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Halifax Regional Council
October 12, 2004

TO: Mayor Kelly and Members of Halifax Regional Council

SUBMITTED BY:
George McLellan, Chief Administrative Officer

Dan English, Deputy Chief Administrative Officer

DATE: October 05, 2004

SUBJECT: **Real Property and Asset Management - Energy Auditor**

ORIGIN

On February 25, 1997 Regional Council unanimously approved joining the Federation of Canadian Municipalities' 20% Club, resulting in a commitment to reduce greenhouse gases by 20% over five years.

RECOMMENDATIONS

It is recommended that:

- Council approve a non-repayable withdrawal from the Service Improvement Reserve Q310, to a maximum of $160,000, to cover two years of compensation and start-up costs associated with the Energy Auditor position, per the Budget Implications section of this report.

- Council approve a non-repayable withdrawal from the Service Improvement Reserve Q310, to a maximum of $20,000, to cover research costs involved in investigating the use of alternate energy sources in HRM facilities, per the Budget Implications section of this report.

BACKGROUND

When Regional Council joined the Federation of Canadian Municipalities' (FCM) 20% Club, which has now become FCM's Partners for Climate Protection, it put HRM on a path to reduce greenhouse gas emissions by 20% over 5 years. HRM's commitment was to develop baseline measurements for greenhouse gas emissions, develop a plan for their reduction, and to implement that plan.

HRM currently emits approximately 60,000 tonnes of direct and indirect CO_2 emissions from its building portfolio of approximately 350 buildings. This represents approximately 50% of HRM's corporate greenhouse gas emissions. The design development process for all new HRM construction considers net benefits between capital costs and on-going operating costs, particularly relative to energy consumption. Since 1997, however, no coordinated effort has been made to optimize life cycle costs relative to energy consumption for our existing building infrastructure.

It is estimated that HRM's current energy consumption and greenhouse gas emissions could be reduced by 20% through a program of replacing or upgrading this existing infrastructure. However, due to the extremely high capital costs of carrying this out on a large scale, HRM must investigate alternate methods to traditional capital debt funding to achieve this goal. One of these alternate delivery methods is the use of energy performance contracts which establish a financial partnership between the owner (HRM) and an energy service company, with prescribed guaranteed energy savings.

Another concurrent approach which needs to be investigated is the use of alternate fuel sources, such as natural gas and bio-diesel, in HRM facilities. Both of these fuels can deliver substantial reductions in greenhouse gases, but require further investigation as to their applicability, cost, and availability.

DISCUSSION

In keeping with the Corporate Scorecard theme of Healthy, Sustainable, Vibrant Communities and in particular the outcome of preservation of the environment, Real Property and Asset Management's Business Plan for 2004/05 identified "Implement Energy Performance Initiatives under the Greenhouse Emission Policy prepared by EMS" as one of its Objectives and Performance Measures. Before establishing this objective, RPAM examined the capacity and expertise of existing staff and determined that this work could not be totally resourced with existing staff. Late in 2003, the position of Energy Auditor for RPAM was posted, and was filled in February of 2004.

Primary criteria of this position included expertise to coordinate a pilot project for an energy performance contract that would set the stage for a more inclusive second phase incorporating a larger segment of HRM's building portfolio. Understanding the potential for operational savings available through completed energy performance contracts, it was felt that the costs for this position will be self-sustaining through these realized savings in future years. However the complexity of establishing a comprehensive energy performance contract strategy for HRM, coupled with the time expended on many other HRM energy-related issues, means that these savings will not be substantial enough to sustain this cost until the 2006/07 budget year at the earliest. In 2006/07 and beyond, it is anticipated the yearly cost can be sustained as the energy performance contract project expands.

If the start-up and salary costs for the first two years are not delivered through a non-repayable withdrawal from the Service Improvement Reserve, these costs will also have to be incorporated into the energy performance contract payback schedule. This will result in a considerably longer period before HRM can realize net operational savings through the energy contract and expose those start-up costs to a higher rate of interest within those contracts than the interest lost within the reserve.

The establishment of the Energy Auditor position has created strategic and coordinated energy portfolio management. To date, the Energy Auditor has been involved in a number of key initiatives focused on realizing energy savings and reducing greenhouse gas emissions, as well as indoor air quality matters. Most importantly has been the on-going development of a pilot Energy Performance Contract for the Metro Transit garage at 200 Ilsley Avenue. This building currently consumes a total of approximately $550,000 annually on electricity and heating oil. Through an energy performance contract, it is estimated that this consumption can be reduced by up to 30% within a ten- year contract that would also result in a yearly reduction of 3500 tonnes of C02. The call for response for this proposal has been tendered and staff are currently awaiting a second level detailed response from the short listed proponents. It is anticipated that this contract will be put in place later this year and the capital upgrades will begin in 2005.

In addition to this initiative the energy auditor has also been involved in identifying funding sources and seeking funding assistance from various programs such as NRCan, FCM, and the Province of Nova Scotia to assist in HRM's greenhouse gas saving initiatives. In the past these funding requests have frequently been coordinated through consultants where the cost of professional fees to generate the application dramatically reduces the net funding achieved. Also having a comprehensive and coordinated approach to sourcing funds is most likely to yield a better return for effort. Other projects the energy auditor has been engaged in to date include:

- reviewing the impact of Nova Scotia Power Corporation proposed power rate increase on HRM,
- reviewing Harbour Solution designs to ensure life cycle costs and energy consumption are optimized,
- auditing of building capital projects for energy saving initiatives and efficiency of controls, and;
- in cooperation with EMS, exploring District Energy feasibility.

Other proposed studies include:

- integrated Demand Side Response Program (DSM), which takes advantage of HRM's current emergency generator capacity to reduce grid energy consumption,
- 'in house' retrofit projects at City Hall, North End Library and Main Branch Library, and;

- exploring the use of low emission alternate heating fuels such as natural gas and bio-diesel that has a potential to reduce building emissions by an additional 20% in HRM facilities.

Both of these previously mentioned alternate heating fuels will require some detailed investigation to determine their viability. In particular, chemical engineering studies need to be carried out on the bio-diesel to establish physical properties such as viscosity at various temperatures and ratios. Although it has been shown that mixes of 80% diesel fuel and 20% fish oil will work year-round in our diesel engine Transit buses, it is expected that many of our boilers could operate on 100% fish oil. However there is no research on the storage or pumping characteristics of this fuel; this research needs to be carried out prior to being able to commit to this promising heating fuel alternative.

BUDGET IMPLICATIONS

As indicated in the Recommendations section of this report, a maximum of $180,000 is required for:

- two years' of compensation and start-up costs associated with the Energy Auditor position, and;
- research costs to investigate the use of alternate energy sources in HRM facilities.
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It is proposed that these funds be withdrawn from the Service Improvement Reserve Q310, as required, during fiscal years 2004/05 and 2005/06. It is also proposed that the funds represent a withdrawal from the Reserve, rather than a repayable loan.

Financial Services have confirmed the availability of these funds in the Service Improvement Reserve Q310.

It is proposed that HRM's commitment to environmental improvements coupled with the magnitude of potential savings meets the criteria for a non-repayable withdrawal under the Q310 reserve business case approved by Council. Since the energy performance contracts would provide the only source of funding for any potential repayment of the $180,000 to the Service Improvement Reserve, it is estimated that a requirement to repay the funds to the Reserve will result in a higher cost of capital for HRM in relation to facility energy improvements. Typical energy performance contracts result in a net rate of return paid to the service provider over the term of the contract in the range of 6-8% annually. Currently, this represents approximately twice the annual rate of return that HRM receives on any investments, including funds available in the Service Improvement Reserve.

FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating and Capital budgets, policies and procedures regarding withdrawals from the utilization of Capital and Operating reserves, as well as any relevant legislation. If approved, this will increase the withdrawals from Reserves.

ALTERNATIVES

1. Council can choose to not recommend the non-repayable withdrawal from the Service Improvement Reserve and, instead, recommend that the withdrawal be repaid to the reserve. This will result in higher costs to HRM related to these funds than would be lost in the reserve, and also result in a longer payback period for the energy performance contracts. This is **not** the recommended alternative.

ATTACHMENTS

No Attachments

Additional copies of this report, and information on its status, can be obtained by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

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