

Introduction

The WindShare Energy Co-operative is an innovative, for-profit wind power cooperative that has been operating a commercial scale turbine in the heart of Toronto, Canada since 2002. WindShare achieved several firsts and is recognized as a pioneer of renewable energy co-op development in Canada. It was the first large-scale energy co-op in Canada, building the first urban-based commercial scale installation in North America. Located at Exhibition Place on Toronto's waterfront, the turbine has a capacity of 600 kW. It generates as much as a million kilowatt hours of clean energy per year, enough power to supply electricity to the equivalent of 250 average households.

WindShare was created by the non-profit Toronto Renewable Energy Cooperative (TREC). Much of the development work related to the project was carried out by TREC while WindShare was created to own and operate the turbine. WindShare is owned by its members and jointly owns the turbine with the municipal utility Toronto Hydro. TREC is an incubator of community owned renewable energy projects and continues to pursue new project and support renewable energy co-op development and education.



Picture 1: Windshare Turbine, Toronto, ON
Courtesy of Toronto Renewable Energy Co-op

“This [community-utility] relationship was notable not only as a first for such a partnership in Canada, but because it changed the way utilities think about community endeavors and the nature of customer relationships.”

Joyce McLean, Director of Strategic Issues at Toronto Hydro

Vision

WindShare's mission is to demonstrate leadership and action in the community wind power sector, and to develop community power projects that are sustainable economically, environmentally, and socially. WindShare provides an alternative to large, centralized energy generation with the development of local, profitable and socially inclusive community-owned renewable power projects. The inspiration for WindShare came from the wind energy co-op movement in Denmark.

Ownership & Decision Structure

Fifty percent of the WindShare turbine is owned by the members of the WindShare Energy Cooperative, the other half is owned by Toronto Hydro. Membership is open to all individuals and institutions that support the objectives of the co-operative. Members are required to purchase twenty-five Membership Shares for one dollar apiece, and to invest a minimum of five hundred dollars through the purchase of five Preference Shares for one hundred dollars apiece. Additional investment in Preference Shares is available in five \$100 share (i.e. \$500) increments. There are just over 400 members in WindShare.

The co-op is governed by a Board of Directors elected from the membership. Members meet annually to review the production record and financials and replace board members as needed. Regardless of investment amount, each member in the co-op has one vote, allowing for full democratic control. Regarding operations and maintenance issues

of the turbine, WindShare and Toronto Hydro have a joint technical committee to review matters and make recommendations to their respective Boards. The co-op's by-laws define which decisions must be brought to the WindShare membership and which are the purview of the Board of Directors.

Key to the success of WindShare development and its ongoing operations is the commitment of the project initiators and the diversity of skill-sets brought together to see the project through. TREC was operating on a small budget, preventing them from hiring all the experts needed in developing a wind project; instead there was great reliance on skilled and passionate volunteers. Key talents include:

- Technical analysis and/or engineering;
- Project management;
- Legal advice (e.g., co-op law, partnership, environmental assessment, etc.);
- Project finance and accounting;
- Promotion, public relations and fundraising;
- Community champions and leadership, especially at the municipal level; and
- Engineering support from Toronto Hydro.

Planning Process

As a unique new venture, the Windshare project encountered many unexpected twists and turns and the final result was quite different from the original vision, as a result, the project plan was ever evolving. The first step was to find a suitable site and conduct a resource assessment. TREC collected wind data along the Toronto lakefront at three different locations. The two favoured sites had to be rejected due to challenges securing land access, among other things. This caused the project to fall seriously behind schedule and the sudden and swift support from Ex Place changed things significantly. One year of wind data was collected at Ex Place.

The project was always intended to include three turbines to spread the cost and risks across more than one installation, but permission was only granted to erect one. Due to federal funds granted to the project a federal EA had to be completed and the province agreed to accept it but only after the third parliamentary debate in the Ontario cabinet. The City of Toronto support was pivotal as owners of the site and was facilitated by several councilors who championed the project.

Project Development

Resource Assessment

1 year wind data collected at three different sites along the Toronto lakeshore.

Technical Design

Site matrix and technology matrix prepared by a wind energy expert to provide decision criteria.

Environmental Assessment

This included wildlife impacts, noise report, bird monitoring study, sound monitoring study (post installation) community consultation; a federal EA was completed and accepted after some delay.

Grid Connection / Energy Use

Generated electricity is sold to Toronto Hydro through a power purchase agreement. The power is consumed in the local grid at Exhibition Place.

Project Financing

Project cost: About \$2 million

Loans/Grants: various small grants + \$150K from Environment Canada

Toronto Hydro contribution: covered a significant part of the soft costs + 50% capital costs

Share offering: 427 members purchased shares raising \$800,000 in community equity

Land Ownership and Access

WindShare pays Exhibition Place a flat rate of \$1200 per year lease fee.

Community Engagement

The community was initially consulted as part of the EA process and then engaged to become co-op members and purchase shares.

Project Financing

Project costs and revenues are shared by WindShare and Toronto Hydro. Start up-development was largely managed by TREC, which was funded through various grants and loans and by contributions from Toronto Hydro. The total cost of the project (development and installation) was around \$2 million. Of that total cost, \$800,000 was raised from the community through the share-offering from 427 members who invested an average of \$2000 each. The investment drive took place at the end of 2002 and early 2003 and was fully subscribed within 4 months of grassroots marketing.

Benefits and Barriers

The project benefits included:

- Diversifying Ontario's energy mix with green, clean energy;
- Enabling local participation through a democratically controlled community ownership model ;
- Serving as a powerful educational tool and symbol that has spanned many other initiatives and inspired community power broadly;
- Modelling for other developers in the wind sector; and
- Acting as the catalyst for a movement that resulted in the Green Energy Act and other policies changes in Ontario and beyond.

The barriers over the project's inception and implementation included:

- Delays in securing the site and limitations on project size imposed by the site;
- Non-standard permits, approvals at the time (unclear and cumbersome);
- Materials (i.e. turbine) and technical expertise had to be procured outside the country;
- Many firsts to overcome, including convincing people it was a good idea;
- New venture meant there was limited experience to draw upon;
- Technological and political challenges: circumstances resulted in the purchase of a less than ideal turbine; and
- Operating on a shoe string, where procuring grants and loans was a constant struggle but resulted in creative problem solving and collaborative effort.

Lessons Learned

- Make a plan but be prepared to change it, often
- Expect many delays and build that into your timeline (and build contingencies into your budget)
- Ensure your site host is willing and able to give you a lease and begin negotiating early
- Engage local champions who can promote your project
- Assemble a diverse and skilled team
- Work with a well-matched partner that compliments your skills

Further Information

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