



Report to: General Committee

Date Report Authored: January 18, 2012

SUBJECT: Energy Services Agreement with Markham District Energy Inc.

PREPARED BY: Henry Tse, P. Eng., Senior Project Manager, extension 2208

RECOMMENDATION:

- 1) **THAT** the report titled “Energy Services Agreement with Markham District Energy Inc.”, dated January 18, 2012 be received;
- 2) **AND THAT** the Mayor and the Clerk be authorized to enter into a 30-year Energy Services Agreement (“Agreement”) (with the option of two additional 10-year extensions) with Markham District Energy Inc. (MDEI) to provide Thermal Energy Services to the East Markham Community Centre & Library (EMCC&L) and Fire Station 99 (Cornell) (FS-99), as well as emergency electrical power to the EMCC&L;
- 3) **AND THAT** the Mayor and the Clerk be authorized to execute the necessary documentation to give effect to the Agreement, said documentation to be in a form and content satisfactory to the Chief Administrative Officer and the Town Solicitor;
- 4) **AND THAT** a monthly Fixed Capacity Charge payable to MDEI of approximately \$15,887.54 (to be indexed annually) be approved;
- 5) **AND THAT** a one-time up-front Capital Contribution be made to MDEI of approximately \$1,180,000, to be funded from the Town’s Recreation and Library Development Charges Reserves;
- 6) **AND THAT** Capital Project #8200 (East Markham Community Centre & Library Construction) be increased by the Capital Contribution amount of \$1,180,000;
- 7) **AND THAT** variable Energy Charges based on actual metered hot and chilled water energy use, be approved, and payable to MDEI on a monthly basis;
- 8) **AND THAT** staff be authorized and directed to do all things necessary to give effect to this resolution.

PURPOSE:

The purpose of this report is to seek Council approval to enter into a long-term agreement with MDEI to provide thermal heating and cooling energy for the EMCC&L and FS-99, as well as the supply of emergency electrical power for the EMCC&L.

BACKGROUND:

At the February 27, 2007 Information Session of Council regarding “Markham Stouffville Hospital Campus Master Plan/East Markham Community Centre and Library”, MDEI presented a slide that spoke to the potential and opportunity of their involvement:

- Heat and cool the existing Markham Stouffville Hospital (MSH) facility and all future planned expansions
- Heat and cool the Community Centre and Library
- Create a new and viable energy system in Cornell Centre

The executed Memorandum of Understanding between the Town of Markham and MSH dated August 29, 2007 contains the following provisions regarding the potential supply of energy services by MDEI:

“Markham District Energy

27. *MSH and the Town agree to work with MDEI to investigate the feasibility of MDEI providing cost effective energy services to the Facility either as the exclusive supplier or in joint venture with MSH. If any such arrangements are to proceed, they shall be addressed in a separate agreement that shall be entered into between MSH, the Town and MDEI.”*

MSH subsequently entered into an agreement with MDEI for the supply of energy services. MDEI is presently constructing their new district energy plant within the MSH campus, which is adjacent to the EMCC&L and FS-99.

The EMCC&L Project Architect made a presentation on October 28, 2008 to Council regarding schematic design, building envelope, and proposed elements for the facility. One of the slides, “LEED Initiatives”, identified that heating and cooling energy was planned to be provided by MDEI. Subsequent to the meeting a Council Resolution was enacted, among other things, adopting the presentation by the Project Architect.

MDEI is a Town-owned district energy service provider that primarily produces and sells thermal energy from their district energy plants to clients within Markham. They presently also provide emergency electrical power to clients and their facilities. The Town-owned facility at 8100 Warden Avenue is an example of this arrangement.

OPTIONS/ DISCUSSION:

Council may recall that the Town had entered into an agreement with MDEI in 2008 for the supply of thermal energy to the Civic Centre. The system has performed well since inception.

Subsequent to in-depth technical and cost effectiveness discussions and reviews by the design consultants for EMCC&L, pertinent Town staff and MDEI, both the EMCC&L and FS-99 designs have adopted the strategy of engaging MDEI as the energy services supplier. Some of the benefits and effectiveness of incorporating the use of a district

energy provider include smaller electrical and mechanical rooms and associated equipment, reduced maintenance requirements, better reliability of a purpose-built district energy plant, and an energy cost reflective of economy of scale of a specialized service provider. An additional intangible benefit of teaming up with a district energy system such as MDEI is the substantial reductions in greenhouse gas.

Recently Finance staff and MDEI determined that there would be minimal cost difference over a 30-year time frame between a conventional heating and cooling mechanical system, and the adoption of MDEI as the energy service provider. Based on MDEI supplied information this difference is within 1%.

The FS-99 construction is presently close to completion and occupancy, and the EMCC&L construction phase is about 65% complete.

Town staff from Legal, Asset Management, Sustainability, Finance, Recreation, Fire Services as well as external engineering consultants of the design teams, have worked with MDEI over the past year to negotiate the terms of the Agreement.

FINANCIAL CONSIDERATIONS:

The charges for the energy services under the Agreement consist of a monthly Fixed Capacity Charge, a one-time up-front Capital Contribution, and monthly Energy Charges based on metered hot and chilled water energy use.

The Fixed Capacity Charge is derived from the anticipated consumption by EMCC&L and FS-99. It reflects the proportional capital cost of plant and equipment reserved by MDEI to provide energy services for EMCC&L and FS-99. The rate is calculated to be \$21,644.18/month.

The Town has the option to make a one-time up-front Capital Contribution that will have the effect of reducing the monthly Fixed Capacity Charge. MDEI has provided Town staff with a cost estimate for a traditional heating and cooling system of \$1.011 million. Adding in other capital costs that would be associated with building space and Emergency Power, this estimate is increased by \$0.300 million, for a total capital cost avoidance of \$1.311 million. Development Charges (DCs) can be used to fund 90% of these avoided capital costs for a total DC funded capital contribution of \$1.180 million.

This one-time, up-front Capital Contribution effectively reduces the Town's monthly Fixed Capacity Charge by the following formula:

Revised Fixed Capacity Charge

= Fixed Capacity Charge +/- CPI adjustment – the Reduction Amount; whereas

Reduction Amount

= Customer Contribution amortized over a 30 year term (360 monthly payments) using MDE's locked-in financing cost for the construction of the Energy Plant.

Assuming the prevailing interest rates will be in the 4.18% range when MDEI locks in their financing costs, the \$1.18 million capital contribution will act to reduce the Fixed Capacity Charge by approximately \$5,756.64/month. Therefore, the forecasted monthly Fixed Capacity Charge payable to MDEI would be approximately \$15,887.54.

The rationale why Development Charges cannot be used to pay down 90% of the entire Fixed Capacity Charge is because the Fixed Capacity charge also reflects what the Town would have spent on operating, maintenance, future repairs and replacement; none of which can be funded through Development Charges as they are not deemed to be growth-related expenses.

Staff did review options of using other Reserves to increase the capital contribution but deemed it not to be the best use of Town funds.

A third component regarding monthly payment relates to the variable consumption Energy Charges based on actual metered hot and chilled water energy use.

Staff cost estimate of the total annual energy services under this Agreement is approximately \$410,595, comprising of:

- Fixed Capacity Charge: \$190,650 (\$15,887.54 X 12 months)
- Estimated Hot Water Variable Energy Charges: \$147,319
- Estimated Chilled Water Variable Energy Charges: \$72,626

Town staff is of the opinion that these annual costs are in line with the average annual costs of owning, operating, and maintaining a conventional heating and cooling mechanical system.

HUMAN RESOURCES CONSIDERATIONS

Not Applicable.

ALIGNMENT WITH STRATEGIC PRIORITIES:

The use of MDEI as the supplier of energy services to both the EMCC&L and FS-99 facilities aligns well with the corporate strategic priorities of Growth Management, Environment, and Municipal Services.

BUSINESS UNITS CONSULTED AND AFFECTED:

Sustainability Office
Finance Department
Legal Department
Asset Management Department
Recreation Department
Fire Services

RECOMMENDED BY:

08/02/2012

X 

Gary Adamkowski, P. Eng
Director, Asset Management



X

Mary Creighton
Director, Recreation Services

2/7/2012

X 

Brenda Librecz
Commissioner, Community & Fire Services

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