

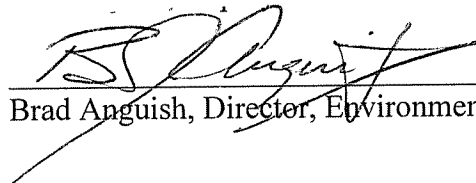


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Halifax Regional Council
January 25, 2005

TO: Mayor Kelly and Members of Halifax Regional Council

SUBMITTED BY:



Brad Anguish, Director, Environmental Management Services

DATE: January 25, 2005

SUBJECT: HRM Community Energy Project

INFORMATION REPORT

ORIGIN

July 19th, 2004 HRM hosted an Energy and Environment Roundtable to bring together representatives from the federal and provincial levels of government, utilities, consulting engineers, environmental groups, and facilities with large electrical loads in an effort to identify areas of opportunity for partnerships. There was a particular focus on community energy and co-generation.

September 7, 2004 HRM Council passed a motion giving approval for HRM to pursue a high level feasibility study for a Community Energy project, and for HRM to Chair a multi-stakeholder project steering committee.

October 5, 2004 HRM Council granted approval for HRM to submit an Expression of Interest jointly with the Provincial Department of Energy to the evaluation committee that evaluates submissions to the NR Canada Opportunities Envelope.

October 29, 2004 the Department of Energy and HRM submitted the Community Energy Project (final submission) to the NR Canada Opportunities Envelope.

By March 31, 2005 HRM will know whether our request for funding was successful. The purpose of this information report is to inform Council of the proposal submitted to the NR Canada Opportunities Envelope, and the work being conducted to further the project in the interim period while NR Canada considers funding.

BACKGROUND

HRM's objectives in promoting the Community Energy project are:

- Environmental benefits in air quality improvements which would be caused by reduced greenhouse gas emissions through elimination of several smaller boiler plants fired by heavy fuel oil.
- Environmental and economic development benefits of enabling natural gas distribution to reach the Halifax peninsula.
- Economic co-benefits that would be caused by a large capital project such as the Community Energy project would be substantial.

The NR Canada Opportunities Envelope is a three-year funding program with \$160 million (2004/05 - 2007/08) that Provincial and Territorial governments can apply to, to fund projects that will achieve Green House Gas (GHG) emission reductions incremental to other federal and provincial initiatives.

The Expression of Interest was the first step in the submission process, and the final detailed application was submitted on October 29th with a high level of support from key stakeholders. The proposal submitted asks for \$200,000 for 2005/06 toward Phase 2 - technical design, contract negotiation with anchor loads, vendors, Nova Scotia Power, and Heritage Gas, and establishment of a Community Energy Corporation as a municipally or privately owned utility. The total cost of Phase 2 is estimated to be \$400,000 and the Opportunities Envelope will provide 50% funding. We have identified funding sources for the other \$200,000 between the NS Department of Energy, FCM, and HRM. In the event our application to the Opportunities Envelope is successful, we would return to council to receive approval to proceed, approval to accept the \$200,000 from the Opportunities Envelope, and approval to provide a contribution from an HRM funding source.

For 2006/07 the proposal indicates a desired capital contribution of \$20 m from federal sources. The total capital cost of the Community Energy project, for purposes of the NR Canada Opportunities application, was estimated to be \$94 million.

DISCUSSION

The Community Energy Project will be a capital project that includes preliminary and detailed design followed by the construction of a community energy system for peninsular Halifax encompassing the "north end" of the city including the Department of National Defense dockyards, the downtown core area and the large institutions (Dalhousie University, Saint Mary's University and the Capital Health and Halifax Port Authority facilities) in the south end of the city.

Based on several previous studies dated 1993, 1996 & 2000 and a more current assessment of thermal heating and cooling loads, high level technical and economic feasibility for the Community

Energy concept has been established. At the time of the previous studies the project was deemed to be technically reasonable and appropriate, however uncertainties existed around the availability of natural gas, and present day environmental concerns were less prominent. Both factors tended to mitigate against the project.

Under present day conditions the following factors apply:

- A natural gas distributor has been established in Halifax (Heritage Gas) who has confirmed that such a project would provide sufficient incentive and benefit to cover the costs of a lateral underneath Halifax Harbor that would provide the feedstock for the combined heat and power plant.
- Several of the large institutional and industrial loads meet their heating and cooling needs by firing on heavy fuel oil with sulfur content at 2 – 3%. New regulations proposed by the NS Department of Environment are expected to limit sulfur content to 2% by 2005 – although elimination of the use of these fuels may not be mandated by Provincial legislation it is anticipated that concerns re local air quality will bring pressure to significantly curtail heavy fuel oil use over the next ten years.
- “Re-Regulation” of the electrical power industry in Nova Scotia will allow Independent Power Producers to sell to either Nova Scotia Power or other Municipal Utilities in the Province and/or to export power to New Brunswick. (The enabling legislation will be enacted this year.)
- It is anticipated that several of the large institutional customers will require significant capital replacement or upgrades within the next 5 years. A Community Energy system would eliminate this requirement.

Based on the above, HRM has recently re-evaluated the economics of a proposed Community Energy system and by using conservative assumptions has reason to believe that such an enterprise could well succeed from a business perspective either as a municipal utility, as a public private partnership, or perhaps even as a private sector enterprise.

A brief technical description of the system follows:

Based on previous surveys a thermal energy duration curve has been developed for HRM from which a 40 MW electrical gas fired cogeneration plant was selected as a reasonable fit as the main thermal energy source for the system while also producing significant electrical power output. The proposed plant will comprise 2 @ 20 MW gas fired combustion turbines. The heat energy from the exhaust gases from each turbine will be transferred to either steam or hot water circuits via two heat recovery steam generators (HRSG). A modest amount of peaking energy will be required which will be provided by use of an existing boiler plant or by an auxiliary boiler located in the main power plant.

Following the Oct. 29th Community Energy Project submission to the NR Canada Opportunities Envelope, there have been several positive developments:

1. The Halifax Port Authority has provided a letter of support for the project, and has indicated they are interested in being a customer of the Community Energy project.
2. The Department of National Defence has provided a letter of support for the project, and have appointed a member to the project Steering Committee.
3. Nova Scotia Power Inc. has provided a letter of support, and have engaged in some discussion regarding this project with HRM.
4. The Atlantic Canada Opportunities Agency (ACOA) has issued an RFP for some technical/financial analysis to gather accurate information on current load requirements, heating/cooling asset profiles, and current costs of heating, cooling, power to the facilities who may be part of the Community Energy system. This work is valued at approximately \$40,000 and is being paid fully by ACOA.
5. Funding and support has been secured to host a 2nd Energy and Environment Roundtable. The Roundtable is scheduled for February 18th, will host speakers from district energy systems in other Canadian jurisdictions, and will focus on the operational and financial benefits to district energy system customers.

BUDGET IMPLICATIONS

The high-level feasibility work currently being conducted is part of a project called District Energy already approved and funded by FCM (two years ago) which has recently been re-initiated. The current analytical work is being funded by ACOA. If HRM is successful in securing NR Canada Opportunities Envelope funding for 2005/06, HRM's contribution will be considered as part of the 2005/06 Business Planning/Budget process.

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.

ALTERNATIVES


Key stakeholders have indicated that a leadership role by the municipality is in their opinion, necessary to conduct a balanced analysis, and possibly make this project a reality. If HRM chooses not to take a leadership role, the alternative choice is to wait until either environmental regulations or economics make a community energy project attractive enough for another organization to initiate.

ATTACHMENTS

None

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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