

May 22, 2001

To: The Board of Governors of Exhibition Place

From: Dianne Young
General Manager & CEO

Subject: Wind Turbine Project at Exhibition Place

Recommendation(s):

It is recommended that the Board:

- 1. Subject to all necessary approvals of City of Toronto Council, enter into a long-term lease agreement with the Toronto Hydro Energy Services Inc. and the TREC Windpower Co-operative (No. 1) Incorporated (collectively referred to as "THESI/TREC") for the construction and operation of a wind turbine at Exhibition Place in accordance with the terms and conditions contained in this report and such other terms and conditions as required by the General Manager & CEO and the City Solicitor;**
- 2. Direct staff to take all necessary actions to give effect hereto.**

Background:

At its meeting of November 24, 2000, the Board heard a presentation from THESI/TREC and directed Exhibition Place staff to investigate the feasibility of constructing a wind turbine at Exhibition Place, to negotiate the terms and conditions of a lease agreement and report back to the Board.

Discussion:

In 1999, THESI and TREC formed a joint venture to construct up to three utility-scale wind turbines on the Toronto waterfront. The purpose of this project is to showcase this form of emissions-free electrical generation that can help address urban smog and global climate change. The City of Toronto has been a strong supporter of the Windmill Project and approved the first wind turbine which is proposed to be located at Ashbridges Bay Water Treatment Plan.

TREC is the first community-based greenpower co-op in Canada and models itself on the highly successful Danish model. Half of the electricity generated will be sold to Toronto Hydro Energy Services subscribers as a green power product. The estimated 1000 members of the Toronto Renewable Energy Co-operative will own the other half of the electricity. Members of the

Co-operative will receive a credit for their share of the energy produced by the project. It is estimated that one wind turbine would generate enough energy for the equivalent of approximately 250 four-person households without harmful emissions associated with coal power plants such as Lakeview Generating Station in Mississauga.

In siting the wind turbines within Toronto, THESI/TREC has established some essential criteria that are: greater than 200 meters to the nearest residents; not on lands governed by Transport Canada's regulation for the Toronto Island Airport; clean winds averaging speeds greater than 5 m/s; suitable soil and ground water conditions; predominant SW and WSW wind exposure; able to accommodate a turbine of no less than 660 kW with a standard tower height; within 200 meters of the nearest interconnection point; and greater than 80 meters to the nearest hydro transmission line.

The proposed wind turbine at Exhibition Place would meet all of the essential criteria and in addition, this site meets the additional objective of strong public visibility and public accessibility. With only three turbines being built within this project time-frame, it is essential to site the turbines in key areas. Exhibition Place provides not only strong wind resource to enable the turbine to generate maximum electricity, but more importantly it will be visible to millions of visitors and passers-by annually and affords a prime opportunity to develop an educational component around the turbine.

Since the Board's meeting, staff has been meeting with THESI/TREC to determine the exact nature and scope of the wind turbine project, a viable location for the project and the business terms of a lease. After a review of the possible locations, it was determined that one of the best sites would be at the south west corner of the Better Living Centre (BLC) in the grassy area between the perennial border and the small fountain. THESI/TREC have been testing the winds in this area over the winter and have determined that this location would provide optimum winds and a clear fetch to the lakeshore.

It is very appropriate that the wind turbine be located next to the BLC which building was constructed in 1962 as a venue to showcase new products – products which were to improve the quality of living. The wind turbine in a larger sense fits this mandate. The wind turbine will be connected to the grid through the electrical generator in the BLC and this 1962 building will now receive part of its hydro power from the wind turbine. In addition, THESI/TREC have committed to the development of an educational program focused on schools and school visits to the site. The BLC will be used for this program on an as-needed basis and THESI/TREC will pay the Board rent for such use. The education program will also provide for a presence by THESI/TREC at larger events on the grounds such as during the period of the CNE and CHIN Picnic.

Representatives of THESI/TREC presented this proposal to the public at the Exhibition Place Community Liaison Committee. One of the questions raised at that meeting was the level of noise produced by the wind turbine. The noise level directly under the turbine is approximately 70 db(A) and 45db(A) 200 meters from the turbine. Both these noise levels are well below the ambient noise levels produced by Lake Shore Boulevard, the Gardiner Expressway and general city noises. In fact, the 45 db(A) level is lower than ambient noise level in a typical office.

The substantial terms and conditions of the proposed lease agreement negotiated between the Board and THESI/TREC are as follows:

- (i) Term: 15 year Term with an option for one (1) Renewal Term of five (5) years;
- (ii) Possession Date: No earlier than September 1, 2001;
- (iii) Commencement Date: At the completion of the preconstruction/construction period (approximately 6-8 weeks) and subject to required City approvals the Commencement Date is estimated to be no later than December 1, 2001;
- (iv) Leased Area: Situated at the southwest corner of the BLC in the area shown on Schedules "A" and "B" including a tower base, the rotor-swept area and the transformer, together with a right of access for operation and maintenance purposes and the right to install underground cabling to a point in the basement of the BLC (collectively referred to as the "Turbine Facility"). In addition, THESI/TREC will work with the Board in consideration of a design of the lower part of the tower base complimentary to the design elements of other such towers on the site;
- (v) Use: Construction and operation of a Turbine Facility for the generation of "green" energy;
- (vi) Rent: For the Term and Renewal Term, THESI/TREC shall pay an annual rent of either \$2,000 or equivalent kilowatt hours at a rate charged for "green" energy. The Board shall prior to the Commencement Date determine the method of payment of the Rent for the Term and Renewal Term which rate will then be set and continue throughout the Term and Renewal Term;
- (vii) Capital/Leasehold Improvements: THESI/TREC accepts that Leased Area "as is" and agrees to invest capital funds of approximately \$1.4 million to construct the Turbine Facility;
- (viii) Public Education Program: THESI/TREC will produce, at its sole cost, a public education program at Exhibition Place;
- (ix) Landscaping: THESI/TREC will be responsible for landscaping the Leased Area, subject to approval of the Board of such landscaping plan;
- (x) Maintenance Protocol: THESI/TREC will develop and implement a maintenance protocol for the Turbine Facility including but not limited to a maintenance protocol related to the de-icing of the rotor blades that is acceptable to the Board;
- (xi) Required Approvals/Monitoring: Prior to construction, THESI/TREC will provide to the satisfaction of the Board evidence of all necessary municipal, provincial and federal approvals. THESI/TREC will undertake any monitoring programs, including noise monitoring, as may be required, to comply with all municipal, provincial and/or federal environment agencies;
- (xii) Restrictions/Conditions: THESI/TREC must recognize that:
 - (a) from time to time during the Term and Renewal Term Exhibition Place may be totally closed to the public;
 - (b) certain grounds and buildings located within Exhibition Place are proposed to be used for the 2008 Olympic Games and Paralympic Games ("Games") and should Toronto be awarded the Games, THESI/TREC right of access to the Leased Area will be

subject to restrictions and conditions imposed by the Games provided THESI/TREC continues to have a right of access for required maintenance on the Turbine Facility;

- (c) THESI/TREC will be required to conform with all the policies and processes that City Council may adopt as a result of the *Our Toronto Waterfront* report as adopted by Council in March, 2000;
- (xiii) Collective Agreements: THESI/TREC agrees to abide by all collective agreements between the Board and its unions and the City and its unions;
- (xiv) Other Conditions: The Board retains all rights to parking and sponsorship; THESI/TREC will carry insurance in an amount and manner and with respect to risks as satisfactory to Board/City and indemnify the Board and City; on termination, THESI/TREC will remove the Turbine Facility and any concrete foundation to a depth of one meter and restore the Leased Area to its original condition; any access to the Leased Area will be subject to reasonable requirements of the Board;
- (xv) Performance Bonds: THESI/TREC will provide such letter of credits; performance or construction bonds in form and amount satisfactory to the Board and City Solicitor; and,
- (xvi) Early Termination: The Board will have the right to early termination for breach of terms and conditions including failure to correct any significant environmental impacts; failure to maintain the Turbine Facility; termination at the end of Term, if the Board or City determine, acting reasonably, that the Leased Area, or any material portion of it, is required for the purposes of the operation of Exhibition Place. THESI/TREC will have the right to terminate if external circumstances or events make continued operation of the Turbine Facility not economically viable.

Conclusion:

This report recommends the approval of the terms and conditions for a lease agreement between the Board and THESI/TREC for the establishment and operation of a wind turbine project at Exhibition Place.

Contact:

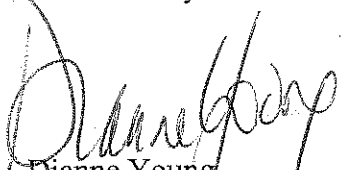
Dianne Young

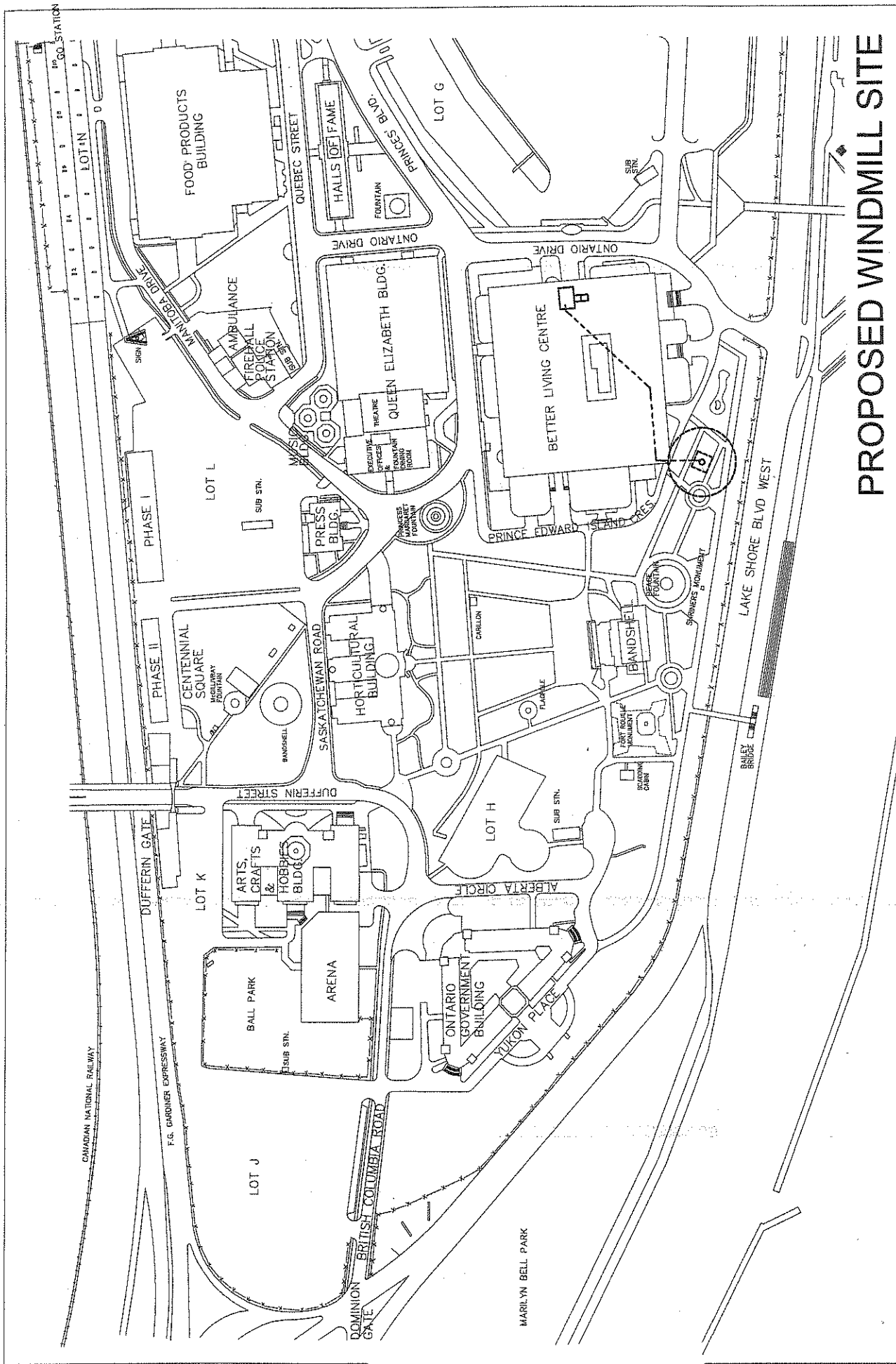
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Submitted by:


Dianne Young
General Manager & CEO



PROPOSED WINDMILL SITE

WINDMILL SPECIFICATIONS

FOUNDATION: 12 m X 12 m

TOWER HEIGHT: 60 m

ROTOR DIAMETER: 50 m

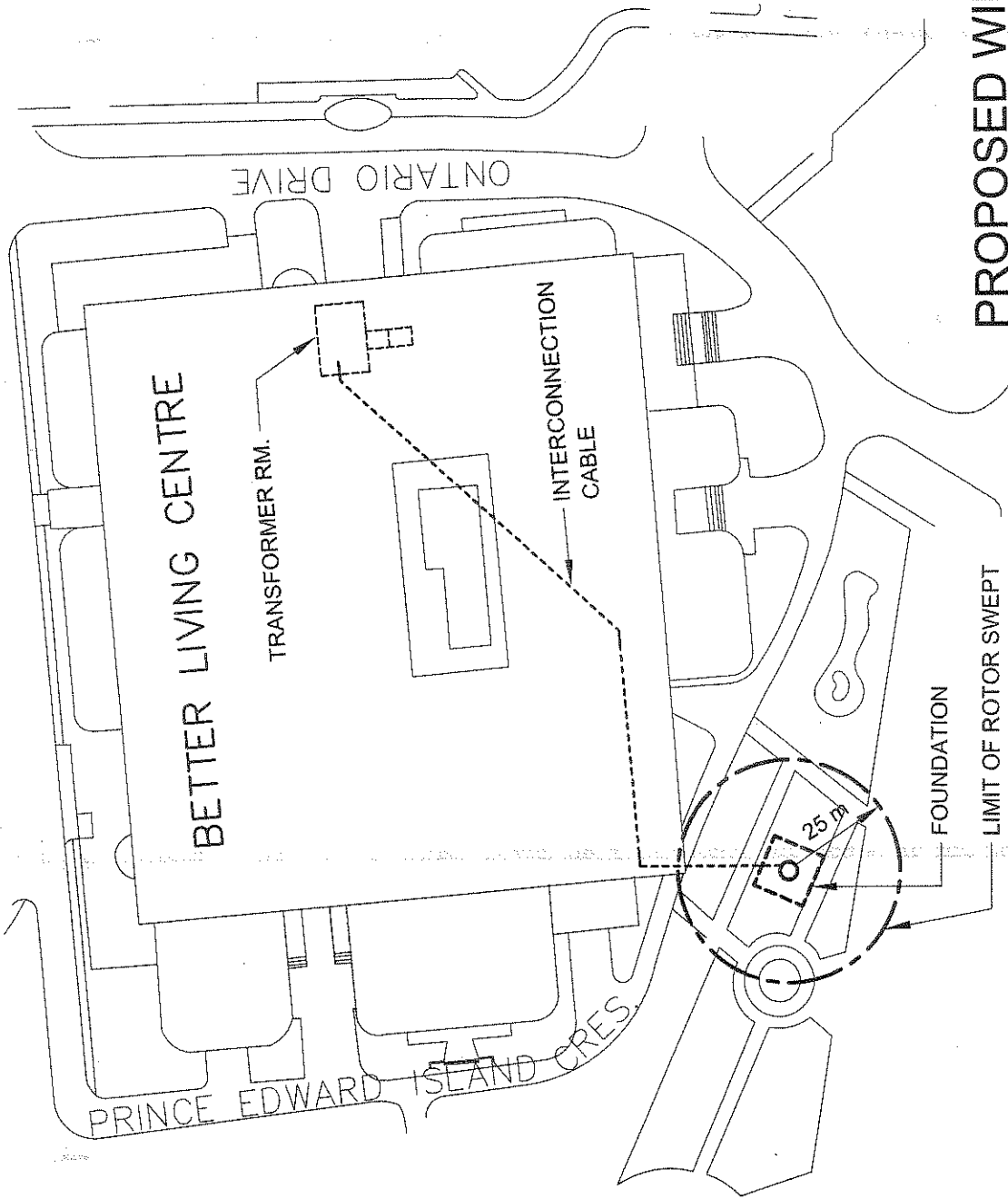
TOTAL HEIGHT: 90 m

TOWER BASE DIAMETER: 4 m



SITE PLAN
EXHIBITION PLACE

SCHEDULE "A"



PROPOSED WINDMILL SITE

WINDMILL SPECIFICATIONS

FOUNDATION: 12 m X 12 m	TOWER HEIGHT: 60 m
ROTOR DIAMETER: 50 m	TOTAL HEIGHT: 90 m
TOWER BASE DIAMETER: 4 m	

