximize Manufacturing in West Branch, Iowa Facility

Acciona Windpower North America, LLC is embarking on a nearly \$20 million project in order to build the first project utilizing its next-generation 3-megawatt wind turbine technology in the North American market. The project will install AW-3000 wind turbines, Acciona's latest wind generation turbine technology, in Iowa. An Iowa Power Fund award of \$3 million supported the \$19.9 million project.

The award will help construct the first project to utilize the AW-3000 wind turbine in North America, which will assist in the commercialization of the AW-3000 turbine across the region. The company will initially build two turbines, one on a concrete tower, the other on a steel tower. Tower construction is scheduled to start in late 2011, with project completion in 2012.

Acciona will manufacture the AW-3000 family of wind turbines at its West Branch, Iowa facility, and the

technology will be sold throughout North America. Acciona officials say that production of this product will maximize its West Branch plant operations and employees.

"Acciona Windpower is very pleased with Iowa's support for the wind industry and we are honored to be awarded this grant. Continued state support for the wind industry will no doubt realize the full potential for economic growth and development across Iowa," says Joe Baker, CEO, Acciona Windpower North America. "Acciona Windpower looks forward to fully commercializing our AW3000 wind turbine to further prove its success in the North American market."

Iowa's Power Fund has invested more than \$63.1 million directly in 43 competitive projects, leveraging more than \$564 million in energy research and development, early stage commercialization and education. ♦

Iowa universities & community colleges on leading edge of wind energy training and research

Iowa's institutions of higher learning and their researchers are vital components in the state's business infrastructure. While Iowa State University is helping make wind energy manufacturers more competitive, Iowa Lakes Community College is helping shape and deepen the skilled labor pool for the wind energy industry.

Research institutions like these also foster Iowa's business community by making proprietary research at Iowa's universities readily available to Iowa companies.

Iowa Lakes Community College named to 'Ivy League' of wind industry training programs

Iowa Lakes Community College, with five locations throughout the state, received the American Wind Energy Association's (AWEA) Wind Turbine Service Technician Program Seal of Approval in January 2011, making it one of only three programs in the nation to receive the first-ever honor.

The Seal of Approval makes Iowa Lakes a part of what will become the Ivy League of wind energy training programs. The Seal standards cover the four major study areas of electrical components, mechanical components, safety and general skills. It's not an accreditation, but the first step in that direction for the industry. Iowa Lakes' program is one of the longest-running in the country.

"Iowa Lakes has one and two year programs and each requires an internship with 348 hours of work experience," said Dan Lutat, Iowa Lakes Wind Energy and Turbine Technology director. "That's the equivalent of ten 40-hour weeks. It's the most challenging part of the program."

Iowa State establishes Wind Energy Manufacturing Laboratory

A public-private partnership on the campus of Iowa State University is developing new, low-cost manufacturing systems that could improve the productivity of turbine blade factories by as much as 35 percent.

ISU researchers are working with researchers from TPI Composites, a Scottsdale, Arizona-based company that operates a turbine blade factory in Newton, Iowa, and the U.S. Department of Energy's Sandia National Laboratories in Albuquerque, N.M., to improve the process currently used to manufacture turbine blades.

Consider these turbine blade facts: a single blade can be 40 to 50 meters long and weigh anywhere from 10,000 to 15,000 pounds. It has to be built within millimeters of specifications. It has to withstand 20 years of harsh weather conditions in the field. Each turbine blade also has to handle speeds of up to 200 miles per hour at the tip.

"There are some unique challenges in producing these very large components," said Frank Peters, ISU associate professor of indus-

trial and manufacturing systems engineering. "Previous methods for automating composite structures, which largely originated from the aerospace industry, do not necessarily translate. For blade manufacturing to remain competitive in the U.S., we need to be able to improve the manufacturing efficiency through better processes and selected use of automation."

Fourteen researchers — all with backgrounds in industrial and manufacturing systems and aerospace engineering — are now at work on the three-year, \$6.3 million project called the "Advanced Manufacturing Innovation Initiative." One third of the project's funding is from the Iowa Power Fund, a state program to advance energy innovation and independence. TPI Composites and the U.S. Department of Energy are also providing equal shares of funding.

The researchers, located in the Wind Energy Manufacturing Laboratory on ISU's campus, are uniquely positioned to study wind energy manufacturing.

Iowa, which has an installed wind energy capacity of 3,675 megawatts, is second in the country in wind power production. ♦



ISU Wind Energy Manufacturing Lab researchers include (l to r): Dr. Vinay Dayal, Dr. Matt Frank, Dr. John Jackman, and Dr. Frank Peters

MidAmerican Energy & Siemens make history in Iowa

Siemens Renewable Energy is delivering a total of 258 wind turbines — the company's largest onshore wind order to date — to Des Moines-based utility MidAmerican Energy Company for a series of wind projects throughout Iowa. When the 2.3 megawatt turbines are commissioned in January 2012, the combined capacity of 593.4 megawatts will be enough to supply 190,000 U.S. households annually with clean electricity.

“Siemens is already the world market leader for offshore wind power,” said René Umlauf, CEO of the Siemens Renewable Energy Division. “We are now also highly successful with onshore wind turbines. With this, our largest onshore order to date from the United States, we demonstrate that we are well on track to becoming one of the three leading suppliers of wind turbines by 2012.”

Siemens, the largest supplier of eco-friendly technologies on the globe, will produce the company's patented IntegralBlade® for the Iowa wind farm turbines at its Fort Madison, Iowa, location. When the facility opened in 2007 after a \$17 million renovation of an existing building, the location was called “the cornerstone of our wind power presence in the U.S.,” by Robert Gjuraj, the plant manager.

Six hundred Iowans are currently employed producing rotors for the Siemens 2.3 MW wind turbines. They are specifically designed to optimize the energy returns in areas with limited wind speeds, making them ideal for sites with low to medium wind speeds.

MidAmerican Energy, a consolidated subsidiary of Berkshire Hathaway, is the top owner in the nation of wind-generated electricity among rate-regulated utilities.

The company has more than 1,393 megawatts of wind generating facilities in operation and under contract in Iowa. When the 593.4 megawatt expansion is complete, approximately 26 percent of MidAmerican Energy's total generation capacity will come from wind.

“We are pleased to move forward with these wind energy projects in Iowa. The projects make good economic sense for Iowa and our customers as the state continues to benefit from the construction of additional renewable energy generating capacity,” said President of MidAmerican Energy Bill Fehrman.

Umlauf agreed with this assessment. “We are proud to partner with MidAmerican Energy as they continue to install generating capacity using the wind resources of Iowa, the state with the highest percentage of wind energy generation in its mix,” he said. ♦



Clipper Windpower Cedar Rapids, Iowa Facility

Nadicom casts its future in Iowa

North American Ductile Iron Company (Nadicom) announced plans to locate its first North American ductile iron castings foundry in Iowa City, Iowa, at the annual Iowa Wind Energy Association conference. CEO Prasad Karunakaran said he wanted his new manufacturing facility to be in the center of the wind energy industry. The announcement, one of the conference's highlights, showcased the fact that Iowa is the nation's second-largest producer of wind energy behind Texas.

The Nadicom foundry will have the capacity to cast and machine large castings with an initial focus on the wind turbine market. The \$85 million casting facility will employ 175 Iowans when fully operational in 2013. Nadicom CEO Prasad Karunakaran said multiple factors were considered when choosing this location.

"We plan to build this operation from the ground up and wanted a location that would allow us to leverage our location to maximize productivity," explained Karunakaran at the official announcement where he was joined by Iowa Governor Terry Branstad and Lt. Governor Kim Reynolds. "This Iowa City site provided a central location, complete with rail and other logistical considerations, and access to a world-class workforce."

Karunakaran said utility rates from MidAmerican Energy were very competitive and acknowledged that the state's job-training program with Kirkwood Community College was an important factor in his decision, saying, "Iowa's job training helps bring the latest manufacturing technologies and methodologies into practice to boost efficiencies."

The Iowa City site — a 173-acre "shovel-ready" industrial park known as the Wind Energy Supply Chain Campus — is being marketed mainly to companies that supply components to the wind power industry. Iowa's wind energy industry supply chain involves more than 80 businesses, with 23 in the Cedar Rapids-Iowa City Corridor, including turbine manufacturers Clipper Windpower and Acciona Windpower North America. ♦

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