



# EXHIBITION PLACE

September 3, 2004

To: The Board of Governors of Exhibition Place

From: Dianne Young  
General Manager & CEO

Subject: Implementation of Trigeneration Project

**Recommendation(s):**

It is recommended that the Board, subject to the approval of City Council:

- 1) Enter into a loan agreement with the Toronto Atmospheric Fund ("TAF") generally on the substantial terms and conditions outlined in Appendix "A" attached and such other terms and conditions required by the City Solicitor, the City CFO and Exhibition Place CEO;
- 2) Fund up to \$0.425M of the construction of the trigeneration project from moneys held in the Exhibition Place Capital Reserve Account;
- 3) Enter into a three party loan agreement with the City and the Federation of Canadian Municipalities for an amount of \$1.075M to construct the trigeneration plant which loan agreement will be on the terms and conditions required by the City Solicitor, the City CFO and Exhibition Place CEO for this project; and,
- 4) Proceed to draft the necessary tender documents and report back to the Board as required on firm tender price and any recommendation on the award of the tender.

**Background:**

Exhibition Place has been actively working on the study and benefit analysis of a trigeneration plant at The National Trade Centre (NTC) at Exhibition Place since 2000. This process has from the beginning involved the Toronto Atmospheric Fund (TAF) as a partner in this project. The reports that have been before the Board and Council related to this project and the actions that have been taken are as follows:

Report No. 19 at the meeting of the Board on October 20, 2000	Approval of a budget of \$1.25M as part of the 2001 Capital Budget for the installation of a new heating and air-conditioning system
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	within the Automotive Building which upgrade was also approved by City Council as part of its 2001 Capital Budget.
Report No. 10 at the meeting of the Board on July 16, 2001	Approved in principle the concept of the installation of a trigeneration plant for the NTC
Report No. 14 at the meeting of the Board on November 30, 2001	Approved of the design-build project for heating and air-conditioning in the Automotive Building which connects this building to the NTC generators through the existing tunnel to allow for the future trigeneration district heating/cooling plant
Report No. 12 at the meeting of the Board on April 25, 2003	Information report outlining the next steps which included a funding application in partnership with TAF to the Green Municipal Investment Fund (GMIF) managed by the Federation of Canadian Municipalities (FCM)
Clause No. 15 of Report No. 5 of the Policy & Finance Committee adopted by Council at its meeting of June 24, 25 & 26, 2003	Approved of TAF providing a loan of up to \$2.2M to Exhibition Place for a term of up to 15 years to fund the trigeneration project
Clause No. 81 of Report No. 9 of the Policy & Finance Committee adopted by Council at its meeting of September 22, 23, 24 & 25, 2003	Received for information a report relating to the application to FCM for GMIF funding for the trigeneration project
November 2003	The design-build project for the upgraded heating and air-conditioning in the Ricoh Coliseum connected this building to the NTC generators to allow for the future trigeneration district heating/cooling plant
Report No. 1 at the meeting of the Board on April 30, 2004	The Board approved of an Environmental Plan for the site which had a one objective, energy self-sufficiency of the site by 2010.

Discussion:

The initial work on a trigeneration system started with the Automotive Building and the approval of the installation of a new heating and air conditioning system 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.

The "District Energy and Trigenation Project", as it has emerged will, in the first phase, connect three buildings: the Automotive Building, the new halls of the NTC, and the Ricoh Coliseum. However, the intent would be to add the older buildings within the NTC Complex as a second phase (ie East Annex, West Annex, Industry) and thus decommission very outdated and inefficient boilers in these facilities. With the approval by Council of the construction of a hotel/conference centre at Exhibition Place, the intent is also to connect these new structures, again through an underground tunnel to the NTC.

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 CO<sub>2</sub> are estimated to occur from the project. The project is also estimated to provide 30% of the energy needs of Exhibition Place.

The financial assessment of the trigeneration project also indicated that it will 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 difficult to predict. The actual relative future direction of electricity and natural gas prices will have a major impact on the annual operating savings as the 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 NTC 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 and thus moving to the second phase of the project and adding the hotel/conference centre will lower the payback period.

Because of the significance of the CO<sub>2</sub> reduction and energy generation as noted above, the trigeneration project was seen to be very innovative and groundbreaking and FCM indicated strong interest in the project. Accordingly, following approval from the City CAO's office and City Council, an application was made to FCM for both GMIF grant of \$0.95M and low-interest financing from the GMIF of \$1.075M. We were advised on August 26<sup>th</sup> by FCM that it has approved of the GMIF low-interest loan of \$1.075M for the trigeneration project. However, because the projected discounted payback is just at 10 years, FCM has informed us that the trigeneration project is not eligible for the grant although FCM will revisit the grant request at its meeting in November, 2004. As noted above, the payback for this project is very dependent on the cost of energy and Exhibition Place/TAF will make a submission to FCM in November with updated figures based on current projected natural gas prices over the next 10 years.

However, after discussions with our partner TAF, Exhibition Place staff are recommending that the trigeneration project not be delayed given the substantial environmental and financial benefits once constructed. Rather, the new funding formula be as follows:

- TAF – up to \$2.9M loan
- GMIF loan - \$1.075M
- Exhibition Place Capital Reserve Fund – up to \$0.425M

**Assumptions:**

TAF loan rate calculated using 10-year Bank of Canada bond rate as of June, 2004 plus 2.5%  
GMIF loan rate calculated using 10-year Bank of Canada bond as of June, 2004 rate minus 1.5%

Exhibition Place Capital Reserve funds at no repayment cost (The Exhibition Place Reserve Fund was established with proceeds earned from a surcharge on tickets for events at the Exhibition Place Stadium and presently has approximately \$850,000.00.)

Exhibition Place staff have been consulting with City Finance staff on the financial paybacks of this project and it has been determined that based on the present consumption patterns at the NTC, Ricoh and Coliseum, construction of the trigeneration project under the new funding formula would result in a discounted payback for the \$4.4M capital cost of the trigeneration plant of 10 years and simple payback of 8 years. If FCM in November does approve a grant, then any funding from the Exhibition Place Capital Reserve Fund will be reduced as will the amount of loan from TAF and the payback periods will further improve. In addition to full repayment of the TAF and FCM loans in 10 years from energy savings, during that same 10-year period the Board will also save an additional \$1.14M in energy costs which will have a positive impact on the Board's operating costs.

This new funding formula will also be considered by the TAF Board at the September meeting along with the terms of the loan agreement as set out in Appendix "A" attached. The recommended plan of action to move this project forward is as follows:

- Receive approval from for the Board to enter into an agreement with TAF generally on the terms and conditions outlined in Appendix "A" attached and such other terms and conditions required by the City Solicitor, City CFO and Exhibition Place CEO;
- Receive approval from City Council to use \$0.425M from the Exhibition Place Capital Reserve Fund for the trigeneration project;
- With the City, negotiate and enter into a loan agreement with FCM for this project; and,
- Proceed to finalize the design of the trigeneration system and draft the necessary tender documents and report back to the Board as required on the award of any tender and final price for the project.

**Conclusion:**

This report recommends proceeding immediately with the implementation of the trigeneration project within the NTC in partnership with TAF and based on the funding formula set out in this report.

Contact:

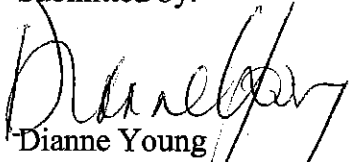
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Submitted by:



Dianne Young

General Manager & CEO

## Appendix "A"

1. **Loan Amount:** TAF will lend the Board up to \$2,900,000 CAN (the "Loan") for the Trigenation Project. The Loan will be made available by TAF in up to three advances ("Advances") on specific dates ("Advance Dates"). Such Advance Dates will occur within 12 months from the date of this Term Sheet. The minimum amount of any Advance, other than the Final Advance shall be \$500,000. The aggregate amount of the Advances will be the Loan Amount.

The Board will provide TAF with 10 days prior written notice ("Notice") of request for an Advance, which Notice may, at the Board's option, include a direction to pay such disbursement to a supplier or suppliers (a "Supplier") of trigenation and related equipment or services ("Trigen Services"), and appropriate invoice documentation from such Supplier evidencing the procurement of Trigen Services, and the unconditional acceptance of such Trigen Services by the Board. Upon receipt of a satisfactory Notice, TAF will either pay the amount of the Advance to the Board, or will arrange for payment to such Supplier of such invoices in accordance with the direction to pay. No Notice may be given to TAF after the Final Advance Date.

2. **Use of the Loan:** The Loan Amount will be used by the Board to acquire Trigen Services such as combustion engines, generators, chillers, piping and ductwork, and engineering services (the "Project") that have been selected by the Board and approved by TAF at least 30 days prior to the First Advance Date. The Project must not be materially changed from the acquisition of Trigen Services as stated above without TAF's prior written approval.

3. **Closing Date:** January 31, 2005, or such other date as may be agreed between the parties

4. **Payments:** The interest adjustment date ("IAD") shall be the first day of the sixth calendar month following the date of substantial completion of the Construction of the Trigen Services. The date of substantial completion shall be certified by the Board's project engineer in accordance with the *Construction Lien Act (Ontario)*.

5. **Interest Rate** shall mean that rate of interest per year which is equal to Canada Yield plus 2.50%; where Canada Yield is the Government of Canada Benchmark Bond Yield for bonds that have a maturity of 10 years, as published by Bank of Canada for the date in question. From the date of the First Advance to the IAD, the Board will pay TAF interest, at the Interest Rate in effect on the date of the First Advance, on the amount of the Loan principal advanced from time to time. Such interest shall be calculated and paid monthly on the first day of each month following the month of the First Advance to the IAD, inclusive. The Board will have the option, on giving TAF notice at least 14 days notice prior to the IAD, to extend the IAD for a period of either six months or 12 months from the date determined above. The principal amount of the Loan will be repaid in 20 equal, consecutive blended payments of principal and interest, based on a 10-year amortization, at the Interest Rate in effect on the IAD, calculated semi-annually, not in advance ("Payments"), such Payments commencing on the first day of the sixth month following the IAD, and on the first day of each six-months thereafter. If the Board elects to extend the IAD for six or 12 months, the length of the amortization period will be reduced to 10 years less the length of the extension to the IAD, and the number of Payments will be adjusted

accordingly. For example, if the Board elects to extend the IAD for six months, the amortization period will be reduced to 9-1/2 years and the number of six-monthly payments will be reduced to 19.

6. Term: 10 years commencing on the IAD (less the length of the extended IAD, if any).

7. Conditions: All Conditions Precedent to closing will be as agreed by the parties and detailed in the Financing Agreement (the "Agreement") and will include any approvals required of the Board and City Council and financial disclosure and such other documents and opinions as are reasonably requested by TAF in form and content satisfactory to TAF and its counsel.

TAF shall be satisfied that the Board has obtained sufficient funding by way of grant and/or loan to fund the entire cost of acquisition and construction of the Trigen Services.

The Board will grant TAF a first security interest in all tangible and intangible assets acquired by the Board with the Loan Amount. Such security interest will be protected by registration under *the Personal Property Security Act* and, if applicable, in the appropriate Land Registry Office.

The Board will warrant that, on delivery from a Supplier, the relevant Trigen Services have met criteria and delivery conditions that any prudent buyer would insist upon.

8. Covenants: Amongst the covenants in the agreement will be (i) An early maturity clause if ownership of 10% or more of the real property of Exhibition Place (but not including long term leases) is acquired by an organization other than a municipal, provincial or federal government or its agency, board or commission (however, a long term lease of the entire Exhibition Place would not come within this exception); and (ii) A material adverse change provision.

9. Default: Default will occur if the Board does not make Payments to TAF as required or if the Board breaches any of the covenants described, and fails to cure such default or breach within the time periods as agreed by the parties and provided for in the Agreement. Failure to maintain the assets in reasonable working condition will also be a default condition.

20. Transaction Expenses: Reasonable legal fees, trustee and agent fees, if any, and all disbursements, out of pocket due-diligence expenses and other costs actually incurred in the negotiation, preparation, execution, and delivery of this Term Sheet, the Agreement and the financing documentation, and any expenses incurred by TAF in the enforcement of any provision of the financing documentation, including, without limitation, reasonable legal and collection fees charged by TAF for the collection of any amount owing under the investment, shall be for the Board's account. Such fees, except for the application fee below, may be deducted from the First or subsequent Advances, as applicable.

21. Application/Commitment Fees: An application fee of \$5,000 is payable by the Board to TAF upon execution of this Term Sheet, as a non-refundable commitment fee. A commitment fee of \$27,500 for a \$22.0M loan is payable by the Board to TAF on the Closing Date, to be deducted from the First Advance if applicable, as a further non-refundable commitment fee.

