

10.1.8



PO Box 1749
Halifax, Nova Scotia
B3J 3A5 Canada

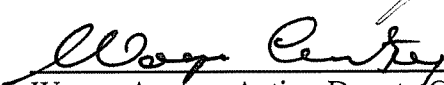
Halifax Regional Council
March 7, 2006

TO: Mayor Kelly and Members of Halifax Regional Council

SUBMITTED BY:



Dan English, Chief Administrative Officer



Wayne Anstey, Acting Deputy Chief Administrative Officer

DATE: March 7, 2006

SUBJECT: RFP 06-020 Alderney 5 Energy Project
- **Mechanical and Electrical Engineering**

ORIGIN

- Real Property and Asset Management's 2005-2006 Business Plan - Implementation of an Energy Efficiency Measures for Sustainable Environmental and Operational Savings.
- Environment Canada Alderney Gate Bore Hole Testing, March 2005.
- February 17, 2006 Briefing to the Energy and Underground Services Sub-Committee of Council

RECOMMENDATION

It is recommended that HRM Council:

1. Authorize creating a new Capital Account for the Alderney 5 Energy Project
2. Approve an increase in the Gross Capital budget for the Alderney 5 Energy Project to \$472,000, with no change in the Net budget. This increase to reflect the cost sharing as per the background section of this report with no expenditures until the potential cost sharing has been secured.
3. Award Phase One engineering work as outlined in RFP 06-020, Alderney 5 Energy Project Mechanical and Electrical Engineering to SNC-Lavalin for an amount of \$10,000 including net HST as per the budget implications section of this report with subsequent phases of engineering work only be awarded when cost sharing is secured to a maximum of \$472,000 net HST included.

BACKGROUND

Real Property and Asset Management has targeted energy efficiency as an opportunity to reduce the cost of utilities and maintenance in buildings. HRM buildings produce 55% of corporate green house gas (GHG) emissions, mainly through energy consumption. **Upgrades to aging and inefficient mechanical and electrical infrastructure is the most effective strategy for reducing current (GHG) emissions from this significant contributing sector.**

Real Property and Asset Management has made a preliminary audit and identified significant, cost effective opportunities, to reduce energy consumption in the Alderney 5 Complex (Alderney Gate, Alderney Library, Alderney Landing, Dartmouth Ferry Terminal, and Old Dartmouth City Hall). The availability of natural gas in 2006 at the facility has also encouraged a fresh look at the heating infrastructure of the four separate boiler mechanical rooms. HRM had also been simultaneously approached by Environment Canada to participate in an innovative pilot project of new geothermal cooling technology.

Staff gave Environment Canada permission to drill test holes in the Alderney Gate parking lot in March 2005. Subsequent discussions with Environment Canada also identified significant additional opportunities to save energy costs, and thus reduce GHG emissions.

Environment Canada staff have been researching a highly innovative geothermal energy storage system. The pilot project system proposed consists of coupling direct cooling from the harbour with a seasonal Underground Thermal Energy Storage (UTES) system. The UTES system consists of approximate 60 bore holes, 4 1/2" diameter, each 600 feet deep. The system would "charge" the earth to provide peak cooling capacity for air conditioning systems in the Alderney complex. Air conditioning system typically consume 25% of electrical energy during peak summer conditions.

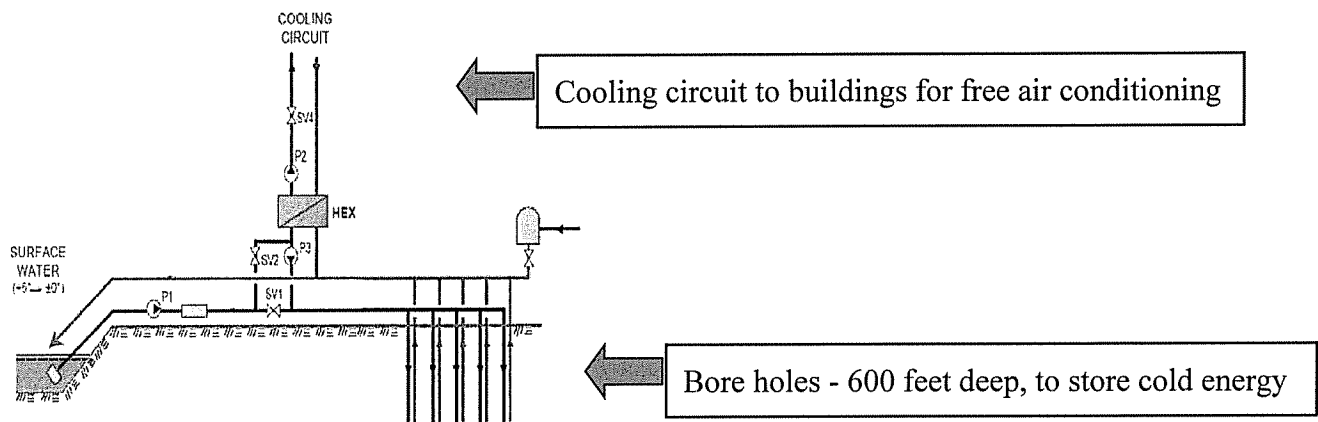


Figure 1 - Seawater Cooling & Bore Hole Storage Schematic

Funding discussions with Environment Canada and other partners such as Sustainable Development Technology Canada have identified significant potential sources of available Capital for the project. However prior to proceeding with a recommendation to proceed with the project HRM requires further refinement of engineering concepts, design, and costing as well as assistance with funding applications.

Potential for Cost Sharing

Several programs and partnerships have been identified for cost sharing of the \$472,000 in engineering, with some secured after April 1, 2006 and some pending approval of current applications.

Funding sources (potential and secured) for engineering and feasibility work pending final approval

• Sustainable Community Reserve Q127	-\$150,000
• Nova Scotia Department of Energy	-\$25,000
• FCM GMF Application (Expected October 2006)	- \$223,000
• Natural Resources Canada Energy Innovators Program ERA(P)	- \$24,000
• Environment Canada	<u>- \$50,000</u>

Total Funding Pending Approval **\$472,000**

DISCUSSION

Preliminary estimates of the Capital required to implement the retro-fit project are estimated to be approximately \$4.8 million. Federal programs are being targeted for funding of approximately \$3.3 million.

Currently the Alderney 5 complex consumes approximately \$630,000/year in electricity and oil. It is estimated that these utilities could be reduced by both traditional and innovative technology by more than 50%. Traditional energy efficiency measures (lighting, boiler upgrades, de-commissioning of redundant heating systems, etc) would be synergistically applied with the innovative seasonal cooling storage system.

The project would also provide significant avoided capital benefits, in particular, avoided capital requirements for Old Dartmouth City Hall, and the Dartmouth Ferry Terminal buildings. It is anticipated maintenance costs could be reduced by rationalizing redundant mechanical systems in the separate buildings.

Preliminary estimates of GHG reductions are approximately 4000 tonnes of CO₂e from this project. Currently HRM emits approximately 105,000 tonnes of GHG corporately (reference: ICLEI 2005 Report). This one project would help HRM reduce its corporate GHG emissions by almost 4%

Application deadlines for Federal funding are March 15, 2006 to June 2006. To meet these funding deadlines as well as complete detailed engineering and costing in 2006 a Request For Proposals (06-020) was issued.

To fast track the project for implementation for April-May 2007 the engineering work is to be staged as funding sources are secured during 2006. This award is based on the evaluation and total cost to finalize the feasibility and engineering work.

HRM received three proposals in response to RFP 06-020. The final scoring for each firm is as follows:

Company	Scoring (max. 100)
SNC-Lavalin	86
Jacques Whitford	82
Neil & Gunter	63

Appendix "A" provides the detailed breakdown of the total scoring.

BUDGET IMPLICATIONS

The total cost of Phase One engineering work is \$10,000 including net HST. Funding is available for withdrawal of \$10,000 from CB300556 Facilities Upgrade account. **The budget availability has been confirmed by Financial Services.**

FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN

This report complies with the Municipality's Multi-Year Financial Strategy, the approved Operating, Capital and Reserve 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 Capital budget with no change to the 2005/2006 Net Budget.**

ALTERNATIVES

- HRM Council could elect not to proceed with the engineering and feasibility work for this project. This would forego the financial and greenhouse gas savings identified through the energy efficiency initiatives.

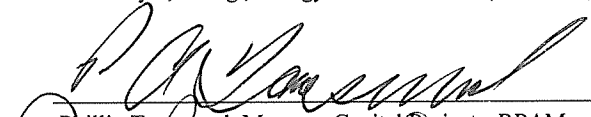
ATTACHMENTS

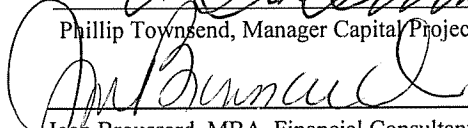
Appendix A - Summary of Evaluation Criteria and scoring, RFP 06-020.

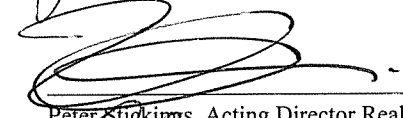
Appendix B - Letter from Nova Scotia Department of Energy

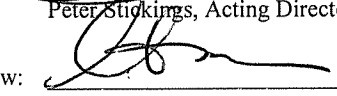
A copy of this report can be obtained online at <http://www.halifax.ca/council/agendasc/cagenda.html> then choose the appropriate meeting date, or by contacting the Office of the Municipal Clerk at 490-4210, or Fax 490-4208.

Report Prepared by: Julian Boyle, P.Eng., Energy Auditor RPAM (490-7115)

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

Financial Review: 
Joan Broussard, MBA, Financial Consultant, Financial Services

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

Procurement Process Review: 
Catherine Sanderson, Senior Manager Financial Services

Appendix A

REQUEST FOR PROPOSALS - ALDERNEY 5 EVALUATION RFP # 06-020

CRITERIA	MAX. SCORE	SUBMISSION			
		Jacques Whitford	SNC-Lavalin	Neil-Gunter	#4
1.1 Executive Summary	2	1.5	1.5	1.5	
2. Corporate Profile	3	3	3	2	
2.1 Mission/vision/Values					
2.2 Overview of Capabilities					
2.3 - 3 References					
2.4 Differentiation					
3. Organization and Personnel - Experience	70	53	57	44	
3.1 Team Composition					
3.2 Key Personnel					
3.3 UTES Experience					
3.4 Micro Turbine					
3.5 Energy Modeling					
3.6 Phase Change					
3.7 Regulatory					
3.8 Funding (emphasis SDTC)					
4. Provisions of Services	5	4.5	4.5	3.5	
4.1.1 Scope - subs					
4.1.2 Approach to value					
4.2 Project Management Approach					
PRICE (Max 20 points for lowest)		20 \$460,000	20 \$456,000	12 \$630,000	
TOTAL		82	86	63	
RANKING		2	1	3	

APPENDIX B - Letter from Nova Scotia Department of Energy

Department of Energy

Suite 400
5151 George Street
PO Box 2664
Halifax, Nova Scotia
B3J 3P7

902 424-4575 t
902 424-0528 f
www.gov.ns.ca/energy



February 21, 2006

Mr. Julian Boyle
Energy Auditor
Halifax Regional Municipality
PO Box 1749
Halifax, Nova Scotia B3J 3A5

Dear Mr. Boyle:

The Nova Scotia Department of Energy has reviewed the request for financial support for technical and financial analysis of the Alderney Gate Energy Project.

As you are aware, the Nova Scotia Department of Energy supports the need for increased energy efficiency in energy use within Nova Scotia. The Alderney Gate Energy Project offers considerable scope for improving the efficiency of heating and cooling as well as the potential to reduce greenhouse gas emissions on site through replacement of fuel oil with natural gas and on the provincial electricity grid through generation of less greenhouse gas intensive electricity.

The department agrees the project may serve as a showcase for innovation of leading renewable energy technologies and as the future base for a district heating and cooling system in downtown Dartmouth that can be expanded to include nearby large commercial buildings including Queen's Square and Belmont House. The proposed approach should lead to intelligent use of resources and reductions in greenhouse gas emissions.

The Department of Energy looks forward to working with the Halifax Regional Municipality on moving this project forward to the next stage of more detailed design work.

Our review of the project is positive and we hope to be able to confirm our financial support in the near future.

Yours truly,

A handwritten signature in black ink, appearing to read "George Foote".

George Foote
Acting Manager
Energy Management, Markets & Climate Change