



**STAFF REPORT  
ACTION REQUIRED**

**Solar Thermal Energy Purchase Strategy**

<b>Date:</b>	October 19, 2007
<b>To:</b>	Government Management Committee
<b>From:</b>	Chief Corporate Officer
<b>Wards:</b>	All
<b>Reference Number:</b>	P:\2007\Internal Services\F&re\Gm07113F&re – AFS #5942

**SUMMARY**

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This report is seeking Council’s authority to use the solar utility as one approach to develop renewable thermal (heating) energy opportunities on City facilities. In the solar utility approach, an energy specialist firm would supply, install, own, operate and maintain solar systems on City facilities and the City would purchase the actual energy generated for its use. The energy firm would act, in essence, as an energy utility but with the energy generator being on the City’s buildings.

It should be noted that solar thermal systems use the sun’s energy to heat water. The hot water is used for heating buildings, swimming pools or domestic hot water. Photovoltaic or PV systems use the sun’s energy to generate electricity. This report is related to solar thermal systems.

**RECOMMENDATIONS**

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**The Chief Corporate Officer recommends that:**

1. Council authorize the use of the “solar utility” approach, as outlined in Appendix A to this report, to advance solar heating systems installed on City buildings.
2. The appropriate City staff be authorized to issue a request for proposals in order to select a firm to develop and implement solar heating systems on up to 20 City buildings using the solar utility approach.

3. the appropriate City staff be authorized to negotiate and enter a long-term agreement of up to 20 years with the selected firm(s) on terms and conditions that are satisfactory to the Chief Corporate Officer and the City Solicitor and in a form that is satisfactory to the City Solicitor, the terms of which are to include:
  - a. the supply and installation of solar heating systems on selected City buildings;
  - b. the energy rate to be paid to the firm for the solar energy generated;
  - c. performance monitoring, dispute resolution and remedies for unsatisfactory performance and other terms to protect the City's interests.

## **FINANCIAL IMPACT**

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Under the "Solar Utility" arrangement the City will not own or operate the solar system on its facilities. The City will only pay for actual energy produced from the solar system at a rate equal to or lower than the existing utility rate and therefore there are no negative financial impacts arising out of this report. This arrangement could potentially reduce the energy budget in buildings where solar energy systems are installed.

The Deputy City Manager and Chief Financial Officer has reviewed this report and agrees with the financial impact statement.

## **DECISION HISTORY**

Council on July 16, 2007 adopted the following recommendation which was part of the Climate Change, Clean Air and Sustainable Energy Action Plan: Moving from Framework to Action Report:

### ***RE: TORONTO, BECOMING THE RENEWABLE ENERGY CAPITAL OF CANADA***

7. City Council support the development of renewable energy systems that will put Toronto on par by 2020 with the cities around the world currently leading the way in generating energy from local renewable energy systems (e.g., Germany's target for 2020 is 27% of energy coming from renewable sources and California's target is 25% by 2017) and as a world leader by 2050 and that City Council:
  - a. direct Deputy City Manager and Chief Corporate Officer to issue in 2007 a request for an expression of interest to the renewable energy business sector in order to identify potential approaches to develop renewable energy systems (e.g., solar, wind, geothermal and biogas) for approximately 1,500 City buildings and landfill sites;

## **ISSUE BACKGROUND**

Facilities and Real Estate in partnership with Parks & Recreation have now installed solar heating systems on three City pools. The solar energy is used to heat the pool water. The systems installed are the 3 largest solar pool projects in Canada. Facilities and Real Estate has also installed solar heating systems on 2 Fire Stations to heat the domestic hot water.

The solar systems were installed with funding from the Energy Retrofit Program (ERP) and with incentives from NRCan and from TAF. These projects would not have met ERP funding criteria without the grants.

In 2006 Facilities and Real Estate hired a consultant, with funding from TAF, to advise the City on how to increase the amount of solar installations in City facilities (including City's pools) and on next steps. The consultant reviewed the existing installations and the various financing arrangements available. The consultant concluded that the best way to increase the amount of solar heating systems in City facilities, other than the City using its own capital funds, would be to use an alternative financing arrangement called a "Solar Utility" approach.

## **COMMENTS**

### Solar Utility

Under a Solar Utility arrangement an energy firm (the solar utility) would install, own and operate the solar systems on the City's facilities. The City would only pay for actually energy produced from the solar system and at a rate equal to or lower than the existing utility rate (natural gas or electricity).

Benefits of using the Solar Utility (for heating purposes) approach include:

- quickly install solar systems without using City capital
- using proven technology
- obtain guaranteed energy cost savings
- CO2 emission reductions
- avoiding maintenance of solar systems
- preserve City's capital for other energy efficiency projects
- energy price stability (fixed price contract for the energy generated)

Once the energy firm is hired, Facilities and Real Estate would work with the firm and City divisions to identify possible solar installations. A contract would be negotiated and entered into before any installations are implemented. The contract would include:

- term of the contract (usually 10 years or more)
- the energy rate to be paid to the solar utility
- obligations of the solar utility and the City of Toronto
- all usual requirements to protect the City's interests, ie, bonding, insurance and other guarantees as required

The solar utility will design and construct or hire an installer to install the solar systems on the selected City buildings at no cost to the City. The solar utility will also apply for all the available grants and incentives in order to reduce the capital cost. The solar utility will bill the City for the actual energy generated and utilized by the building.

Once the installed systems are operating successfully additional potential solar sites could be identified to further increase the City's solar installations.

#### Request for Proposals

There are at least two firms in Toronto that can provide the Solar Utility approach. A request for proposal (RFP) will be prepared to select a firm to be the City's solar provider. The RFP will select a firm for solar heating applications only. Criteria for selection of a solar provider includes: experience, financial stability (ability to provide insurance, bonding and credit), projects completed, contract terms, references and technical ability.

It is recommended that staff take the necessary steps to develop and install solar energy projects on approximately 20 City buildings using the Solar Utility approach.

## **CONTACT**

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## **SIGNATURE**

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Chief Corporate Officer