**AYC Ecology North**

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**Lake Erie wind-turbine project in high gear for next year**

By John Funk, Cleveland Plain Dealer

The nonprofit company created to develop wind turbines in Lake Erie has acquired significant engineering muscle for a shot at making the decade-old proposal finally happen.

Using a $4 million federal grant, the [Lake Erie Energy Development Corp.](http://www.leedco.org/) has partnered with a team of about a dozen national and international expert companies and laboratories -- including several from northern Europe -- to get the job done.

The private partners have committed an additional $1 million in cost share for this portion of the project.

LEEDCo gets the first installment of the [$4 million U.S. Department of Energy grant](http://www.cleveland.com/business/index.ssf/2012/12/leedco_awarded_4_million_to_la.html) today to develop the initial engineering necessary to build wind turbines in fresh water, where ice can put extraordinary pressure on any structure.

The company has exactly one year to put together detailed engineering plans and win preliminary permits to compete for a four-year, $46 million DOE grant in 2014. That money would go toward constructing pilot project seven miles offshore.

LEEDCo will have plenty of competition for the larger grant. Project Icebreaker was one of seven projects to receive an initial $4 million DOE grant to come up with a proof of concept. It is the only project in the Great Lakes.

"I am convinced that we are poised to become the first freshwater wind farm in North America, which will spawn a new wind power industry in Northeast Ohio," said Lorry Wagner, LEEDCo president and a nuclear engineer.

Over the coming year, the team must decide on the best turbine foundation for the lake bottom, figure out how to deal with icing, and negotiate power purchase agreements with electric companies.

The project envisions building up to nine turbines in the lake at an estimated cost of $100 million - not only proving it can be done but that the design can be scaled up and reduce the cost of additional turbines.

That would reduce the price of the electricity the turbines would generate, making that power more able to compete with power generated by coal and natural gas.

LEEDCo's long-term goal is to build hundreds of turbines offshore where years of wind testing have shown the best wind exists.

The turbines that LEEDCo is now considering are designed by a division of [**Siemens Energy,**](http://www.cleveland.com/business/index.ssf/2012/05/siemens_energy_interested_in_l.html) a German engineering company with two U.S. manufacturing sites. The company, the world's no. 1 offshore wind turbine manufacturer, is one of the project partners.

Other partners include:

•Bayer MaterialScience, based in Pittsburgh. The company will work to solve ice buildup on turbine blades and to engineer advanced blade designs. Bayer has worked with DOE and Case Western Reserve University.

•Great Lakes Energy Institute at CWRU, whose engineers are already collecting and analyzing data about wind and icing conditions and will soon be assessing the soil and underlying geology of the lake bed.

•COWI-OCC of Denmark and Connecticut. COWI has been involved in wind projects since 1980. OCC is a U.S.-based engineering firm specializing in offshore foundation design and construction.

•DNV KEMA of Oslo, Norway, a global authority and consulting company on testing, inspection and certification and risk management. The company's offshore wind design standards have been used on 44 offshore projects.

•Eranti Engineering Oy of Espoo, Finland, an engineering company with 15 years of expertise in arctic, coastal and environmental engineering. The company has designed a sister project in Finland, where a pilot turbine has already been built to stand up to severe icing conditions.

• Offshore Design Engineering, Ltd of Surrey, England and Parker, Colo., an independent engineering, construction and project management contractor with 12 years experience building wind turbines offshore.

•The National Renewable Energy Laboratory, based in Golden, Col. NREL will help determine the most efficient layout of the turbines. It will also design the cost analysis system for the project.

•Freshwater Wind of Cleveland, will serve as the project developer. The company has worked with LEEDCo since 2010, negotiating the first submerged land lease with the Ohio Department of Natural Resources and winning a separate DOE grant to begin a study of how to best place wind turbines in the Lake.

•Project Management Consultants, of Cleveland, the project management team of construction, design, finance and real estate professionals, including architects, engineers, construction managers, financial strategists and experienced construction lawyers. PMC is a wholly owned and fully integrated subsidiary of Thompson Hine LLP, of Cleveland.

PMC has managed large projects, including the Flats East Bank Development, Cleveland Medical Mart and Convention Center, and the Museum of Contemporary Art.

• URS Corp., of Cleveland, will provide the engineering analytical work that the law firm McMahon DeGulis of Cleveland will need to complete National Environmental Policy Act environmental documentation and to obtain all federal and state permits needed to begin construction as soon as possible.