

## **COMMITTEE OF THE WHOLE - SEPTEMBER 13, 2011**

### **DISTRICT ENERGY**

#### **Recommendation**

The City Manager, the Commissioner of Finance and the City Solicitor recommend:

That the City approve Vaughan Holdings Inc. (VHI) creating a district energy business, either within VHI or as a wholly owned subsidiary of VHI.

#### **Contribution to Sustainability**

Section 1.2.2 of *Green Directions Vaughan – Community Sustainability and Environmental Master Plan* speaks to the planning and development of District Energy systems to promote the reduction of greenhouse gas emissions in the City of Vaughan. The Vaughan District Energy Feasibility study focuses on the Vaughan Metropolitan Centre to determine if such a facility is viable in this area. District Energy has the potential to improve environmental quality, support economic growth and development and be a revenue source for the owner/operator.

#### **Economic Impact**

VHI has conducted a feasibility study which supports creating a district energy business. The objective is to fund the district energy business on a 60:40 debt to equity ratio. This ratio is typical for utility businesses and is the Ontario Energy Board (DEB) requirement for local distribution companies. VHI has the capacity to internally fund a significant equity requirement. Prior to pursuing external debt, VHI would seek out other sources of funding such as grants, low interest loans such as those offered by Infrastructure Ontario. At this point, there is no requirement or expectation of equity funding from the City. It will be operated on a for-profit basis. This in turn will add to the viability and sustainability of the district energy business in the long term.

In addition to reducing capital costs for building development, stabilizing energy costs, and providing employment, District Energy can build a value proposition that helps set the municipality apart from other communities when competing for high-end office uses such as corporate headquarters. In today's business world, price is an important factor in site selection. However, price is often not the most highly rated criteria. As corporations seek to expand or locate, they often look for sites in municipalities that share or mirror their corporate values. Two values that District Energy magnifies are environmental stewardship and sustainability and both are quickly becoming an overarching theme in today's business world. Therefore, what District Energy does is create more value for the end-user and in turn strengthens the Vaughan Metropolitan Centre's attractiveness to future head office and other employment uses.

#### **Communications Plan**

VHI is the lead organization for communicating with landowners and other key stakeholders. The support of the City and the staff is critical to the success of this initiative.

A communication to staff will be issued and educational sessions are being arranged.

#### **Purpose**

The purpose of the report is to obtain shareholder approval for Vaughan Holdings Inc. to enter the district energy business and establish it as a subsidiary of Vaughan Holdings Inc. if deemed appropriate.

## **Background - Analysis and Options**

### **What is District Energy**

For the purpose of the feasibility study “District Energy” can be described as:

A planned energy system for a community where thermal energy (for heating and/or cooling) is produced in a central plant location and is distributed to buildings in the community; or an

Efficient and environmentally superior method of producing electricity and heating and cooling energy close to the loads that use the energy; an application of distributed energy.

The latter definition also encompasses the concept of “Combined Heat and Power” (CHP) or “Cogeneration” where heat from the production of electricity is used to produce the thermal energy (usually heated or chilled water), which is then used for the heating and cooling of buildings connected to the district energy system.

### **Purpose of the Vaughan District Energy Feasibility Study**

The purpose of the study was to:

- Assist Vaughan Holdings Inc. in the evaluation of opportunities for moving forward with the development of a District Energy system in the Vaughan Metropolitan Centre; and
- Identify other areas in the city where District Energy Systems may also be warranted.

### **Scope of the Study**

The primary study area focuses on the Vaughan Metropolitan Centre. In addition, the study also identifies other areas in the City that have potential for the application of district energy technology like the Healthcare Campus.

### **The Components of the Study**

The study has been structured around the following Tasks.

- **Task 100 District Energy Potential Analysis:**
  - Introduction to District Energy;
  - Market Potential for District Energy;
  - Building types suitable for connection to District Energy;
  - Estimate of thermal loads for Development Scenarios;
  - Identification of factors influencing District Energy development opportunities.
- **Task 200 Conceptual Implementation Plan:**
  - Directional Issues;
  - Comparison of Potential Energy Sources;
  - Conceptual Design of the District Energy System;
  - Conceptual Cost Estimates;
  - Assessment of Pricing Structures;
  - Implications for City Operations.
- **Task 300 Business Case Examination:**
  - Determination of the Owner/Operator Model;
  - Development of the District Energy Business Case;
  - Major Landowner Input.

- **Task 400 Recommendations on Next Steps:**
  - Risk Management Plan;
  - Regulatory Issues;
  - Financing Issues;
  - Identification of other DES areas.
- **Report Finalization**

### Content of the Study

The study addressed the opportunities and risks involved in the development of district energy systems. This assisted the Board of Directors in its decision as to whether it will proceed to the next phase of system planning and development. The study concludes that there is a solid basis for moving forward based on the characteristics of the Vaughan Metropolitan Centre and its potential to develop a financially viable self-sustaining business.

### Benefits of District Energy Systems

#### a) A Municipally Owned System

A municipally owned District Energy System provides a number of benefits, which apply to situations where the municipality is the full owner. These include:

- A good long-term investment, with potential future utility rate of return (dividends) and/or capital appreciation;
- An economic development tool, providing business with an economical source of heating and cooling, thereby improving the municipalities' competitive advantage;
- Enhancing the municipalities' "green" image by achieving greater efficiencies in the delivery of heating and cooling services, reducing energy consumption and greenhouse gas emissions;
- Opportunity for combined heat and power production and associated power supply contracts;
- Providing fuel flexibility that would allow for a transition from non-renewable to renewable energy sources;
- Fuel expenditures stay in the municipality;
- Employment.

#### b) Benefits to Building Owners

District Energy Systems provide a number of benefits to building owners. These include;

- Deferral of capital dollars (conventional heating plants, structures, stack, natural gas service);
- Space saving and greater architectural freedom;
- Enhanced system reliability;
- Simplified building operations;
- Transfer of capital and operating cost risk;
- Ease of system expansion and flexibility;
- Reduction in noise and building emissions;
- Potential for LEED points.

### Why the Vaughan Metropolitan Centre is an Attractive Venue for District Energy Services

District Energy Systems prosper under certain conditions, many of which characterize the Vaughan Metropolitan Centre. These circumstances include:

- High densities backed by a strong multi-level government commitment to achieving those densities;
- Planned for compact/clustered development, resulting in a strong concentration of uses in close proximity resulting in shorter pipe runs;
- It is largely a greenfield development, so the new building stock can be designed to accept district energy services rather than retrofitted as would be the case for existing buildings;
- Most buildings will be mid-rise or high-rise – savings resulting from District Energy Systems increase with building size;
- Rapid development is planned for;
- A mix of uses is planned, which results in load diversification, which distributes the peak load throughout the day, i.e. it is estimated that the peak load of the system will be 85% of the total connected load. This results in potential operational economies.

#### Other Potential Service Areas

In addition to the Vaughan Metropolitan Centre lands, a promising service area that will require continuing attention is the Vaughan Healthcare Campus (OPA 715). It will be providing substantial densities within relatively compact areas, making them ideal candidates for district energy services.

The main scope of work set focuses on the VMC Secondary Plan area. However, opportunities could arise at any time on the Healthcare Campus. As such, staff with the assistance of FVB Energy Inc. will need to maintain contact with the Vaughan Health Campus of Care and York Central Hospital as they move forward.

Since these lands are owned by the City, VHI has requested that the City advise all parties developing all or a portion of the site that VHI is pursuing district energy for the entire site.

#### Relationship to Vaughan Vision 2020/Strategic Plan

This report is consistent with the priorities previously set by Council and the necessary resources have been allocated and approved.

#### Regional Implications

N/A

#### Conclusion

Council contemplated getting into district energy when it undertook the creation of its Environmental Master Plan (EMP). Following the approval of the EMP, Vaughan Holdings Inc. undertook a feasibility study which concluded that district energy is feasible in the Vaughan Metropolitan Centre and there is an opportunity on the 87 acres that the City owns and is intended for a hospital and hospital related uses.

VHI proposes to proceed on a for-profit basis with a 60:40 debt equity ratio. VHI has sufficient funds available to meet the expected equity requirement and therefore is not seeking any equity funding from the City. Accordingly, staff recommends approval.

#### Attachments

None.

**Report prepared by:**

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Respectfully submitted,

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