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**Environment and Sustainability Standing Committee  
September 6, 2012**

**TO:** Chair and Members of Environment & Sustainability Standing Committee

A handwritten signature in blue ink, appearing to read "Bruce Fisher".

**SUBMITTED BY:**

**Bruce Fisher for:** Greg Keefe, Director of Finance & Information  
Technology/CFO

**DATE:** August 30, 2012

**SUBJECT:** East Port District Energy Project

**ORIGIN**

On April 17, 2012, Regional Council requested that; following HRM's meeting with stakeholders, the information [on the East Port District Energy project] be forwarded to the Environment and Sustainability Standing Committee for review and recommendation.

On June 7, 2012, the Environment and Sustainability Standing Committee requested that staff report on the role and nature HRM should take in fostering district energy projects and provide information on district energy best practices from other Canadian Municipalities.

**RECOMMENDATION**

It is recommended that Halifax Regional Municipality:

1. Not invest in the proposed District Energy project and;
2. Provide expedited and efficient support with respect to municipal mandated services and requirements such as easements, permits, planning, project and utility coordination, and any other regular municipal service required.

## **BACKGROUND**

East Port Energy, a consulting firm based in HRM and a division of East Port Properties, has approached HRM with a proposal to develop a district energy project for downtown Halifax. This proposal has been several years in the making, and several partners and stakeholders including the Province of Nova Scotia have been engaged in the development of the current East Port proposal.

## **DISCUSSION**

### **The District Energy Proposal**

The proposal is to develop a tri-generation facility at the site of the new Nova Scotia Power office. The “tri” refers to the production of electricity, heating and cooling. The facility would develop electrical power from a natural gas boiler and would recycle the waste heat from the boiler to provide hot water for district energy heating. As well, the facility would use sea water for district (energy) cooling. The heating and cooling water would then be distributed to commercial customers in downtown Halifax.

The project could be built to accommodate a range of potential clients and loads. The proposal will be evaluated at the “Reduced Build” scenario, which is an appropriate scale for the projected client base at start up. The total project cost is estimated to be \$112.7 million for the “Reduced Build” and \$148.5 million for the “Full Build” scenario. The “Reduced Build” has a smaller distribution network, with 2,100 metres of piped system vs 4,100 for the “Full Build” scenario.

### **Time-Sensitive Opportunity**

Although the project has been under development for several years, the time for a decision is quickly approaching. Timing is everything for district energy projects, since a client’s decision to connect to the system is usually made when a new building is built or a large heating/cooling system investment is needed. This is currently the scenario for three large potential clients: the Sexton Campus of Dalhousie University, the new HRM Central Library and the new Nova Centre.

The project will take two years or more to build once all agreements are finalized and financing is in place. Construction will need to begin in 2013 for the energy system to be available for these potential clients when they’ll require it.

### **Potential Partners**

East Port Energy has proposed that the HRM be an equity partner in the project with a 25% equity stake. Given the scale of the project, the proposed equity share would imply a \$28-million to \$37-million investment by HRM. The Province of Nova Scotia is expected to assist in the project by providing interim financing during the construction and start-up phase of the project. The Province would also be a key partner in the development of legislative changes that may be required. Discussions are on-going with all parties. The governance/equity structure is a key piece of the project to be worked out. It would likely influence HRM’s financing options, risk management strategy and the scope of legislative changes.

HRM is sought as a partner, in part, to improve the business case for the private investors who, in some cases have specific rates of return to achieve. In the East Port proposal, the returns are estimated to be 9% to 10% for the private investors, while only 4% for HRM. This return is expected to cover HRM's interest costs and direct incremental project expenses, but would not provide sufficient returns to repay the original investment. As an investment alone, the proposal would not meet the requirements of HRM's current Investment Policy. The project will need to be evaluated based on the corporate and public benefits that would be derived from it.

### **Environmental Benefits**

The primary benefit for involvement in this project is the resulting environmental benefits.

The proposed tri-generation project will lead to reductions in energy use and therefore energy costs, greenhouse gas emissions (GHGs) and other pollutants. These reductions will benefit the environment and human health, and are in line with HRM's GHG reduction target, HRM's Community Energy Plan vision and the overarching vision of HRM's 25-year regional plan.

The below estimations of environmental benefits from the proposed project are based on East Port Energy's most recent (July 2012) model for the Reduced Build-out Scenario. HRM Energy & Environment staff has worked through the detailed calculations leading to these results with KPMG, a consultant to East Port Energy on the financial model, and is comfortable with the methodology and data sources used. GHG reductions are estimated to be more than 98,600 tonnes eCO<sub>2</sub> per year, as compared to the business-as-usual scenario.

### **Annual Greenhouse Gas Savings (as of 2018) from Tri-Gen Project**

Energy Type	Energy Savings	GHG Savings
<b>Electricity Production</b>	186,260 MWh	79,860 tonnes
<b>District Energy Heating</b>	302,727 GJ	15,094 tonnes
<b>District Energy Cooling</b>	4,372 MWh	3,672 tonnes
		<b>GHG Savings</b>
<b>Total Project Impact</b>		<b>98,626 tonnes</b>

### **What this means for HRM**

Council has endorsed a corporate GHG reduction target of 30% below 2008 levels by 2020. In 2008, HRM corporate buildings emitted a total of 59,620 tonnes eCO<sub>2</sub>.

If we look only at the new Spring Garden Road library, the one HRM-owned property in this project scenario, the estimated annual energy savings to HRM corporately are 4,769 GJ of natural gas and 203 MWh of electricity. This translates into \$49,170 in savings each year for HRM and a reduction of 409 tonnes eCO<sub>2</sub> annually.

**Estimated annual savings from the new central library, if it uses the proposed system:**

Energy Type	Energy Savings	Estimated Energy Cost <sup>1</sup>	Cost Savings	GHG Savings
Natural Gas	4,769 GJ	\$5.415/GJ	\$25,825	238 tonnes
Electricity	203,000 kWh	\$0.115/kWh	\$23,345	171 tonnes
<b>Total</b>			<b>\$49,170</b>	<b>409 tonnes</b>

In 2008, all of HRM's libraries were estimated to have emitted 2,153 tonnes eCO<sub>2</sub>. The reduction from the new Spring Garden Road library represents a 19% decrease in total library emissions.

More importantly, a total project reduction of 98,600 tonnes of GHGs each year assists with reducing HRM's overall community GHG emissions. This reduction represents approximately 2% of all of GHG emissions in the region.

Based on the US Environmental Protection Agency's GHG Calculator<sup>1</sup>, saving 98,600 tonnes of GHGs annually is equivalent to the greenhouse gas emissions from 17,550 passenger vehicles or the CO<sub>2</sub> emissions from the energy use of 11,150 homes for one year.

**Reduction in Pollutants**

In addition to reducing greenhouse gas emissions, the proposed project will also result in fewer pollutant emissions as compared to the business-as-usual scenario. As of 2018, pollutant reductions are estimated as follows:

- 120 tonnes of NOX
- 1,590 tonnes of SOX
- 2 kg of Mercury

**Key Policy Questions**

Currently, there is no approved policy direction that would direct staff to consider the recommendation of an environmental or energy project in such an unprecedented manner. At this point, the Committee must consider two key policy questions.

- Is HRM interested in getting into a new line of business?  
HRM has some experience with district heating and cooling in its own facilities, (e.g. Alderney 5 and Centennial Pool/Police HQ). This potential project is of a much larger scale, serving multiple clients and would be principally owned by the private sector. The total project costs of the Alderney 5 and Centennial Pool (district energy) projects were \$2.8 million and \$3.9 million, while the proposed district energy project would be in the \$110 to \$150 million range.

<sup>1</sup> <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>

As well, the borrowing required for this project will increase our debt by \$25 to \$40 million. Unlike a private firm, HRM is unable to finance such long-term investments from its cash holdings. Hence, it will likely need to borrow the full value of the investment from the bond markets. This causes several issues; first, current provincial laws and other business practices would not allow HRM to either issue such debt or to participate in such a joint venture; changes to provincial law need to be clearly identified and sought.

Secondly, HRM will need a revenue source to repay this initial investment. The proposed return on investment of 4% should be sufficient to cover HRM's interest costs but would not allow HRM to repay the initial \$25m to \$40m investment. Should the rate of return not be increased HRM would have to use taxpayer's funds to make the initial investment at a cost of \$2.5m to \$4 million annually. While the concept being proposed has strong environmental and economic benefits, the financial payback to HRM is insufficient to justify it solely on an investment basis. If Council wishes to avoid the general tax rate subsidizing the project, it will need to find a more creative financing package, most likely with a higher rate of return and a longer debenture period.

- Is HRM interested in entering into a public-private partnership to develop a district energy system and deliver this service?  
HRM can own and operate a district heating system; it is allowed under Section 79 (1) (ad) of the HRM Charter. However, there is no precedence or legislation to outline how HRM could partner with for-profit corporations on such as system. This is a governance and legislative issue that remains to be worked out. Even if the governance was worked out, this would be a new activity for HRM, to plan for and oversee for decades to come.
- The present proposal is structured such that HRM would be a minority shareholder with the future direction of the entity almost entirely outside of its control. As such, HRM Council would be unable to direct the activities of the corporation and would be fully subject to the business decisions of the Board of Directors. This could include additional future investments, buyout decisions and the levels of dividends provided to each class of shareholder.

**Opportunities to provide Municipal Services project support:**

The municipality, under its mandate, delivers a variety of services that will impact the efficient and effective delivery of the proposed energy project. These may include things such as coordination of street projects, permitting, development agreements and easements, plan amendments. As demonstrated with precedence of the relationship with Heritage Gas and the fast track initial distribution of the natural gas pipeline network, staff are prepared to respond to this project development in a manner of priority customer service. The framework of how and what these opportunities are will need to be established. The Utility Coordination Manager, Energy and Environment, will be assigned this responsibility.

**Conclusions:**

The Eastport proposal has valuable merit as a private sector project but is substantially outside the core mandate and expertise of HRM. Investment by HRM in the Eastport project will divert

a substantial amount of financial capacity away from capital projects and municipal services into a private company where Council will have no or very limited control over those public funds. While HRM may be supportive of Eastport's project and the outcomes they are striving for, the level and type of investment being identified can only be financed at the expense of municipal services and exposes the municipality to substantial risk.

### **BUDGET IMPLICATIONS**

Under the recommendations there are no immediate budget implications. Any additional cost associated with expediting municipal services such as easements, permits, planning, project and utility coordination will be absorbed within the approved operating budget.

If Council were to approve involvement in the District Energy Project it would need to issue \$28 million to \$37million in new debt. Repayment of the principle and interest would increase the annual operating costs for the municipality by approximately \$4m to \$5m per year less the return on the investment of \$1.1m to \$1.4m per year. As this is a significant financial outlay, there would likely be opportunity costs for the taxpayer. Other services would have to be reduced or foregone in order to make an investment of this magnitude. In addition, specialized consulting expertise would need to be hired to analyze and negotiate any commitment.

### **FINANCIAL MANAGEMENT POLICIES / BUSINESS PLAN**

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

### **COMMUNITY ENGAGEMENT**

Community engagement will follow any decision to proceed with the project.

### **ENVIRONMENTAL IMPLICATIONS**

See the discussion section of this report.

**ALTERNATIVES**

None

**ATTACHMENTS**

None

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

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