TO: Mayor and Members Committee of the Whole  
WARD(S) AFFECTED: CITY WIDE  

COMMITTEE DATE: July 6, 2010  
SUBJECT/REPORT NO: Renewable Energy (Solar PV) Opportunities for the City of Hamilton (PW10073) - (City Wide)  
SUBMITTED BY:  
Gerry Davis, CMA General Manager Public Works Department  
PREPARED BY:  
Geoff Lupton Director Energy, Fleet, Facilities & Traffic  
905-546-2424, Ext. 7372  

RECOMMENDATION  

(a) That the City of Hamilton enters into a partnership with Horizon Energy Solutions Inc. (HESI) on a pilot project for the design and installation of solar photovoltaic (PV) systems on City owned rooftops where technologically and economically feasible;  

(b) That the City of Hamilton enters into a solar PV demonstration project with Horizon Energy Solutions Inc. (HESI) at City Hall. All installation costs for this project would be paid for by HESI. In order to proceed with this project the City agrees to waive its leasing fee and agrees to receive a nominal contribution from HESI, in order to improve the projects overall economics;  

(c) That the General Manger of Public Works or his designate be authorized to negotiate and execute any agreements necessary to the satisfaction of the City Solicitor;  

(d) That revenues to the City realized through this pilot project are to be deposited in the City’s Energy Reserve (Account 112272).
EXECUTIVE SUMMARY

Ontario’s feed-in tariff or FIT Program and MicroFIT Program (for projects < 10 kilowatts) offers a comprehensive guaranteed pricing structure for renewable electricity production. It offers stable prices under long-term contracts (20 years) for energy generated from renewable sources, including:

- biomass
- biogas
- landfill gas
- on-shore and off-shore wind
- solar photovoltaic (PV)
- waterpower.

These programs were enabled by the Green Energy and Green Economy Act, 2009 which was passed into law on May 14, 2009. The Ontario Power Authority (OPA) is responsible for implementing these programs. Previously, the City has taken advantage of similar programs through Hamilton Renewable Power Inc.’s (HRPI’s) Woodward biogas and Glanbrook landfill gas projects.

On March 26, 2010, Horizon Energy Solutions Inc. (HESI) launched its new commercial solar energy generating business. HESI is one of Ontario’s first commercial solar energy generating enterprises, helping to create sustainable communities in Ontario’s new green economy. The new initiative takes advantage of the opportunities to generate a renewable and reliable local energy supply through the Ontario Government’s Green Energy Act.

HESI has partnered with the cities of Hamilton and St. Catharine’s, along with McMaster University and Mohawk College as founding members of the Golden Horseshoe Strategic Energy Alliance. Together these groups will collaborate to position the Golden Horseshoe as a leader in the green economy. The Mayor’s Office, City Manager’s Office, Planning and Economic Development Department and Public Works staff along with Horizon have been actively promoting Hamilton as the preferred destination for solar manufacturers and their associated green jobs when they locate to Ontario.

Horizon Energy Solutions Inc. is a wholly owned subsidiary of Horizon Holdings Inc. and the sister company of Horizon Utilities Inc. Horizon Holdings Inc. is jointly owned by Hamilton Utilities Corporation (78.9% ownership) and St. Catharine’s Hydro Inc. (21.1% ownership). Hamilton Utilities Corporation is wholly owned by the City of Hamilton.

There is some urgency in deciding the City’s course of action. The Ontario Power Authority’s Solar PV programs have had an overwhelming uptake which could limit future applications into the program. In order for the City to move forward with a rooftop solar PV strategy, Horizon Energy Solutions Inc. has offered to commission detailed feasibility studies, including formal structural engineering and other reports for six initial
City owned facilities. The cost of these studies ($48,000) would be paid by HESI. The arrangement with HESI is that if the reports indicate the projects are economic and feasible and the City chooses not to proceed with HESI, the City would then be responsible to remunerate HESI for these study costs.

Under a rooftop leasing agreement with HESI all financial, installation and technological risks are HESI’s responsibility. Leasing revenue to the City would be between $40 and $50 per kW (kilowatt) of installed solar PV capacity annually for a 20-year term. There is an inherent comfort and potential for an additional financial benefit to the City as a majority shareholder in entering into a 20-year commitment with a known entity HESI, which other third party providers cannot provide.

To provide an order of magnitude of the revenue potential of leasing a large City owned facilities roof space to HESI, a 250 kW Solar PV installation would generate between $10,000 and $12,500 annually or $200,000 to $250,000 over a 20-year contract term. The overall pilot project sizing or kilowatt capacity won’t be known until HESI’s detailed engineering reports and design is completed.

Lastly HESI and the City are interested in developing a solar PV demonstration project at City Hall. Its purpose would be to promote HESI’s new service offering, develop an educational tool for the public and to further enhance the greening of City Hall. HESI has offered to fund the engineering design; installation cost and the ongoing maintenance for this project, provided that the City agrees to receive a nominal lease contribution from HESI. Given the size limitations of a City Hall installation the project is not economically favourable; staff recommends that the City agrees to receive a nominal lease contribution from HESI, in order to reduce HESI’s project costs/ loss on the City Hall project.

Alternatives for Consideration – See Page 6

FINANCIAL / STAFFING / LEGAL IMPLICATIONS

Financial:
Up to $48,000 for HESI’s detailed engineering reports should the City’s decide not to procedure with HESI, for any projects that are identified as economic and technically viable. If these funds are required they can be recovered from the City energy reserve.

Staffing:
No additional staff are required.

Legal:
Legal assistance will be required in negotiating and executing any agreements with HESI.
HISTORICAL BACKGROUND

Ontario’s **feed-in tariff** or **FIT Program** and **MicroFIT Program** offers a comprehensive guaranteed pricing structure for renewable electricity production. The FIT and MicroFIT programs offer stable prices under long-term contracts (20 years) for energy generated from renewable sources, including, rooftop solar photovoltaic (PV) projects.

The Ontario Power Authority (OPA) is responsible for implementing these programs. Previously, the City has taken advantage of similar programs through Hamilton Renewable Power Inc.’s (HRPI’s) Woodward biogas and Glanbrook landfill gas projects.

Staff retained an energy engineering consultant to complete an initial review of the feasibility and economics of installing solar photovoltaic panels on City facility rooftops to produce electricity (renewable energy). The report focused on two different sized systems, a 250 kW (kilowatt) system (FIT) and a MicroFit system of less than 10 kW. The OPA’s FIT program offers 71.3 cents/kWh of electricity produced from a roof-mounted Solar PV system sized between 10-250 kW. Under the MicroFIT program the OPA pays 80.2 cents/kWh for solar PV projects less than 10 kW. By comparison the City pays about 10 cents per kWh for the electricity we use.

The report further examines the economic benefits of the City directly installing, owning and maintaining the solar PV systems on City owned roof space verse leasing roof space to a third party provider like HESI.

The report highlighted the following City owned facilities due to their large rooftop space and potential for larger, more economic solar PV installations:

1. Mountain Transit Centre, 2200 Upper James Street
2. Traffic Operations Centre, 1375 Upper Ottawa Street
3. Wentworth Operations Centre, 330 Wentworth Street North
4. Hamilton Public Library, Central Branch, 55 York Boulevard
5. Turner Park Library & Les Chater YMCA, 356 Rymal Road East
6. Chedoke Twin Pad Arena, 91 Chedmac Drive
7. Mohawk 4 Ice Centre, 710 Mountainbrow Boulevard
8. Macassa Lodge, 701 Upper Sherman Avenue
9. Wentworth Lodge, 41 South Street West
10. Central Composting Facility / Material Recycling Facility, 1579 Burlington Street East

POLICY IMPLICATIONS

This project will enhance the City’s Corporate Energy Policy, Vision 2020
The City’s Clean and Green Initiative.
Innovate Now - Supports the Public Works Business Plan in terms of being a leader in the greening and stewardship of the City and engaging people and staff to find solutions to systemic issues.

RELEVANT CONSULTATION

Senior Management Team
Planning and Economic Development Department - Economic Development & Real Estate Division
Public Works Department - Transportation, Energy & Facilities Division
Horizon Utilities Inc.
Horizon Energy Solutions Inc.

ANALYSIS / RATIONALE FOR RECOMMENDATION

Prior to HESI’s offer the City retained Building Innovation Inc. to conduct an initial review on the economics of installing solar photovoltaic panels on City facility rooftops. The report is titled “Ontario Power Authority’s Feed-in-Tariff Program - Solar Photovoltaic Project Rationale”. This report provided staff with a high level comparison of the economics of installing solar PV system under a City owned vs. leased option. The report also examined the economics of larger installations (250 kW) vs. smaller installations under 10 kW. Actual project costing details won’t be known until detailed engineering and design reviews are completed by individual location.

What the study indicated is that the financial benefits of the City ownership option for larger solar PV systems installations (150-250 kW) the NPV (net present value) is over 3 times greater than leasing roof space. The study also indicated that solar PV installation under 10 kW (MicroFIT) are not an economically viable alternative for the City. What the study didn’t provide was a detailed risk analysis of City ownership vs. leasing.

The staff conclusion is that when various risk factors are taken into account that proceeding on a pilot project in partnership with HESI under a leasing arrangement offers the least risk to the City. For the City, direct ownership would mean the City would be responsible for all financial and technical risks associated with the solar PV installations and its long term viability. If the City where to directly purchase and install the solar PV systems, it would also need to raise the necessary capital (which could be $15 M to $20 million). The City would require additional staffing resources to project manage the installations and manage the ongoing operation and maintenance of the solar PV system.

Under a leasing arrangement all financial, installation and technological risks are HESI’s responsibility. HESI would also have better bargaining power when it comes to procurement of the solar PV systems, due to higher volumes of product purchases.
Working in partnership with HESI also can provide additional revenue to the City as its majority shareholder and further jointly enhances renewable energy technologies in the City of Hamilton.

**ALTERNATIVES FOR CONSIDERATION**

Under these two options staff has compared the economics of installing the larger (FIT) 250 kW systems and the smaller (MicroFIT) systems less than 10 kW.

This analysis indicated that City ownership of larger Solar PV installations (250 kW) generate the greatest overall positive cash flow for the contract term of 20 years. Under the ownership option for the large systems the NPV is over 3 times greater than leasing roof space to a third party supplier. As owner the City would have two options, the first is direct ownership; the second through the City’s wholly owned subsidiary Hamilton Renewable Power Inc. (HRPI). Ownership via HRPI would require further analysis to determine the implications of taxation.

Under the leasing option the city would lease to Horizon Energy Solutions Inc. (HESI) or through an independent third party provider. Dealing with an independent third party provider brings many unknowns to the table, including the providers long term financially viability.

There is some urgency in deciding the City’s course of action. The OPA’s programs have already had an overwhelming uptake which could limit future applications into the program. If interested and given the take-up of these programs it would be in the City’s best interest to submit these projects into the OPA’s queue through HESI ASAP. If the city were to go with a third party provider, critical timing would be lost through the feasibility study and tendering process.

Note: The reports findings suggest that City ownership of the < 10 kW systems do not generate a positive NPV, thus eliminating this option from further consideration. The exception is in the case of City Hall, which would be used as a demonstration project with HESI. In order to assist in the economics of this demonstration project the City would charge Horizon a nominal leasing fee.

**CORPORATE STRATEGIC PLAN**


**Skilled, Innovative & Respectful Organization**

- A culture of excellence

---

Vision: To be the best place in Canada to raise a child, promote innovation, engage citizens and provide diverse economic opportunities.  
Values: Honesty, Accountability, Innovation, Leadership, Respect, Excellence, Teamwork
• A skilled, adaptive and diverse workforce, i.e. more flexible staff
• More innovation, greater teamwork, better client focus
• Council and SMT are recognized for their leadership and integrity

**Intergovernmental Relationships**
• Maintain effective relationships with other public agencies

**Growing Our Economy**
• A skilled and creative labour pool that supports new employers

**Environmental Stewardship**
• Reduced impact of City activities on the environment
• Aspiring to the highest environmental standards

**Healthy Community**
• Plan and manage the built environment

**APPENDICES / SCHEDULES**

None