



The largest wind turbines currently in Canada can meet the electricity needs of 800 average homes.

Prince Edward Island is leading the way in wind energy development

Incorporated in March of 2006, the Wind Energy Institute of Canada (WEICan) is the most recent incarnation of Prince Edward Island's long history of being at the vanguard of wind energy development in Canada. Beginning with the energy crisis of the 1970s, the Government of Prince Edward Island has propelled renewable-energy generation through the Prince Edward Island Energy Corporation. Since 1985 Prince Edward Island Energy Corp., in co-operation with Natural Resources Canada, has funded the operation of the Atlantic Wind Test Site (AWTS).

A few years ago, the Federal Government recognized that, to support rapid growth in the wind energy sector, Canada would need a wind test facility with a national remit. The creation of WEICan opened the door for investment, partnership, and revenue generation. "WEICan provides Canada with a national testing and research organization with the potential to gain a world-class reputation," says Richard Hassard, the chairman of the WEICan board. "WEICan will accomplish its ambitious mission to lead the integration of wind energy into power systems across Canada through research, testing, innovation, and collaboration."

The Government of Canada contributed \$3.558 million to WEICan's launch, through the Atlantic Canada Opportunities Agency's Innovative Communities Fund, and Natural Resources Canada is providing \$2 million in operating support over the next two years. The Government of Prince Edward Island offsets operating costs with an additional \$285,000 per year and has transferred nearly \$1 million in former AWTS land and assets to WEICan.



WEICan's Paul Dockrill

The institute consists of a new 7,860-square-foot research-and-development facility at North Cape, which is located at the extreme north-western tip of Prince Edward Island. This site has 300-degree exposure to the Gulf of St. Lawrence, making it ideal for testing wind turbines with a wide range of demanding wind conditions. "WEICan is Canada's testing ground for new approaches to turbine design and configuration, as well as wind hybrid systems and various storage and distribution devices," says WEICan technical director Paul Dockrill. "We help people in academia and industry discover what works and we bring them together to solve problems

and to seize opportunities."

WEICan focuses on four main areas: testing for certification; research, development, and demonstration (RD&D); technical consultation and assistance; and public education and industry training. By providing an array of services, WEICan is seeking to diversify its revenue stream.

In the area of research, development, and demonstration, WEICan is involved in a number of activities; principal among them is the Wind Energy Strategic Network. This new consortium

has received \$25,000 from the Natural Sciences and Engineering Research Council of Canada to prepare a full application for network funding. WEICan intends to be an integral player in the majority of the network's research projects going forward.

In June WEICan forged a powerful strategic alliance in the testing area by signing an exclusive agreement with the German Wind Energy Institute (DEWI) to provide type testing services in North America. "Germany is the world leader



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AT A GLANCE

SECTOR: energy; wind power innovation; research, testing, and integration

KEY INVESTORS: Natural Resources Canada, Atlantic Canada Opportunities Agency, Innovative Communities Fund, Government of Prince Edward Island

MILESTONE: transitioning from a regionally focused entity (AWTS) to one with a national remit (WEICan) and becoming a focal point for wind energy RD&D in Canada

RESEARCHER: WEICan is a partner in the Wind Energy Strategic Network, Canada's first nationwide wind energy research team.

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in wind energy," explains WEICan's director of business development James Glennie. "The installed capacity at the end of 2006 was 20.6 GW, or 28% of the world total. That DEWI, a leader in its field, is signing such an agreement with WEICan says an enormous amount about the potential of both WEICan and the North American market"

WEICan is focusing on helping small wind-turbine manufacturers advance their technology for use in industry, agriculture, and smaller or remote communities. Among many research, development, and demonstration projects, WEICan is collaborating with Prince Edward Island Energy Corp. and Frontier Power Systems on a wind-hydrogen hybrid-system demonstration project. A Prince Edward Island-based company, Frontier Power Systems provides technical consultation to WEICan and many industry players. It is owned and operated by Carl Brothers, a mechanical engineer who managed AWTS for 21 years before striking out on his own in 2005.

New technologies are making wind more practical for large-scale generation and distribution. The largest wind turbines currently in Canada have an installed capacity of up to 3,000 kilowatts of electricity and, over a year, they produce enough electricity to meet the needs of 800 average Canadian homes. With the substantial demand for green electricity from large markets, Canada is extremely well placed to capitalize on rapid growth in wind energy in North America.

"Experience from around the world clearly shows that having a well-funded and competent research-and-development capability is critical to the continued development of a healthy and vibrant domestic wind industry," says Glennie. "Canada has the opportunity to be a major player in the global wind market, and WEICan aims to lead the research-and-development component of it." — STAFF