



PO Box 1749  
Halifax, Nova Scotia  
B3J 3A5 Canada

## Item No. 4

**Halifax Regional Council**  
**October 23, 2007**

**TO:** Mayor Kelly and Members of Halifax Regional Council

A handwritten signature in blue ink, appearing to be "Mike Labrecque", written over a horizontal line.

**SUBMITTED BY:** \_\_\_\_\_  
*for* Mike Labrecque, P.Eng., Director, Transportation and Public Works

**DATE:** September 25, 2007

**SUBJECT:** District Heating - Peninsular Halifax

### INFORMATION REPORT

#### ORIGIN

HRM Council authorization/support of Community Energy System detailed feasibility studies 2005, 2006, including the establishment of Project CT100697 - District Energy Concept from the Sustainable Community (Green ) Reserve Q127 on October 25, 2005.

Federal and Provincial Government announcement of \$40.0 million in funding support - November 2005

Change of Federal Government - January 2006

HRM letters to Premier of Nova Scotia, and Federal Minister of Environment requesting timing for announced Funding - March 2006

Federal Government announcement of \$42.0 million Ecofund commitment to Nova Scotia, May 12, 2007

Energy and Underground Services Committee and Mayor's correspondence to Provincial Cabinet Ministers and District Heating Stakeholders - June/July, 2007

Province announces support for gas conversion and upgrade of Capital District Health's Halifax Infirmary and Victoria General sites

## **BACKGROUND**

### **History**

In July of 2004, the Halifax Regional Municipality hosted an Energy and Environment Roundtable to bring together representatives from 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 to determine how greenhouse gas and particulate emissions could be reduced together with how a cleaner fuel source, natural gas, could economically be offered to peninsular Halifax. The answers created a focus on district energy and co-generation. The Community Energy Project (CEP) has gone through several phases of development, including HRM Council endorsement of the concept, detailed feasibility work, and funding iterations.

In November 2005 a formal joint announcement was made by the federal and provincial governments committing \$40 million in funding of the budgeted \$46 million to Halifax for the construction of a high efficiency co-generation-based system. The federal funding from the Climate Change Fund was not ratified by the Government of Canada's Treasury Board prior to the last election, in January 2006. Although the Halifax Regional Municipality tried to confirm funding availability, through letters from its Mayor in March of 2006, to both the new Federal Environment Minister, and the Premier of Nova Scotia, none was provided. By the end of 2006, HRM had developed a briefing document on its Community (District) Energy Project for peninsular Halifax, identifying the optimal design, benefits, both economic and environmental, stakeholder support, funding potential and steps needed to achieve success.

On May 12, 2007, the federal and provincial governments made a new announcement committing \$42 million to Nova Scotia based "green" projects. Specific reference was made at this announcement to the conversion to natural gas of the hospitals and universities enabling gas distribution to peninsula Halifax. In June 2007, HRM, through its Energy and Underground Services Committee, contacted the Provincial Minister of Environment and Labour, reiterating HRM's commitment to the Community Energy Project and offering to "work with the Province of Nova Scotia to grasp this initiative". The Province responded July 9, 2007 by stating that "We will be consulting with HRM and other stakeholders as the process proceeds."

On July 5, 2007, HRM hosted a stakeholders meeting to discuss the level of interest in the Community Energy Project, the potential for financial support for a scaled down gas fired District Heat configuration, and whether the stakeholders could accommodate existing steam loads until a new system could be commissioned. The meeting was attended by Environment Canada, Nova Scotia Department of Energy, Dalhousie University, Capital Health, and Saint Mary's University. HRM was tasked with writing to the Provincial Ministers to confirm an interest from stakeholders in development of a community Energy Project in peninsular Halifax, and to request that various Ministries review this concept collectively to determine whether a district approach would be more cost effective than separate investment in individual institutions.

On August 1, 2007, Executive Management Team was briefed on the Community Energy Project and its status, and time constraints due to stakeholder needs, anchor loads for natural gas expansion to peninsular Halifax, and Provincial Government's project allocation of EcoTrust funds. This was followed up with a memo to the Province on August 3, 2007 articulating the benefits of the community district heating project and reiterating HRM's interest in the project, and offering to facilitate and coordinate a stakeholders discussion.

At a meeting with the Province on August 7, 2007, HRM was informed that with its support, Capital Health had committed to switch the Victoria General site to natural gas. This was followed by an announcement August 14, 2007, confirming the plan and a \$3.5 million commitment from the Province.

## **DISCUSSION**

1. Key stakeholders have indicated that a leadership role by the Municipality was necessary to conduct a balanced analysis and possibly make a Community Energy Project a reality. HRM has assumed that role and over the last several years have acted as facilitator, exerting significant effort to develop a viable concept that was economic, technically sound and supported by all levels of government and interested stakeholders. Involvement in development of this Community Energy Project has been easily justified because:

1. It provided a significant load that could justify introduction of natural gas to peninsular Halifax.
2. It provided an alternative to existing heating options in the area and offer potential for expansion to other heating loads on the peninsula.
3. This project was in line with HRM's long range environmental goal of moving toward a more sustainable energy future through reducing its environmental footprint. The Project, as originally defined, would have provided a significant annual reduction of greenhouse gas emissions.

2. Without all Node 1 stakeholders, as defined in the FVB Energy Inc. Study, i.e., CDHA, Dalhousie, and Saint Mary's, there is no potential for development of a Community Energy Project, such as the District Heating Project, in peninsular Halifax. The coinciding upgrades at both the Victoria General Hospital site, and Dalhousie University provided a real opportunity for development of such a community based, economic and environmentally friendly project. It fit very well into HRM's Community Energy Plan, which is the Municipality's blueprint for moving toward a more sustainable energy future. The Province's announced plan to move forward with fuel switching at the Halifax Infirmary to natural gas, and investing in new natural gas fired boilers at the VG site, provided justification for natural gas to be brought across the Halifax harbour. The Provincial Department of Energy (NSDOE) believe that what has been announced would have been required regardless of the

final heating configuration, and therefore the development of a district heating system is still a very real possibility. They are exploring the economic feasibility of supplying Dalhousie's heating load from the VG steam plant, as well as expanding the VG system to allow for a Combined Heating and Power Plant (CHP). They anticipate that such an expanded scope could potentially qualify for Federal Government funding.

3. Capital Health has committed to investing in boiler replacements at the Victoria General (VG) site. The VG will convert to natural gas and will be capable of providing existing steam load as well as 100% redundancy for that site. While the plan does not include fuel switching at the Halifax Infirmary site, it will be providing steam heat to the new Citadel High School, and has installed steam piping to the Province's Museum of Natural History.

4. Dalhousie University has to soon make a move to upgrade its existing steam heating plant, due to the age of its boilers and the inability to accommodate a growing heating load as the campus expands. It is now examining its alternatives, one of which could be connecting to the (planned to be) upgraded VG Hospital site heating system. This alternative would be contingent on both adequate steam supply, and acceptable economics of such an arrangement.

5. Saint Mary's University is waiting for the results of the Dalhousie/CDHA engineering study to better understand its options for a long term campus heating configuration.

6. While a District Energy concept, as originally defined, has not been realized on peninsular Halifax, the recent announcement around the Capital Health/Heritage Gas agreement, does not eliminate the possibility of a centralized heating system in the area. This may result in a staged development, with Dalhousie University's connection to the VG Hospital site, a potential first stage. The Nova Scotia Department of Energy (NSDOE) is supporting the examination of the feasibility of such a configuration. They are also exploring the applicability of an associated Combined Heat and Power (CHP) project for the VG. This would not be unlike the original CHP concept, as recommended in the FVB study, but on a smaller scale. NSDOE is of the opinion that such a configuration could qualify for Federal Government funding through an infrastructure program that targets renewable and co-gen energy projects. HRM should, therefore, consider that the money and time invested in this initiative has not been in vain, and the flexibility of the resulting configuration is encouraging for future development in Halifax.

### **DISTRICT ENERGY - FUTURE FOCUS**

1. It would be consistent with HRM's initiative for a community based, environmentally acceptable heating alternative, to encourage the Provincial Department of Energy and Dalhousie University's examination of economic alternatives to its existing heavy oil fuelled heating system, and reiterate our support for a further development of the district heating concept. In this regard, The EUGS Committee plans to meet with Dalhousie University to highlight HRM's committed goal to reduce GHG and particulate emissions on peninsular Halifax, and better understand the options available to

the University.

2. Nova Scotia Power Inc. is planning to seek approval for a 50 MW Heat Recovery Steam Generator (HRSG) at its Tufts Cove Generating Station. It would utilize waste heat from Units four and five, which are 50 MW gas fired gas turbines. This project could provide a high quality steam to a dedicated load or loads on the Dartmouth side of HRM. They have filed a request for approval of this project with the NSUARB, and are prepared to examine economic applications for steam production from this project. NSPI has agreed to provide a project description to HRM at the November EUGS Committee meeting.

3. HRM's Alderney 5 Energy Project, which will utilize geothermal cold storage technology to provide sustainable cooling for the air-conditioning load for the Alderney complex, will have built in excess capacity. This will provide for possible expansion of the air-conditioning load in the complex, or could be offered to replace existing, less environmentally friendly air conditioning systems in neighbouring buildings.

4. Environment Canada is in the process of completing a study which examines the feasibility of utilizing Halifax harbour water for the cooling of harbour side buildings. This engineering feasibility study will be provided to HRM for review when it is completed, which is expected to be September 2007.

### **BUDGET IMPLICATIONS**

There are no budget implications.

### **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.

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: Angus Doyle, Manager, Utilities Coordination, 490-5019



Report Approved by: Ken Reashor, P.Eng., Manager, Traffic & Right of Way, 490-6637

