



**CORPORATE SERVICES DIVISION**

**Environment Section**

<b>TO:</b> Chair and Members of the Community and Corporate Services Committee
<b>SUBJECT:</b> Energy Management Program

<b>Report Number:</b> CORPSERV2-05	<b>Report Date:</b> December 14, 2004
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<b>Ward(s) Affected:</b> 1 2 3 4 5 6 <u>All</u>	<b>File Number(s):</b> 210-09-02

**APPROVALS:** \_\_\_\_\_  
Department Head                      General Manager                      City Manager

To be completed by the Clerks Department

Committee Disposition & Comments	<input type="text"/>
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Council Disposition & Comments	<input type="text"/>
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**1.0 RECOMMENDATION:**

For information only.

**2.0 PURPOSE:**

The purpose of this report is to update council on the development of a corporate energy management program.

### 3.0 BACKGROUND AND RELATIONSHIP TO STRATEGIC PLAN:

A corporate energy management program will support the following long and short term goals in the city's strategic plan, *Future Focus VI*, under *Burlington...a liveable community*:

**Long-term goal:**

*The city will be a leader in making, a high level of environmental performance one of the primary goals of its policies, programs and operations, and in the actions of its citizens to provide the highest quality of life for all.*

**Three-year goal:**

*2.1 Burlington will maintain a corporate awareness of environmental improvement in all its daily operations.*

**Strategy:**

*a) Seek environmentally friendly opportunities in city operations and services that are planned and implemented in a responsible manner.*

Previous commitments related to energy conservation by the city include:

- Adoption of the Halton Public Sector Smog Response Plan in February 2000. One of the long-term strategies of the plan is to *develop targets for energy conservation in all public sector facilities.*
- In 2002, the city joined the Partners for Climate Protection Program, a program to assist municipalities to reduce greenhouse gas emissions, with targets of 20 per cent below 1994 levels for municipal operations, and at least six per cent below 1994 levels community wide within ten years of joining the program.
- In 2003, the city joined twelve GTA municipalities to participate in the *Mayors' Megawatt Challenge*. The goal is to work together and collectively reduce one megawatt of electrical demand during 2003 and 2004. So far 64% of the goal has been reached.
- In 2004, the city participated in the annual Smog Summit, signing the Inter-governmental Declaration on Clean Air, committing participants to *identify opportunities ... to implement energy retrofit measures to improve the energy efficiency of buildings and operation of facilities within their jurisdictions.*

City of Burlington facilities staff have been active in the area of energy conservation. The following are some examples of measures that have been implemented recently:

- Energy efficient lighting upgrades at City Hall in the council chambers, cafeteria, and engineering and ITS departments;
- Photo cells in the parking garage which ensure that lights are only on when necessary; and,
- Energy efficient window replacements at Paletta Mansion.

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It is estimated that the council chamber lighting improvements will result in approximately a 40% energy savings for that area and 20% savings for ITS, as the level of lighting service was also increased in this area. Lighting improvements usually result in a very quick payback period. Other measures that have been implemented in previous years include heat recovery systems at indoor pools and light motion detectors in some arena change rooms, rinks, and city hall offices.

Another successful example of implementing energy conservation measures in a city facility is the Central Library expansion. The new 20,000 square foot addition was designed to be energy efficient and will use 42% less energy than if constructed to the Model National Energy Code for Buildings. Under the federal Commercial Building Improvement Program, the library received \$44,494 in funding for improving the energy efficiency of the building. Some of the improvements include energy efficient lighting, boiler and furnace upgrades, heat recovery units, and high grade insulation.

Allocating funding to an environmental or energy management program is not a new concept. The Region of Peel, and the cities of Mississauga and Toronto all have energy offices, plans or portfolios. In 2001, the town of Markham created the Markham Environmental Sustainability Fund with a base level of \$300,000 to be replenished annually.

In addition, a joint staff committee between the city and Burlington Hydro is working on a related energy initiative. Burlington Hydro is developing an energy demand supply management (DSM) plan to be funded through an upcoming rate increase that must be approved by the provincial government. The DSM fund is approximately \$2.1 million over a period of three years. The plan may include financial assistance for the city towards energy efficient improvements for new and retrofitted facilities.

### **4.0 DISCUSSION:**

Energy conservation measures are assessed on an ongoing basis by staff for city facilities but it is often difficult to find adequate funding within existing operational budgets for implementation. Most measures have a reasonable payback on investment, ranging from short payback periods for lighting upgrades to longer periods for larger investments such as heating, air conditioning and boiler equipment, as well as building envelope improvements (roof replacement). A significant challenge for municipalities is the upfront capital investment required despite the savings that can be realized in future current operating budgets.

Under the energy management program, staff would develop a plan for city buildings and facilities to implement energy conservation measures. It is proposed that the first phase of the plan will include building audits to identify opportunities to improve the energy efficiency of city facilities, such as lighting retrofits, boiler modifications, window replacements and vestibule upgrades. The second phase will involve the development of an evaluation process using criteria such as the upfront capital investment, return on investment, long-term savings in the current operating budget, energy savings and reduction of greenhouse gas emissions. There are some projects that Facilities staff have identified as priorities for 2005 which include: furnace modifications to improve efficiency (buildings under review include the Transit building,

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Mountainside arena, and Roads and Parks Maintenance), lighting retrofits in various city buildings, and the installation of energy efficient windows for Central Arena.

Staff have met with a representative of the federal Office of Energy Efficiency (OEE), Natural Resources Canada, who advised that applications for funding energy improvements must include a range of activities that have varying payback periods. They will not fund applications for just a single source of improvement, such as lighting upgrades. Staff are looking at the feasibility of arranging for a pilot energy audit for a city facility. Both FCM and the OEE offer funding to municipalities for energy management programs, building audits, and energy conservation measures. Staff will pursue these opportunities to match city funding for the development of the energy management program.

Given that different departments are responsible for city facilities, it is proposed that a new internal energy committee be responsible to develop this energy management program. Department representation on this committee would include: Parks and Recreation (Facilities), Fire, Traffic and Transit, Roads and Parks Maintenance, Finance and Environment.

Measuring and reporting results will be an important component of this program. Staff will evaluate options on how the corporation can efficiently and comprehensively track its energy consumption (electricity and fuels – diesel, gasoline, natural gas). Staff will consult with other municipalities to compare best practices.

Although the initial focus of the energy management program is on city facilities and buildings, it is anticipated that it will expand based on the city's commitment to reducing greenhouse gas emissions under Partners for Climate Protection. The Environmental Management Team is beginning to develop a work plan for a corporate greenhouse gas reductions plan which would focus on all types of energy (electricity and natural gas) and fuel (gasoline, diesel, natural gas, propane, etc.). Potential actions for this type of plan could include the development of a green procurement guideline, energy standards for new or renovated facilities, and a review of energy efficient street lighting, traffic signals, and fuel efficient fleet vehicles.

### **5.0 FINANCIAL MATTERS:**

Funding of \$100,000 for an energy management program has been included in the 2005 Capital Budget - Facilities and Buildings Asset Category for consideration.

### **6.0 ENVIRONMENTAL MATTERS:**

Promoting energy efficiency reduces our energy demand thus reducing the levels of greenhouse gases and smog precursors from being emitted into the atmosphere.

### **7.0 COMMUNICATION MATTERS:**

Staff will work with Corporate Communications to promote the success stories of the energy management program at appropriate opportunities.

**8.0 CONCLUSION:**

On August 14, 2003, Burlington residents as well as millions of North Americans realized their dependence on energy when the electricity supply was cut off with no advance warning. Since then, energy conservation has been a top of mind topic. By investing in an energy management program, the corporation will save money (especially as price caps are lifted), help the environment by reducing greenhouse gas emissions, and reduce the pressure for new electricity generation in the province.

Respectfully submitted,

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**Appendices:**

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Dave Currie	
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**Notifications:**

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**Special Instructions:**

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