



EXHIBITION PLACE

April 3, 2003

To: The Board of Governors of Exhibition Place

From: Dianne Young
General Manager & CEO

Subject: Trigeneration Project Update

Recommendation(s):

It is recommended that the Board receive this report for its information.

Background:

At its meeting of July, 2001, the Board approved a report entitled "Tri-Generation Study at National Trade Centre And Install Air Conditioning at Automotive Building" which outlined the details and benefits of a trigeneration project at Exhibition Place.

Discussion:

Over the past two years, Exhibition Place has been working with the Toronto Atmospheric Fund (TAF) on the development of a trigeneration project at Exhibition Place and with respect to this project, TAF has funded two feasibility and engineering studies totaling \$80,000.

The initial work on a trigeneration system started with the Automotive Building and the approval of the installation of air conditioning in that building for operations/marketing reasons. With the approval of the Automotive project, it was thought that system engineering could capitalize on the available funds to piggyback a sophisticated cogeneration system on site. Toronto Hydro Energy Services conducted the initial feasibility study in 2001 which concluded that a trigeneration rather than a cogeneration system would have a shorter payback term. This was due in part to the existence of a tunnel between the Automotive Building and the NTC, which permitted an appropriate scale of operation and lower construction costs. In addition, trigeneration would permit overall plant efficiency from 40 percent to 80 percent, if the waste heat could be used throughout the year. Keene Engineering Co. Ltd. was then hired in 2002 to conduct a detailed engineering and cost study based on the trigeneration model.

The "District Energy and Trigeneration Project", as it has emerged, would connect three buildings: the Automotive Building, the NTC, and the newly renovated Coliseum Arena. The trigeneration plant itself will consist of two natural gas-fired generators with heat recovery packages, a new hot water driven absorption chiller (350 tons), and connections to the existing NTC heating water and chilled water systems. It will be located in the underground parking lot

below the NTC.

Annual emissions reductions of 7,400 tonnes of equivalent CO₂ are estimated to occur from the project. Total projected net savings are estimated at \$26 million over the 30-year lifetime of the project, though the difficulty of making long-term energy commodity price projections makes this figure uncertain.

This project would represent the very first application of trigeneration in Canada. Due to its innovative and groundbreaking character, the Federation of Canadian Municipalities has indicated strong interest in an application for both grant (possibly at a level of \$1.0M) and low-interest financing from the Green Municipal Investment Fund (possibly at a level of \$1.056M). TAF is considering providing a loan possibly at the level of approximately \$2.168M.

On an initial review, the project with the above funding appears to generate a very significant positive return to Exhibition Place, even after financing costs. However, the financial outcome of the proposed project is highly sensitive to energy cost input data, which are currently difficult to predict. The actual relative future direction of electricity and natural gas prices will have a major impact on the annual operating savings that would be to repay the loans from TAF and FCM. These operating savings will primarily consist of the difference between the value of the avoided electricity purchases and the value of increased natural gas purchases to operate the generators.

In addition to energy pricing uncertainty, actual project payback will depend on the level of system utilization. In the absence of a major change in electricity and natural gas prices, greater system utilization should result in a swifter payback on the original capital investment. In other words, if more buildings (ie East Annex, West Annex, Industry) are connected to the system, the efficiencies/savings and payback period increase. The same results could be achieved by increase activity within the new halls of the NTC. Finally, the project is very dependent on potential FCM financing and funding.

The next steps in the development of this project are as follows:

- Exhibition Place with the assistance of its "Project Partner", TAF, submit a funding application to the Federation of Canadian Municipalities Green Municipal Investment Fund for both a grant and a low-interest loan
- Exhibition Place continue to work with TAF and the CFO on the financial risks and potential risk mitigation measures
- Exhibition Place will negotiate with TAF the terms and conditions of a loan/leasing agreement
- Submit details of all the foregoing to the next meeting of the Board of Governors

Conclusion:

This report updates the Board on the trigeneration project at Exhibition Place and outlines the next steps to be taken by staff on this project.

Contact:

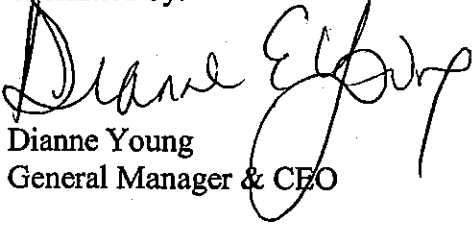
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Submitted by:



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