

Great Lakes wind power not a breeze

■ State, Fed regulators takes steps to write rules for an expected gale of offshore turbine plans.

BY JOHN FLESHER
Associated Press

TRAVERSE CITY, Mich.

— Imagine sections of the Great Lakes dotted with rows of gleaming, 12-story turbines, blades whirring in the stiff breeze as they generate electricity for homes and businesses onshore.

It's only an idea — for now. But government regulators are bracing for an expected wave of proposals for offshore power generation in a region that never seems to run short of wind.

Despite its allure as a plentiful source of clean energy, they say, offshore wind power could affect the aquatic environment and commerce.

State and federal officials are taking initial steps toward writing rules, as conservation activists watch closely.

"This is our last frontier, our wild west," said Jennifer Nalbene, navigation and invasive species director for the advocacy group Great Lakes United.

"Renewable energy is the direction we want go, but you don't want to enter it blindly."

Insiders reported on the situation during the International Submerged Lands Management Conference in Traverse City, which began Monday and continues through today.

They said anchoring large wind farms on Great Lakes bottomlands would have implications for commercial and recreational navigation, water quality, fish habitat and even flight patterns for birds and aircraft.

Wind power developers are wondering what kinds of regulatory hur-

dles they will encounter once they propose offshore projects, said John Cherry, a University of Michigan researcher studying the subject for the Great Lakes Commission.

"It's an unknown, so there's a huge amount of risk," Cherry said.

"Everybody would like to be the second program to do it. The first will be a regulatory trail-blazer."

Denmark, Sweden, the United Kingdom, the Netherlands and Ireland have installed offshore turbines, and Germany has approved nearly two dozen projects expected to go online soon.

Denmark's largest wind farm has 80 turbines roughly 120 feet high, planted 8 to 12 miles off the coast.

The U.S. has no offshore wind production, although projects are in the works for Atlantic waters off Delaware, New Jersey and Rhode Island.

A feasibility study is under way for a possible wind farm in Lake Erie near Cleveland.

A Michigan State University study released this month said

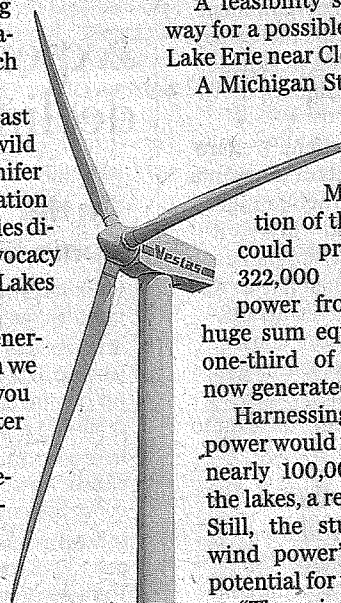
Michigan's portion of the Great Lakes could produce nearly 322,000 megawatts of power from wind — a huge sum equal to roughly one-third of all electricity now generated nationwide.

Harnessing that much power would require placing nearly 100,000 turbines in the lakes, a remote prospect. Still, the study illustrated wind power's considerable potential for the region.

"There is interest in the Great Lakes, and I know some companies are looking there," Laurie Jodziewicz, manager of siting policy for the American Wind Energy Association, said in a phone interview.

Detroit News file photo

A feasibility study is under way for a possible wind farm in Lake Erie near Cleveland.



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High-Efficiency Wind Turbine Generator Manufacturer Danotek Mot Powering the Wind With \$14.5 Million From CMEA Ventures, Statoil

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Nov 19, 2008 (Hugin via COMTEX) ---ANN ARBOR, MI--(Marketwire - November 19, 2008) - Bolstering its contribution of high-efficiency and cost-saving generators to the \$37 billion wind industry, Danotek Motion Technologies has raised \$14.5 million from CMEA Ventures, StatoilHydro (NYSE: STO) unit StatoilHydro Venture and GE (NYSE: GE) unit GE Energy Financial Services. Danotek's generators can spur the wind equipment market by increasing wind turbines' efficiency, while radically reducing their maintenance and operating costs.



"The capital infusion from top-tier, long-term investors will allow us to expand manufacturing and support our entry into the wind turbine original equipment manufacturers' market with generators capable of producing up to three megawatts. We will also scale up generator development for larger direct drives and offshore units," Dan Gizaw, CEO of Danotek, based in Ann Arbor, Mich., said of the initial \$7.25 million funding round, which CMEA Ventures and StatoilHydro Venture led and which closed Sept. 23. The balance of the funds are to be provided in a subsequent round. Additional details of the funding were not disclosed.

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Danotek's patent-pending variable speed Permanent Magnet Generators save more than \$1 million per turbine for wind farm manufacturers over the life of a turbine. Their unique design offers high performance at low wind speed. They are significant (with efficiency rates topping 98 percent), and they incur lower operating costs. They are half the weight of conventional generators; they contain no "wear-and-tear" parts. Danotek's generators and electronics power converters have elicited interest from large

"CMEA's energy and materials group reviewed 1,500 potential green energy deals in the past 12 months and only invested in one partner, CMEA Ventures. "In this space, it's not enough to have great technology. You also need a team that knows how to succeed against industry incumbents. Danotek's executive team has accumulated the deep energy industry experience needed to build a successful

"With its strong technical experience built during decades of research and development of permanent magnet generators and its ability to take advantage of the technological, regulatory, and long-term economic and societal factors increasing the demand for power, Danotek is well positioned to succeed. Danotek's managing director and leader of venture capital at GE Energy Financial Services. GE has invested more than \$150 million in growth-stage energy- and water-related technology companies.

"At StatoilHydro Venture, we are looking for companies with unique technology that helps increase the efficiency and reliability of a power company, and we believe that its high-efficiency generators will make a huge impact on the onshore and offshore wind industry. StatoilHydro Venture.

About Danotek Motion Technologies

Danotek Motion Technologies, Inc. (Danotek) is a clean technology company that develops high efficiency energy conversion products for various markets. The company has patents pending on several high energy efficiency products: Permanent Magnet (PM) Generators, fans, electric vehicle steering systems, for EV/HEV, fuel-cell, wind turbine, and combined heat and power industries. Danotek is led by a former GE, automotive engineering and management team. Danotek is based in Ann Arbor, Mich. <http://www.danotekmotion.com>

About CMEA Ventures:

CMEA Ventures is a venture capital firm focused on energy and materials, high technology, and life sciences investments. CMEA Ventures backs companies that are science focused and have experienced teams intent on winning. As a result, CMEA's portfolio companies are differentiated, and often multidisciplinary technology at their core, with founding teams of the highest caliber. CMEA invests in a strong network of corporate, investment, and entrepreneurial relationships that it leverages on behalf of its portfolio companies, representing investments in excess of \$1 billion. CMEA has been an early stage investor in many leading Silicon Valley high technology companies: Entropic (ENTR), Flextronics (FLEX), Magma (LAVA), Maxygen (MAXY), Silicon Spice (BRCM), Solyndra, Symyx (SMMX).

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Articles**Dow Corning Silicones Make Wind Energy A Breeze**

November 19, 2008

Silicones from Dow Corning are helping wind energy become one of the world's fastest growing sources of renewable power with technologies that improve turbine reliability, increase efficiency and reduce costs. In 2007, capacity expansions in North America, Europe and China drove a 15 percent increase in global wind energy use, according to the latest Vital Sign Update from Worldwatch Institute.

Converting wind energy to electricity is relatively simple: blades on a turbine shaft turn a generator to produce electricity. However, effectively producing a significant amount of clean renewable power can strain components such as hydraulic circuits, brakes, blades and bearings.

"The cost of alternative energy sources must be weighed against existing technologies, and factors such as reliability, remote monitoring and ease of maintenance are critical factors for operators of wind turbines," said Suzanne Fuson, global market director, Dow Corning.

"High-efficiency lubrication is critical to ensure reduced maintenance and long-term reliable wind power technologies."

Friction between wind turbine components can drastically reduce efficiency, making proper lubrication and maintenance essential to maximize energy output. Specially formulated silicone lubricants, such as Molykote brand lubricants from Dow Corning, are designed to meet the most extreme demands.

Well-lubricated parts not only are more reliable and can withstand longer service intervals but also have a higher level of efficiency than poorly lubricated assemblies. Combined with newer and more modern designs that incorporate longer blades, taller towers and improved mechanical and electrical components, proper lubrication ensures that wind turbine assemblies are running at peak performance.

"From industrial plants to wind powered turbines, new advances in silicone lubricants and lubrication programs have helped manufacturers and consumers reduce their carbon footprint," said Fuson. "As the need for more wind farms and renewable sources of energy increases, silicones will continue to play a vital role in growing wind energy as a critical part of a balanced energy future."

About Dow Corning

Dow Corning (www.dowcorning.com) provides performance-enhancing solutions to serve the diverse needs of more than 25,000 customers worldwide. A global leader in silicones, silicon-based technology and innovation, Dow Corning offers more than 7,000 products and services via the company's Dow Corning® and XIAMETER brands.

SOURCE: Dow Corning