



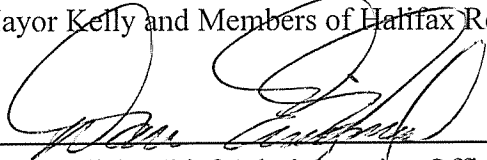
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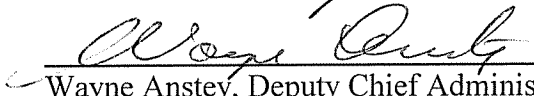
**Item No. 10.1.2**

**Halifax Regional Council  
January 22, 2008**

**TO:** Mayor Kelly and Members of Halifax Regional Council

**SUBMITTED BY:**

  
\_\_\_\_\_  
Dan English, Chief Administrative Officer

  
\_\_\_\_\_  
Wayne Anstey, Deputy Chief Administrative Officer - Operations

**DATE:** January 16, 2008

**SUBJECT:** Energy Efficiency Funding / EcoTrust Application

**ORIGIN**

Government of Nova Scotia EcoTrust's call for proposal under the \$7.5 million Municipal Clean Air and Climate Change Program

**RECOMMENDATION**

It is recommended that HRM Council authorize staff to submit funding applications to the Municipal Clean Air and Climate Change Program and all other suitable cost sharing programs for the energy efficiency projects listed in Appendix A.

## **BACKGROUND**

Corporately, HRM buildings and facilities consume approximately \$6.9 million in utilities per year (oil, natural gas, propane, electricity). Upgrades to aging and inefficient mechanical and electrical infrastructure is the most cost effective strategy for reducing energy costs and reducing GHG emissions from this significant sector.

The recently completed Community Energy Plan identified building retrofits as a high corporate priority in the reduction of energy use.

HRM staff have generated a list of potential energy efficiency projects to be implemented over the next 2-3 years (Appendix A). As a first step in implementation, several detailed energy audits have already been completed identifying the costs and savings with the projects.

HRM staff are aware of several new and existing Federal and Provincial programs in the 2008-2009 timeframe that are available specifically for energy efficiency upgrades to offset a significant part of the capital cost of the potential projects. Potential project funding partners in 2008-2009 include:

- Nova Scotia Municipalities Clean Air and Climate Change Program
- Federation of Canadian Municipalities Green Municipal Funds
- Natural Resources Canada EcoEnergy Retrofit Program
- Conserve Nova Scotia Commercial Lighting Program
- Nova Scotia Power Demand Side Management (DSM) Program\*

HRM's portion of funding for these projects will be brought forward for Council consideration in the 2008-2009 Capital budget. Cost sharing would be executed on per project basis as the funding criteria of programs varies widely.

\*The NSPI DSM Program administration and design is currently under discussion with a UARB hearing scheduled for April 2008. It is highly likely some form of DSM programming will be implemented in fiscal 2008-2009.

## **DISCUSSION**

In order to coordinate all available funding sources with project implementation in 2008, HRM staff are proposing to submit an initial funding application for two projects to the Municipal Clean Air and Climate Change Program for the January 31, 2008 deadline. Applications are accepted every 3 months. The Action Grant will fund to a maximum of 50% of total project costs.

It is expected that approval for these first applications would not be known until June or July 2008. It is expected HRM staff will report back to Council for project awards by September 2008 when the complete project financing was in place.

**BUDGET IMPLICATIONS**

There are no budget implications associated with this report. HRM's share of funding will be brought forward as part of HRM's 08/09 Capital Budget. The projects will proceed only if cost sharing is secured from external funding programs.

**FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN**

This report complies with the Multi-Year Financial Strategy, the approved Operating, Capital and Reserve budgets, policies and procedures regarding withdrawals from the utilization of Capital and Operation reserves, as well as any relevant legislation.

**ALTERNATIVES**

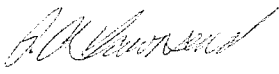
Council could choose not to recommend that staff submit funding applications for the energy efficiency projects listed in Appendix A. This would forgo any cost or environmental savings associated with implementing these energy efficiency projects. This option is not recommended.


**ATTACHMENTS**


Appendix A - Proposed Energy Efficiency Projects 2008-2010

A copy of this report can be obtained online at <http://www.halifax.ca/council/agendasc/cagenda.html> then choose the appropriate meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

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## APPENDIX A – HRM Energy Efficiency Project Planning

### Short Term (6-18 months)

#### 1. Sackville Sports Stadium

Project Description	A detailed audit is currently being conducted (to be finalized Jan. 15/08). It is expected the audit will identify energy savings for heat recovery from ice making to heat the pool and preheat outside air for ventilation as well as HVAC improvements (constant volume to vav conversion, VFDs, motors, etc).
Cost	\$500,000-\$700,000
Estimated energy savings / Risk	\$80,000 per year / Medium Risk
Estimated kWh /oil Savings and Total Project GHG Reduction	175,000 kWh / 80,000 litres 354 tonnes CO <sub>2</sub> e
Time to implement	6-10 months

#### 2. Phase 2 Energy Performance Contract - 200 Ilsley Transit Garage/Admin

Project Description	A detailed audit was completed as part of EPC Pilot project. Phase 1 of EPC funded \$900,000 of identified \$1,700,000 in energy efficiency improvements. Garage lighting was not part of funded EPC project. Project involves HID lighting upgrade, as well as motion sensing for unoccupied times. Phase 2 would also include HVAC upgrade to the administration area including: replacement of 30 year old rooftop unit, pneumatic to DDC conversion, constant volume to vav conversion.
Cost	\$650,000
Estimated energy savings / Risk	\$71,500 per year / Low Risk
Estimated kWh /Natural Gas Savings and Total Project GHG Reduction	582,000 kWh / 232 GJ 440 tonnes CO <sub>2</sub> e
Time to implement	6-12 months

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### 3. LED Traffic Lighting Conversion

Project Description	HRM currently has approximately 30% of all 250 intersections using LED traffic lights. LED's save 90% on the energy costs. LED's also significantly reduce the maintenance costs of changing burnt out lights, lasting 10+ years as compared to 2 years for incandescent lights. The project would involve labour for installing all LED's which have been previously purchased (enough for 80 intersections) and to complete the balance of all intersections
Cost	\$1,000,000. \$700,000 in contract labour, \$300,00 in materials
Estimated energy savings / Risk	\$150,000 per year / Low Risk
Estimated kWh Savings and Total Project GHG Reduction	1,310,000 kWh 957 tonnes CO <sub>2</sub> e
Time to implement	12 months

### 4. Solar Hot Water Heating for 3 Pools and 3 Fire Stations

Project Description	Installing solar hot water systems for Centennial, Needham and Captain Spry pools as well as 3 fire stations.
Cost	\$500,000
Estimated energy savings / Risk	\$60,000 per year / Medium Risk
Estimated kWh /oil Savings and Total Project GHG Reduction	85,000 litres 240 tonnes CO <sub>2</sub> e
Time to implement	8-12 months

### 5. City Hall Retro-Commissioning

Project Description	Retro-commissioning would involve identifying equipment and systems not currently functioning with optimal energy performance due to age and multiple renovations, would include controls modifications, part lighting retro-fit with motion sensors and dimming. Project would only address shorter term, "high value" improvements. A detailed report for follow-up larger Capital project will be identified during retro-commissioning activities.
Cost	\$80,000
Estimated energy savings / Risk	\$35,000 per year / Medium Risk
Estimated kWh /oil Savings and Total Project GHG Reduction	215,000 kWh / 14,000 litres 195 tonnes CO <sub>2</sub> e
Time to implement	3 months

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### 6. Halifax Police Station Retro-Commissioning

Project Description	Retro-commissioning would involve identifying equipment and systems not currently functioning with optimal energy performance due to age and multiple renovations, would include controls modifications – add DDC points, some pneumatic to DDC convert, part lighting retro-fit with motion sensors and dimming. Project would only address shorter term, “high value” improvements. A detailed report for follow-up larger Capital project will be identified during retro-commissioning activities.
Cost	\$140,000
Estimated energy savings / Risk	\$55,000 per year / Medium Risk
Estimated kWh /oil Savings and Total Project GHG Reduction	350,000 kWh / 25,000 litres 330 tonnes CO <sub>2</sub> e
Time to implement	5-8 months

### 7. Captain William Spry Centre – Ventilation Modifications

Project Description	Would involve changing ventilation from constant volume to variable air volume through the installation of new motors, variable speed drives, and controls modifications.
Cost	\$60,000
Estimated energy savings / Risk	\$15,000 per year / Low Risk
Estimated kWh /oil Savings and Total Project GHG Reduction	125,000 kWh / 2,000 litres 100 tonnes CO <sub>2</sub> e
Time to implement	5 months

### 8. Alderney Gate – Electric to Gas Humidifier Conversion

Project Description	Replacing existing 60 kW (x 2) electric humidifiers to natural gas-to-steam humidifiers. Gas availability in mechanical room allows project to be quickly implemented.
Cost	\$20,000
Estimated energy savings / Risk	\$5,000 per year / Low Risk
Estimated kWh /oil Savings and Total Project GHG Reduction	45,000 kWh / 0 litres (increase in gas usage of +200 GJ) 20 tonnes CO <sub>2</sub> e
Time to implement	2 months

## APPENDIX A – HRM Energy Efficiency Project Planning

### 9. North End Library – Energy Management Upgrade Electrical Demand Limiting

Project Description	A detailed audit was conducted on the facility several years ago. A very successful lighting retrofit was implemented, but due to a limited funding nothing further was implemented. The building is an all electric building. It is proposed to re-wiring the electric heat controls and tie into the energy management system for demand limiting (cycling heat to not come on all at once)
Cost	\$30,000
Estimated energy savings / Risk	\$4,000 per year / Medium Risk
Estimated kWh /oil Savings and Total Project GHG Reduction	30,000 kWh 22 tonnes CO <sub>2</sub> e
Time to implement	5-8 months

### 10. Detailed Building Energy Audits – Eric Spicer, Bowles Arena, Chocolate Lake Centre, West Street Fire Station and other buildings

Project Description	Detailed energy audits should be conducted during 2008 to position projects for 2009. Current energy costs total approximately \$750,000 for audited buildings. From benchmark data these costs could be reduced by \$300,000 with a \$1.5M investment.
Cost	\$50,000
Estimated energy savings	-
Estimated kWh /oil Savings and Total Project GHG Reduction	-
Time to implement	5 months

## APPENDIX A – HRM Energy Efficiency Project Planning

### Medium Term (12-24 months)

#### 11. Energy Retro-fits – New Energy Management and Controls Systems Dartmouth City Hall, Dartmouth Ferry Terminal, Alderney Landing.

Project Description	Current Alderney 5 project is not addressing known zone control issues in these three buildings. It was expected from the energy modelling predictions and has been confirmed that there are multiple issues with existing zone controls – heating and cooling systems are not properly calibrated, are being controlled with minimal optimization and heating & cooling systems are fighting each other. Current Alderney 5 project will alleviate about 25% of these issues with centralization of heating and cooling systems, but a retro-fit of zone controls with new EMCS is required to complete the optimization.
Cost	\$140,000
Estimated energy savings / Risk	\$45,000 per year / Low Risk
Estimated kWh / Natural Gas Savings and Total Project GHG Reduction	290,000 kWh / 770 GJ 250 tonnes CO <sub>2</sub> e
Time to implement	5-8 months

#### 12. Energy Retro-fits – Eric Spicer, Bowles Arena, Chocolate Lake Centre, West Street Fire Station and other buildings

Project Description	Subject to a detailed energy audit conducted during 2008. Current energy costs total approximately \$750,000 for audited buildings. From benchmark data these costs could be reduced by \$300,000 with a \$1.5M investment.
Cost	\$1,500,000
Estimated energy savings / Risk	\$300,000 / Medium Risk
Estimated kWh / Oil Savings and Total Project GHG Reduction	1,775,000 kWh / 140,000 litres 1,700 tonnes CO <sub>2</sub> e
Time to implement	12-18 months