TO: Mayor and Council
FROM: Denis Leger, Commissioner, Corporate Services
RESOURCE STAFF: Speros Kanellos, Director, Real Estate & Construction Services
DATE OF MEETING: April 20, 2010
SUBJECT: Energy Management – Demand Response Agreement

EXECUTIVE SUMMARY:
There is an opportunity for the City to participate in a program aimed at curbing peak electrical demand in the province. The program, called Demand Response 3 (DR3), is administered by the Ontario Power Authority (OPA) through contracts with demand response aggregators. The program has the potential to generate revenue which would be used to offset energy costs. An audit of municipal buildings has shown the Invista Centre to be a good candidate for the program.

RECOMMENDATION:
THAT Council authorize the Mayor and Clerk to enter into a demand response agreement with EnerShift for a term of three years ending May 31, 2013, in a form satisfactory to the Director of Legal Services,

-and further-

THAT Council give staff delegated authority to extend, amend or add other facilities to the agreement as required and as opportunities arise.

AUTHORIZING SIGNATURES:

ORIGINAL SIGNED BY COMMISSIONER
Denis Leger, Commissioner, Corporate Services

ORIGINAL SIGNED BY CHIEF ADMINISTRATIVE OFFICER
Gerard Hunt, Chief Administrative Officer

CONSULTATION WITH THE FOLLOWING COMMISSIONERS:

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<tr>
<th>Commissioner</th>
<th>Signature</th>
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<tr>
<td>Cynthia Beach, Sustainability &amp; Growth</td>
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<td>Terry Willing, Community Development Services</td>
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<td>Denis Leger, Corporate Services</td>
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<td>Jim Keech, President and CEO, Utilities Kingston</td>
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OPTIONS/DISCUSSION:

Background
The Province of Ontario is challenged with an increasing demand for power, an aging electricity infrastructure, dirty power generation, and environmental concerns. To address these challenges, the Ontario Power Authority (OPA) has established goals to become more environmentally friendly and lessen the need for power. A key component of the plan to accomplish this is the OPA’s Demand Response 3 (DR3) program, launched in 2008.

Demand response is a means of exercising greater control over Ontario’s electrical grid system by using individual facilities’ ability to reduce usage when the grid is overly stressed and facing failure. The DR3 program provides payments to businesses that agree to be available for voluntary reductions of their electricity consumption during pre-scheduled curtailment events. Participants receive availability payments for being on stand-by, as well as utilization payments for successfully executed curtailment activities if and when they occur. There are also premiums payable to participants who voluntarily exceed their curtailment commitment.

While the biggest electricity consumers, such as major industrial facilities, can participate directly in the DR3 program, smaller users must enroll with a demand response aggregator. Several firms have been contracted by the OPA to aggregate electricity customers to participate in this program.

Procurement Process
In October 2009, the Real Estate & Construction Services department issued a Request for Information (RFI) to demand response aggregators, with the intention of taking advantage of whatever opportunities might be available to the municipality under the DR3 program. Three firms responded: Direct Energy, EnerNoc and Rodan. Rodan ranked highest in the evaluation due to their extensive experience in Ontario, their experience in working with municipalities, and their willingness to consider smaller users. EnerShift is the demand response subsidiary of Rodan.

Facility Audit
Rodan offered to audit the City’s facilities at no cost, in order to evaluate the potential for participation in the DR3 program. Most of City’s buildings have a relatively low peak electrical demand, making them unsuitable for the program. Based on electricity data and discussions about facility operations, it became apparent that the Invista Centre would be the prime and possibly the only candidate. To date, the curtailment events have typically occurred on hot summer days, so only facilities with high summer demand are worthy of consideration. This rules out arenas that do not have year-round ice pads.

The Invista Centre facility managers ran two capacity tests to evaluate the feasibility of curtailing electricity loads for a four hour period during the afternoon or evening, the two times when curtailment events typically occur under the DR3 program. The tests were successful, and showed that it was possible to substantially reduce electrical demand in the facility for four hours at a time without adversely affecting comfort levels or ice quality. Based on the test results, Rodan is proposing that the City enroll the Invista Centre as a participant in the program through their subsidiary company EnerShift.

As an alternative to temporarily shutting off equipment, a participant can also curtail their electrical demand by transferring loads to a back-up generator. To qualify for use in the DR3 program, back-up generators must meet stringent emissions standards. For a diesel generator, this typically requires an expensive upgrade. If the OPA extends the DR3 program beyond its current end date of May 2013, it will be worth doing a business case analysis to evaluate the merits of upgrading the back-up generators at the City’s larger facilities to allow for increased participation in the program. For now, this option has not been studied, since there would be no guarantee of a payback.
Demand Response Agreement

The demand response agreement carries no risk to the City.

If the Invista Centre makes itself available to curtail its electrical load when requested, by at least 85% of the contracted load (130 kW), EnerShift, through the OPA, will pay the City an estimated $12,000 per year, in quarterly installments. If the Invista Centre consistently curtails its load by a higher amount than the contracted amount, the contract can be adjusted accordingly to increase the availability payments. In addition to the availability payments, EnerShift will make utilization payments based on the actual number of hours and kilowatts curtailed. Participants may enroll for up to 100 or 200 hours per year, and periods of either one year or the full term, which is until the program’s expiration on May 31, 2013. To maximize the annual availability payments, it is proposed that the Invista Centre be enrolled for the full term at up to 200 hours per year. This means that the OPA could request a maximum of 50 4-hour curtailment periods each year. Since the program’s launch, however, the number of actual hours of activation has ranged from about 20 to 50 hours per year. All current indications suggest that the DR3 program will be renewed but no announcement has been made by the OPA.

If for some reason the Invista Centre does not curtail its electrical load when requested, or is not able to reduce the facility’s demand by at least 85% of the contracted amount, the availability and utilization payments will be reduced accordingly. However, in no case would this result in the City owing money to EnerShift. If the Invista Centre does not respond to curtailment requests during three activation events in a calendar quarter, EnerShift may lower the contracted kW to a reasonable kW that conforms with the Invista Centre’s actual historical curtailed kW, with a corresponding reduction in availability payments. If the Invista Centre cannot curtail electrical loads as requested, EnerShift may terminate the agreement, with no penalty to the City.

Once accepted into the DR3 program, the City may add additional facilities at any time simply by adding schedules to the original agreement. This will allow us to take advantage of new opportunities as they arise.

Timing

In order to enroll in the program in time for the summer season, EnerShift would need to have our completed application submitted to the OPA by April 22nd, 2010.

Recommendations

Staff recommend that Council authorize the Mayor and Clerk to enter into a demand response agreement with EnerShift for a term of three years ending May 31, 2013, in a form satisfactory to the Director of Legal Services, and that Council give staff delegated authority to extend, amend or add other facilities to the agreement as required and as opportunities arise.

EXISTING POLICY/BY LAW:

There is no existing policy or by-law with this report.

NOTICE PROVISIONS:

There are no notice provisions required for this report.

ACCESSIBILITY CONSIDERATIONS:

N/A
FINANCIAL CONSIDERATIONS:
The Invista Centre has the highest energy consumption of all municipal buildings in the City, with annual electrical bills totaling over $425,000. Participation in the DR3 program will help to reduce operating costs in the facility. Knowledge gained from actively managing electricity use during periods of peak demand may also help the facility operators to reduce their peak demand costs on a regular basis, further reducing their operating costs.

CONTACTS:
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Stephen Dickey, Deputy Treasurer
Alan McLeod, Senior Legal Counsel

EXHIBITS ATTACHED:
N/A