HALIFAX
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Halifax Regional Council
October 25, 2005

TO: Mayor Kelly and Members of Halifax Regional Council

SUBMITTED BY: Dan English, Acting Chief Administrative Officer

Wayne Anstey, Acting Deputy Chief Administrative Officer

DATE: October 12, 2005

SUBJECT: **Metro Transit Energy Performance Contract - Phase I**

ORIGIN

- Real Property and Asset Management's 2005-2006 Business Plan - Implementation of an Energy Performance Contract for Sustainable Environmental and Operational Savings.
- March 4, 2005 CAO Award Report RFP 04-128 Pilot Energy Project, Detailed Feasibility Study.
- Real Property and Asset Management's 2004-2005 Capital Budget - 200 Illsley Air Quality Improvements.
- August 9, 2005 Motion by Energy and Underground Services Sub-Committee of Council

RECOMMENDATION

It is recommended that :

1. HRM Council authorize creating a new Capital Account for Metro Transit Energy Performance Contract.

2. HRM Council authorize project funding via non-repayable withdrawals of:
   •$183,000 from Capital Account CBR00748 (200 Illsley Air Quality Improvements)
   •$220,000 from the Sustainable Community Reserve Q127

3. HRM Council authorize project funding via repayable withdrawals of:
   - $250,625 from the Service Improvement Reserve Q310
   - $180,000 from the Strategic Growth Reserve Q126

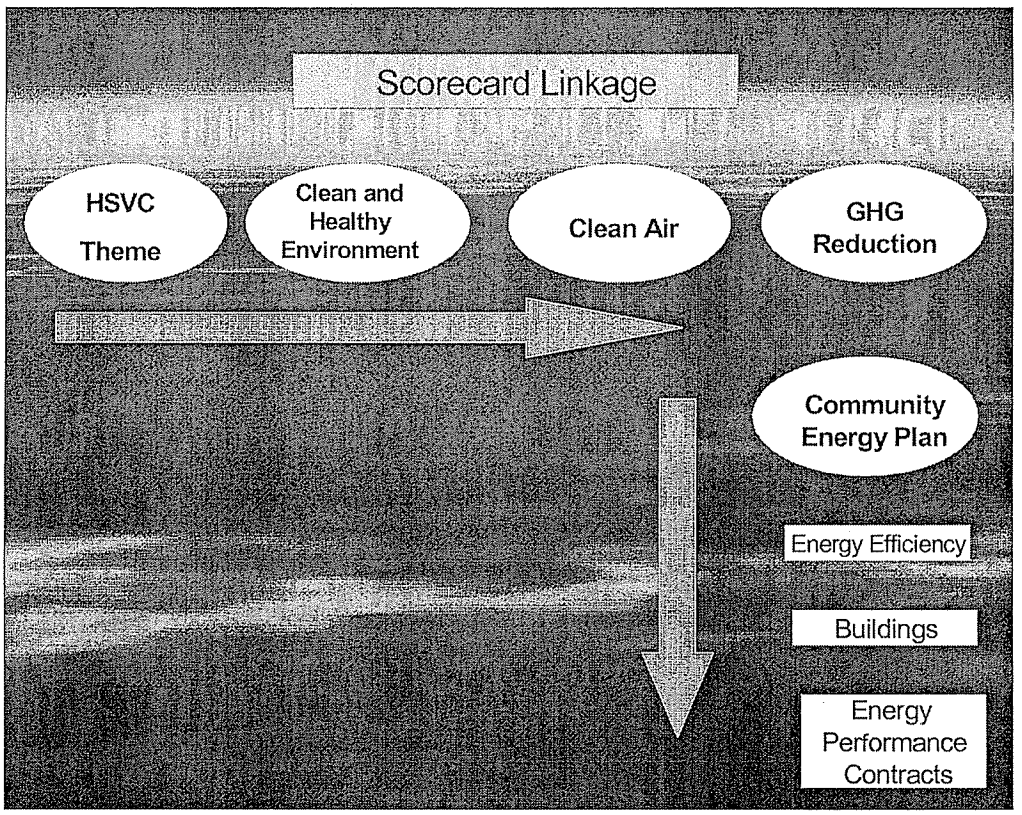
   To be repaid from energy savings with additional funding as authorized per the Budget Implications section of this report.

4. HRM Council authorize HRM to enter into Phase One of an Energy Performance Contract for the Metro Transit facility at 200 Illsley Avenue with Johnson Controls for an amount of $846,082 including net HST.

5. HRM Council authorize required expenditures of $11,543 including net HST for Indoor Air Quality Monitoring and Structural Consulting fees during implementation of Johnson Controls Energy Performance Contract.

BACKGROUND

HRM buildings produce 55% of corporate green house gas (GHG) emissions, mainly through energy consumption. HRM is a member of FCM's Partners for Climate Protection and through the ClimateSMART project has developed a GHG Local Action Plan. Reducing energy consumption in HRM buildings is a key component of this plan, and energy performance contracts are one of the tools available for HRM's use in this endeavour.



It is estimated that HRM's current energy consumption and greenhouse gas emissions could be reduced by a minimum of 20% through a program of replacing or upgrading 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 (ESCo), with a prescribed guarantee of energy savings. The ESCo will provide technical resources, and project management to design, supply and install energy improvement measures. The ESCo can also provide an alternate source of financing. Successful Energy Performance Contracts are an excellent risk management tool to insulate against future energy cost increases and price volatility.

Energy Performance Contracts are complex, and many organizations are not successful in utilizing this tool. Success depends on how the contract is structured, the measures implemented, the organizations ability to manage the contract, including the ability to maintain and monitor the energy consumption and savings. Due to the complex nature of Energy Performance Contracts, Real Property and Asset Management opted for a pilot project to assess the risks and suitability of this implementation model for further energy retrofits. The pilot project stipulates that energy savings are to be guaranteed by the ESCo to offset the debt repayment.

In April 2004 HRM issued a Request for Qualifications to pre-qualify Energy Services Companies. Two companies were short listed from five respondents. In July 2004, HRM issued a detailed Request for Proposals (RFP) to the short listed ESCos for the Energy Performance Contract Pilot Project at 200 Illsley.

The RFP asked for a preliminary energy audit that included technical and financial solutions. Proponents provided an estimate of the required capital expense, and cost savings from the proposed energy improvements. Johnson Controls was the successful proponent, and the Energy Performance Contract Pilot Project Detailed Feasibility Study for 200 Illsley was awarded in March 2005 to finalize costing and technical solutions.

DISCUSSION

The detailed feasibility study is now complete. Due to restrictions in debt capacity, it is recommended that a staged approach be taken to the implementation of efficiency measures. The first phase will incorporate measures that will generate immediate savings during the 2005-2006 heating season. First phase measures include; conversion of facility to natural gas; 5 high efficiency replacement ventilation units; a lighting retrofit of the administration office; and a building automation system for the garage. Phase one will take approximately eight months to complete.

Phase two will be implemented if Council approves requested funding in the 2006/07 budget.

Current annual energy (electricity/fuel oil) costs *	$550,000/year
Johnson Controls Phase One contract	$818,032
Annual Measurement and Verification Cost**	$15,000 X 8 = $120,000
Structural Consulting Fees for rooftop replacements	$5,460
Indoor Air Quality Monitoring Program	$5,700
Total project costs for Phase One Contract	**= $857,625**
Phase One Annual Energy Savings	$101,657/year

* All costs and savings are before taxes.

** Total annual measurement and verification cost of $120,000 for 8 years are not included in Phase I contract as they will be paid from operating account, see budget implications section.

Total Benefits (Phase 1)	Risks
1. Planned reduction in electricity: 4% **Electricity Savings : $12,263/year**	Energy consumption savings are guaranteed, accurate measurement and verification of saving to enforce guarantee.
2. Planned reduction in oil : 32% **Oil Savings : $89,394/year**	If future energy costs decrease, this reduces the actual financial savings.
Total planned savings : $101,657/year	Project includes natural gas conversion, risk if natural gas price increases relative to oil.
Phase 1 GHG emission reduction:828 tonnes CO2e	Accurately measuring and validating savings.

* All savings are before taxes.

Key features of the proposed Phase One Energy Performance Contract:

- Johnson Controls is guaranteeing energy consumption savings based on today's utility rates. At the contract's fixed present cost of utilities for electricity **(NSPI 2005 rates)**, oil **($0.49/litre)**, and natural gas ($11.217/GJ) the savings guarantee is for $101,657/year.

- The contract term with Johnson Controls is for **8 years**. The simple payback on internal HRM funding is 6.2 years based on 2004 utility costs.

- The project will leverage approximately **$209,000 from external funding sources** for phase one.

- The energy **savings guarantee** is ensured through a strict measurement and verification process which **will cost $15,000 per year**.

- Energy performance contract initiative includes: A lighting retrofit ($48K), ventilation improvements ($436K), natural gas conversions ($84K), and an energy management control system ($166K).

- A significant improvement in the air quality will be achieved, while also reducing energy consumption. Real time air quality monitoring and trending will be implemented to compliment yearly testing to ensure acceptable levels within the garage.

- Retrofit construction will take approximately 9 months to complete.

BUDGET IMPLICATIONS

The total cost, of phase one of the project, excluding annual measurement and verification costs, is $857,625 including net HST.

Finance confirms funding for
Funding available for withdrawal of $180,000 from Q126; a withdrawal of $250,625 from Q310; and a withdrawal of $220,000 from Q127.

External funding sources (potential and secured) include

- **Approved Grant Funding** from NR Canada Energy Innovators Program ERA(P) grant for the detailed feasibility study costs. -$24,000
- **Approved Grant Funding** from NR Canada Energy Innovators Program ERA(3) grant for implementation costs. -$47,500

Total Grant Funding Approved **-$71,500**

- **Funding Pending Final Approval**
  FCM GMEF Application 7092 (Expected February 2006) - $112,500
  NS Department of Energy Natural Gas Conversion Incentive (after conversion -January 06). - $25,000

Total External Funding Pending Approval **- $137,500**
Total External Funding **-209,000**

Summary of Project Costs and Proposed Funding
Total project cost (including net HST) **$857,625**

Proposed Funding Sources

CBR00748 200 Illsley - Air Quality Improvements,	- $183,000
NR Canada Energy Innovators Initiative Program ERA(P)	- $24,000
HRM Sustainable Community Reserve (Q127)	- $220,000
Service Improvement Reserve Loan (Q310)	- $250,625
Strategic Growth Reserve Loan(Q126)	- $180,000
Total	**- $857,625**

Repayment Schedule
Service Improvement Reserve (Q310) and Measurement & Verification Costs
Operating budget XJAG0009-6607 will be used in future years to repay $270,079.80 (includes 3.00% interest) S.I.R loan withdrawal ($54,015.96 year for 5 years) and the measurement and verification costs of $15,000/year for 8 years. These additional operating costs will be offset by guaranteed savings in the oil utility account, however will continue to be included as a fixed cost in the yearly operating budget until the end of the contract.

Strategic Growth Reserve (Q126)
Operating budget XJAG0009-6607 will be used to repay $202,540.80 (includes 3.00% interest) of Strategic Growth Reserve loan withdrawal ($25,317.60/year for 8 years) **if external funding is secured these funds once received will be applied against the loan principal.**

FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating Budget, 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 05/06 Capital budget and Reserve withdrawals.

ALTERNATIVES

- HRM Council could elect not to proceed with this project. This would forego the financial and green house gas savings identified through the energy performance initiatives.

ATTACHMENTS

Service Improvement Reserve (Q310) Loan Application
Strategic Growth Reserve (Q126) Loan Application

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.

Report Prepared by: Julian Boyle, P.Eng., Energy Auditor RPAM (490-7115) &
Cathie O'Toole, Environmental Performance Manager (Energy/Utilities), EMS (490-7061)

Business Unit Reviewed: _____
Phillip Townsend, Manager Capital Projects, RPAM

Financial Review: _____
Dale MacLennan, Director, Financial Services 490-6308

_____
Joan Broussard, MBA, Financial Consultant, Financial Services 490-6267

Report Approved by: _____
Peter Stickings, Acting Director Real Property and Asset Management

Procurement Process Review: _____
Peter Ross, Manager of Procurement Services

Service Improvement Reserve (Q310) Loan Application

a) Schedule of Repayments

Principle: $250,625
Interest: 3.00%
Term: 5 years
Payments to commence: April 2006
Monthly payment: $4,501.33
Sum of all payments: $270,079.80
Interest over term of loan: $19,454.80

Amortization schedule attached.

b) Repayment Account - XJAG0009-6607

c) Justification for Loan

To help finance the Metro Transit Energy Performance Contract Pilot Project. The loan will be used to pay $250,625 of the $857,625 project cost.

d) Project Description

Project is an Energy Performance Contracting project. The energy service company (ESCO), Johnson Controls, is designing and installing energy efficiency improvements for the building. They will guarantee the savings each year over an eight year contract.

d) Anticipated Benefits/Savings

Financial benefits of the project are to be savings of $105,142 (including net HST) per year in oil and electricity costs. Savings are to be verified through a strict Measurement and Verification (M&V) process with the ESCO. This M&V process is a contractual obligation to ensure the ESCO is meeting their guarantee of energy savings.

In addition to energy savings reductions, the project will also improve the Indoor Air Quality within the facility. Five high efficiency rooftop ventilation units will be installed in the garage to replace 25 year old units. A new and improved lighting system will be installed in the administration area. New natural gas fired burners will be retrofitted on the oil fired boilers, HRM will not have to replace oil tanks in the future.

e) Timeline for Realization of Savings

Savings will begin to accrue as individual measures are installed from November 2005 to July 2006. The savings guarantee will be for fiscal years 2006-2013.

f) Project Budget Summary

Costs	
FIM #9A - Administration Area Lighting	$47,507
FIM #8 - Natural Gas Conversion of 3 Oil Fired Boilers	$71,411
FIM #8A - Natural Gas Conversion of Propane Unit	$12,338
FIM #11 - Replacement of 5 Rooftop Heat Recovery Units	$435,985
FIM #10 - Energy Management and Control System	$166,168
Johnson Controls Engineering Design Costs	$60,000
Johnson Controls Bonding	$9,623
Johnson Controls Training	$15,000
Sub-total Johnson Controls related costs	**$818,032**
HRM Structural Consulting	$5,460
HRM IAQ Monitoring Program	$5,700
Total Project Costs before net HST	**$829,192**
(net HST)	$28,433
Total Project Costs including net HST =	**$857,625**

g) Project Management Team

Julian Boyle, P.Eng., Energy Auditor RPAM
Phillip Townsend, Manager Capital Projects RPAM

h) Outside Consulting

Consulting costs for structural and indoor air quality (IAQ) monitoring are detailed above. A structural consultant is required for new rooftop units. IAQ consulting is required to confirm improvements or maintaining of air quality after changes.

i) Recommendation by Directors:

Peter Stickings, Director of Real Property and Asset Management

Brad Anguish, Director of Environmental Management Services

Strategic Growth Reserve (Q126) Loan Application

a) Schedule of Repayments

Principle: $180,000
Interest: 3.00%
Term: 8 years
Payments to commence: April 2006
Monthly payment: $2,109.80
Sum of all payments: $202,540.80
Interest over term of loan: $22,540.80

Amortization schedule attached.
It is expected to repay the loan with external grants that are reimbursed to HRM within 1 year of expenditures. However, an 8 year repayment scheme has been shown for the "worst case" scenario of no external funding.

b) Repayment Account - XJAG0009-6607

c) Justification for Loan

To help finance the Metro Transit Energy Performance Contract Pilot Project. The loan will be used to as bridge financing to pay $180,000 of the $857,625 project cost.

d) Project Description

Project is an Energy Performance Contracting project. The energy service company (ESCO), Johnson Controls, is designing and installing energy efficiency improvements for the building. They will guarantee the savings each year over an eight year contract.

d) Anticipated Benefits/Savings

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