TORONTO **STAFF REPORT**

April 1, 2004

To: Budget Advisory Committee

From: Chief Financial Officer & Treasurer

Subject: A Framework for Establishing an Energy Retrofit Program and Financing Strategy

Purpose:

To establish a framework for the budgeting, approval and financing of energy retrofit projects for City owned facilities. Specifically, to seek Council's approval for an increase to the 2004 capital program of $20 million to finance energy retrofit projects exhibiting favourable investment returns, in order to facilitate achievement of the City's carbon dioxide (CO_2) and energy consumption reduction objectives.

Financial Implications and Impact Statement:

The energy retrofit framework and financing policy outlined in this report would result in an increase in debt financed tax supported capital expenditures for 2004 of up to $20 million. The funds would be provided to projects that meet the criteria set out in the Energy Retrofit Guidelines in Appendix 1 of this report, exhibiting estimated returns significantly higher than the City's cost of borrowing. The City would enjoy reduced energy consumption and costs compared to those that would otherwise be incurred. Consequently, approved projects would result in no initial impact on operating budgets, as project financing costs would be offset by energy savings. Program budgets would also be reduced by the amount of the debt service costs once the loan has been fully repaid, and would be used in accordance with the approach for disposition of savings set out in the Guidelines for Energy Retrofit Program in Appendix 1 of this report.

Recommendations:

It is recommended that:

(1) the 2004 capital budget be increased to include $20 million for the Energy Retrofits Program over 2004 and 2005;

(2) the Energy Retrofits Program be funded from debentures and/or subsidy programs to be repaid from energy savings in the departmental operating budgets;

(3) the guidelines for the evaluation and approval of energy retrofit projects, set out in Appendix 1 of this report, be approved;

(4) the Chief Financial Officer and Treasurer identify to the Budget Advisory Committee up to $20 million in energy retrofit capital projects in 2004 and 2005 for reallocation to the related program budgets from Energy Retrofits Program upon Council approval;

(5) projects to be considered for Energy Retrofits Program shall be limited to those tax supported, non-growth related projects that are projected to generate energy savings sufficient to offset a debt service schedule of ten years or less inclusive of all financing costs;

(6) the financing costs for any Energy Retrofit Program projects approved by Council shall be charged to the related program operating budget in accordance with the procedures described herein;

(7) the Chief Financial Officer and Treasurer identify qualifying Energy Retrofit Program works and related funding each budget cycle and in capital variance reports and report these summaries to the Roundtable on the Environment; and

(8) the appropriate City officials be authorized and directed to take the necessary action to give effect thereto.

Background:

At its March 8, 2002 meeting, Council adopted the following motion:

> "It is further recommended that the Commissioner of Corporate Services, the Chief Financial Officer and Treasurer and the Chief Administrative Officer, in consultation with representatives of the Toronto Atmospheric Fund, the Better Building Partnerships and Toronto Hydro, be requested to explore the various practices emerging in Canadian municipalities governing the financing of energy retrofit projects and submit a joint report to the Administration Committee on possibilities for alternate financial practices to facilitate the retrofit of City buildings."

In addition, at its April 16, 2002 meeting, Council approved Policy & Finance Report No. 6 Clause 3 Energy Retrofit Strategy for City–Owned Facilities, including:

> "the Commissioner of Corporate Services report to the P & F Committee, as part of the annual budget process, on overall energy retrofit investments and financial and environmental benefits; such report to address progress to-date, retrofit priorities for the coming year and retrofit candidates for subsequent years"; and,

> "the Chief Administrative Officer, Chief Financial Officer & Treasurer and Commissioner of Corporate Services review options for financing energy retrofits of City-owned facilities and develop a policy regarding the application of financial savingsderived from energy retrofits, and report to the Policy and Finance Committee by July2002…."; and,
>
> the CFO "where possible, develop self-financing arrangements through energy savings derived from energy retrofits . . . and ensure that the gross and net departmental costs for implementing energy retrofit initiatives, and the projected savings are specifically identified during the annual budget process."

In the fall of 2002 the Province introduced legislation to limit the price of electricity well below the market price at that time, which not only reduced the incentive for efficiency measures, but also created investment uncertainty for the future. A partial lift of the cap was announced by the new government in the fall of 2003. Also in the last eighteen months a number of staff reports have come forward, having the effect of clarifying the roles and responsibilities for bringing forward energy efficiency projects, including the role of Toronto Hydro Energy Services Inc. in providing retrofit services to the City.

More recently, at its September 22, 2003 meeting, Council adopted Administration Committee Report No. 9 Clause 29, including:

> "as matter of policy, annual program budgets be adjusted, after repayment of any required financing, to reflect savings derived from energy retrofit projects in City buildings and facilities, and these funds be set aside in a separate corporate account pending Council determination of how they are to be used"; and,
>
> the Chief Financial Officer and Treasurer, in consultation with the Commissioner of Corporate Services, report back to Council on the feasibility of establishing an energy retrofit revolving fund to which savings derived from energy retrofit projects would be allocated;

And on February 3, 2004 Works Committee requested that staff :

> report back on energy efficiency projects "which could be implemented or initiated in 2004"…and…"produce a full payback within 8 years"… for all divisions including Water & Wastewater, fire, ambulance and Toronto Community Housing Corporation (specifically re the acceleration of the low flow toilet program), plus "all energy efficiency related projects not recommended in the EMT 2004 operating budget". Further the Chief Financial Officer and Treasurer was requested to report back on possible self-financing models in time for the 2004 budget approvals.

Comments:

(I) Demand for Retrofit Financing

The 2004 preliminary capital program includes approximately $1.4 million worth of new energy retrofit work, not including the ongoing replacement of depleted assets with new assets reflecting new efficiency standards. The retrofit figure is relatively small primarily due to capital funding constraints and recently resolved issues with respect to the role of Toronto Hydro Energy Services Incorporated in doing the work for the City. Previous capital budget submissions since amalgamation have been similarly constrained even though the City's Environmental Plan calls for a 20% reduction in community-wide carbon dioxide (CO_2) emissions from 1990 levels by 2005, and a 15% reduction in energy use by City operations over the same period. Energy conservation retrofit work on City facilities is considered a prime opportunity to make progress toward these targets.

The City's Facilities and Real Estate Division estimates that a minimum of $20 million worth of energy retrofit work is currently financially feasible, including approximately $10 million for the retrofit of the City's numerous arena facilities. The Works and Emergency Services (WES) Department has identified an additional $4 million worth of projects in its 85 Fire stations and an unquantified value of similar work in its Emergency Medical Services facilities. The City's agencies, boards and commissions may have similar unfunded energy retrofit requirements. The Toronto Atmospheric Fund recently drafted a list of almost $100 million worth of potential energy savings financed City projects. However, funding constraints and uncertainty regarding energy costs have contributed to underdevelopment of budget submissions for many of these opportunities.

(II) Traditional Capital Funding Sources

The traditional sources of funding for energy retrofit work are City debt and vendor financing. City debt often affords the cheapest source of financing for the City. Current nominal interest rates for ten-year debt are under 5.0%, and real rates (excluding inflation) are down to approximately 2% - 3%. However, due to rising debt levels, and concerns over maintaining the City's credit rating, use of debt financing is constrained. Consequently, energy retrofit projects were often excluded from the City's capital priorities in recent years. Another consideration for typical debt financed projects is that, once approved, there is no inherent accountability mechanism to ensure that savings targets are met.

Vendor or third party financing is also often associated with energy retrofit projects. Vendors do the retrofit, and arrange financing to be repaid by the department over time from the energy savings stream after the work is complete. Vendors may also take on the repayment risk associated with under-achievement of projected energy savings. However, vendor financing is typically more expensive than the City's cost of borrowing. In addition, contracting with third parties may unnecessarily introduce new costs and risks if financing capabilities and accountabilities already exist internally.

Another approach commonly used to finance projects with positive returns is to establish a revolving fund for qualified projects. The benefits of a revolving fund over debenture financing are (i) marginally lower cost of funds (opportunity cost of lost investment returns may be slightly less than cost of borrowing); and, (ii) ability to tailor repayment schedule to savings schedule-useful if energy savings stream does not match debt service repayment stream in each year.

While revolving funds may introduce additional administrative complexity, the main problem is that retrofit spending is limited by the availability of uncommitted funds. The amount of funding required for energy retrofits is currently estimated in the tens of millions of dollars, and could grow over time as technology changes and energy prices rise.

Experience in Other Jurisdictions

Through the Federation of Canadian Municipalities (FCM) and follow up discussion with individual municipalities, it was confirmed that each of the approaches described above is in use across Canada. Edmonton, Regina and the Region of Peel are jurisdictions that have been identified as using revolving funds for such purposes. In addition, Toronto City Council established the Better Buildings Partnership (BBP) which has successfully implemented an energy revolving fund which has served the public and non-profit sectors since 1997. This Fund was initially set up with $12 million from the federal/provincial governments and BBP energy management firms ($4 million each). To date, this fund has been augmented and bundled with private sector financing in the amount of $132 million, and the retrofit of 433 buildings without any incidence of defaulted repayments.

Other Funding Sources

In the normal course of business, the City attempts to obtain external funding support for capital initiatives where possible in order to reduce the net cost to the City. For energy retrofit expenditures, the primary opportunities for funding consist of the FCM Green Municipal Funds, and Ontario Superbuild/Federal Infrastructure Funds. The operation of these funds and the City's application status has been the subject of separate reports including Policy & Finance Committee Report No. 14, Clause 2, entitled "Candidate Projects: Canada Infrastructure Fund and Border Infrastructure Fund and the Status Report" (adopted by Council at its October 29, 2002 meeting).

(III) Utility Costs

Recent developments in the Province's electricity market have created expectations of rising energy prices in the Province for the foreseeable future. Gas prices may be expected to be subject to similar trends, and water prices have been increasing by 6 to 9% annually in recent years and that trend is expected to continue as ageing infrastructure is replaced.

Nevertheless, the recommended approach would involve a fixed debt service payment schedule based on estimated energy savings at the time the work is done. Additional 'savings' associated with rising utility rates would simply be an avoided cost increase for the program, and would not be factored into the repayment schedule.

(IV) Proposed Framework

Under the recommended framework a new capital project would be created for tax supported energy retrofit work, funded from debentures to be repaid from energy savings in the operating budget through an internal financing charge. Rate supported efficiency projects would continue to be financed through internal sources. Approved program capital budgets would be adjusted in accordance with approved energy retrofit projects. Programs would continue to avail themselves of applicable subsidies or subsidized financing opportunities, such as the FCM Green Municipal Infrastructure Fund loan facilities that are also repaid from program operating budgets. Other key elements of the framework include:

Program Budgets and Capital Approval

The Energy Retrofit Program will be established as a capital program budget of interdepartmental projects to be co-ordinated by a team of representatives from Corporate Services, Finance, Works & Emergency Services, and program staff. Projects to be considered for funding each year will be submitted as part of the City's annual budget review process and will go through the various stages of budget review and approval, as well as a quarterly variance reporting. Program submissions for energy retrofit projects must include a detailed business case and an energy audit report. The number of projects funded each year will be limited to the recommended cash flow and will depend on project readiness as set out in the guidelines and evaluation methodologies in Appendix 1 of this report.

A key feature of the recommended approach is that program budgets must include the loan repayment costs as part of their annual operating budgets, offsetting the energy savings accruing from the retrofit project. The loan repayment schedule will be determined in accordance with the amount and timing of the expenditure, the City's cost of debt, and the minimum repayment term affordable based on estimated energy savings with a sunset provision established to coincide with completion of the repayment schedule. Inclusion of these loan repayments in the program's annual operating budget will ensure accountability for repayment, as well as ensure that energy and other related savings are set aside for this purpose and not used in any other way. Consequently, there will be no net operating budget impact for the financing of energy retrofit projects.

Project Management

Project management functions would in most cases be supplied by the Facilities and Real Estate staff on behalf of and/or in co-ordination with the program areas to manage vendor contracts, co-ordinate implementation of the projects and monitor energy consumption.

Disposition of Savings

One of the main principles of the Energy Retrofit Program is that funding will only be awarded to projects whose total cost savings can be ascertained or guaranteed in an amount sufficient to cover all costs associated with the energy retrofit project. These projects would be funded

outside annual program capital allocation envelopes. When project financing has been fully repaid, the program's operating budget will be reduced by the amount of the annual operating savings established at the outset of the project. The captured savings will then be deposited into a corporate account, and consideration will be given to whether the savings will be utilized in whole, or in part, to offset increased program related asset maintenance initiatives, corporately or as contributions to a retrofit revolving fund or any combination thereof, as set out in the Appendix.

Council previously directed that funds from energy savings due to civic centre retrofit projects be set aside in a separate corporate account. These funds could be used in the future to reduce debt financing requirements for retrofit projects via a revolving fund approach, requiring repayment of advances from the fund. This would be in line with one of the proposed uses of net cost savings being recommended in this framework document. A further report will be forthcoming to refine the revolving fund concept.

Mechanics of the Proposed Funding Process

The table below illustrates a typical $10 million retrofit project financing transaction funded through City debentures, with a 10–year repayment schedule and a 14% return on investment, based on current energy costs. Actual returns are likely to be higher since energy costs are expected to rise over the period.

Sample Loan and Repayment

$ millions

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016+
Debt Financing	10										-10		
Debt Service Schedule		1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33	1.33		
Energy Savings		1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.40

Assumptions	
Interest rate	5.0%
Debt Service (principal plus interest) cost	13.3%
Implied ROI	14.0%

These projects will offer varying levels of energy savings. For many, energy savings will be only one factor in the replacement of an aging asset. In order to provide an incentive for the energy savings component of the work, debt financing will be limited by the projected incremental energy savings, and the commensurate ability to service a loan over a maximum ten-year term at the City's current cost of capital without adding pressure to the operating budget. Note that financing charges are fixed, while utility energy costs are likely to rise, and retrofits would therefore help program budgets avoid associated inflationary energy costs.

In order to ensure that financing terms do not exceed the useful life of the improvements, and match financing to the City's typical debenture structure, it is recommended that loans be restricted to 10 year (or less) repayment term. Projects with even better returns or other funding sources such as grants or subsidized loans could be repaid more quickly. The programs will be

charged interest at the City's comparable cost of borrowing, currently under 5% for ten-year debt. Based on these assumptions, projects will require a simple payback of about 8 years or less, consistent with the direction form Works Committee, and an implied rate of return of about 14% to qualify. Financing term, interest rate and payment schedule will be determined by the Chief Financial Officer and Treasurer.

Benefits of the Recommended Approach

(I) Improved Accountability

Projects will be required to be approved like any other capital project. In addition, the program areas achieving the related energy savings will be responsible for loan repayment as part of their operating budgets, and accordingly will not undertake projects that are likely to fail to achieve projected results and create operating budget pressures. Programs will also be required to submit a quarterly variance report for energy retrofit projects, which will highlight baseline costs, projected and actual costs for the quarter, as well as estimated actuals to year-end. This quarterly reporting mechanism will help to focus attention on any remedial action that might be necessary before year-end to bring program in line with budgeted figures. Furthermore, the Commissioner of Corporate Services is responsible for monitoring and reporting reductions in energy use for retrofit projects to Council annually. Consequently, the level of accountability for achieving projected outcomes will be greater than for the normal capital approvals process.

(II) Increased Retrofit Spending

It is anticipated that the recommended approach will increase the incentive to pursue capital retrofit projects by allowing projects to be considered outside normal capital budget allocations. This will also accelerate the focus on retrofit projects dealing with major maintenance/state of good repair for buildings which would otherwise have to wait for funding through the regular capital budget allocation process. Additionally, program areas may avoid future cost pressures associated with rising utility rates.

(III) Low Cost Financing

City debentures offer a relatively inexpensive means to finance qualified projects, without undertaking the cost premiums and complexity of obtaining financing from third parties. In the absence of available reserve or revolving fund balances, debt allows projects to go ahead expeditiously. Furthermore, unfavourable credit rating impacts are unlikely given the anticipated return on investment, magnitude of the projected expenditures, and accountability measures inherent in the proposed approach.

(IV) Operating Savings

Retrofit projects are expected to produce operating savings for the duration of the loan repayment period, in amounts sufficient to cover loan repayment charges and once the financing is repaid the program budget will be adjusted by the amount of the annual cost savings. In

addition, in the face of rising utility costs, potential budget pressures associated with the utilities not consumed will be avoided.

(V) Reduced Consumption of Energy and Water Resources

Ultimately, increased energy retrofit spending will help the City achieve its energy and CO2 reduction and water efficiency targets.

Conclusions:

This report seeks approval for an energy retrofit framework and guidelines to evaluate retrofit projects as set out in Appendix 1 of this report, and seeks Council authority to increase the 2004 capital program by $20 million for a new debt financed capital project entitled Energy Retrofit Program. The report also describes mechanisms to obtain expenditure approval and recover financing costs through internal charges in annual operating budgets.

The recommendations in this report are intended to facilitate the achievement of the City's carbon dioxide (CO_2) and energy use reduction objectives, and to relieve constraints on capital spending related to energy retrofits having favourable investment returns. Debt financing energy retrofits has the advantage of reducing debt service costs as compared to vendor or third party financing, and does not require the identification and commitment of City reserves unlike a revolving fund approach. In addition the program areas are rendered more accountable for their project expenditures by incorporating loan repayments directly into their operating budgets.

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Attachment: Appendix 1

Appendix 1

Guidelines for Energy Retrofit Program

Retrofitting is a method of improving energy efficiency in buildings, which in turn results in financial and environmental benefits to the City. A systematic approach to energy retrofits in City facilities is appropriate given the City's portfolio of facilities. This guidelines sets out the framework for the assessment and evaluation of energy retrofit projects.

1. Capital Budget Review & Approval

   (a) The Energy Retrofit Program will be set up as a separate Capital Program Budget comprised of interdepartmental projects.

   (b) An interdepartmental team of representatives from the Corporate Services Facilities and Real Estate Division, Finance Department, Works Environmental Service Group and relevant program staff will co-ordinate this program in consultation with the Toronto Atmospheric Fund and the CAO's Strategic & Corporate Policy Division.

   (c) Projects to be considered for funding each year will be submitted as part of the City's annual budget review process and will go through the various stages of budget review and approval – EMT/Standing Committee/Council review and approval and quarterly variance reporting.

   (d) A detailed business case is to be submitted for each project.

   (e) Projects financed from net operating cost savings will not impact the annual debt target for each program.

   (f) If operating cost savings are not sufficient to finance a project, the project will be considered for funding as part of the program's regular capital works and will be included in the debt target for the program.

   (g) When Council approves the project it becomes part of the Program's capital budget.

   (h) Accountability for the assets and post-retrofit performance rest with the Program responsible for the asset.

2. Project Financing

   (a) To be eligible for funding a program must be able to repay the financing from net operating cost savings.

3. Project Evaluation

Projects will be evaluated and ranked using payback and net present value based on the following criteria:

(a) Full Payback

(i) All costs necessary to bring the project into use including training costs and all incremental savings over the useful life of the project must be included. Full payback will be calculated as total project costs divided by total incremental savings.

(ii) Projects with short payback period relative to the useful life of the project and the repayment period of the debt financing will be given priority in funding consideration.

(iii) Projects with net cost savings that can be reasonably ascertained and guaranteed in an amount sufficient to cover all costs associated with the project will also be given priority in funding consideration.

(b) Net Present Value

(i) The total cost of improvement should be equal to or less than the total present value of the net cost savings over the useful life of the project.

(c) The rate of return on a project should be higher than the City's cost of borrowing.

(d) Other Cost/Benefit Factors

The following factors will also be considered in evaluating projects:

(i) Environmental/social impact, such as reduced carbon emissions, improved indoor air quality.

(ii) Operational impact – service disruption, service improvement/efficiencies impact.

(iii) Training/skills impact on staff in the future.

(iv) Project risk – consideration will also be given to project risk and whether it is borne by the City of assumed by a third party energy management operator.

(e) Projects that are proposing the replacement of building elements before the end of their useful life will not be considered for funding, unless it can be demonstrated

that replacing such elements will result in an overall savings that will be greater than that which would accrue without the replacement of these building elements.

4. Project Readiness

To minimize project risk and the risk to the City, only projects that have gone through an initial stage consisting of an energy audit and/or incorporating a third party guarantee will be considered for funding. This would apply to both projects that are managed internally as well as those to be managed by a third party energy management operator. The energy audit should address the following areas, among others:

(a) General facility information such as size, age, construction type, condition and general use of the facilities.

(b) An analysis of existing systems and equipment and current operating conditions for all systems.

(c) Baseline consumption and costs for energy and water and other related costs.

(d) Proposed energy conservation measures to be implemented.

(e) Detailed estimates of all costs and fees associated with the installation and implementation of the energy conservation measures, including any revenue losses for potential service disruptions during retrofitting.

(f) Savings estimates for each fuel type and other items allowable as savings such as maintenance.

(g) Environmental impact and other benefits.

5. Monitoring and Reporting

(a) Each program will be responsible for monitoring and reporting energy consumption and associated savings through the City's quarterly variance reporting. Corporate Services will assist the programs by monitoring energy price and volume.

6. Disposition of Savings

(a) Cost savings should include savings from reduced energy consumption, savings from reduced maintenance costs and any other areas of savings associated with the implementation of the energy retrofit project.

(b) Cost savings will be used to repay the cost of financing the project.

(c) Each program will be required to budget for an expenditure item in its operating budget for annual debt service payments for the energy retrofit project equal to annual operating savings established at the outset of the energy retrofit project.

(d) When project financing has been fully repaid, the program's operating budget will be reduced by the amount of the annual operating savings established at the outset of the energy retrofit project.

(e) When project financing has been fully repaid, the amount of the annual operating savings will be deposited into an account by Finance and utilization will be considered during the operating budget process for one or more of the following uses:

(i) Contribution to a revolving fund.
(ii) Utilize savings corporately.
(iii) Reinvest in the asset maintenance associated with the service delivery.

7. Third Party Energy Management Operators

Energy retrofit projects that are being managed by a third party energy management operator must be consistent with the overall guidelines and will be subject to the same review process set out in this guideline.

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