BACKGROUND
The City of Toronto chose to install an 87 kWt solar pool heating system at the Gihon Spring outdoor pool to collect heat from the sun and deliver it to the swimming pool. Designed to reduce the need for a conventional natural gas pool heating system, the system will function during the Spring, Summer and Fall when there is no risk of freezing.

FINANCIAL
Fifty percent of the project was funded by the City with a remaining 25% coming from Natural Resources Canada’s ecoENERGY for Renewable Heat program and 25% coming from Ontario’s Solar Thermal Heating Incentive program.

PERFORMANCE
The performance of the installed equipment was hampered by multiple data collection and operational issues. These included: closures due to municipal strike in 2009; improper monitoring equipment set up; unwanted operation doing times when solar production was low (ie overnight) which produced cooling effects for the pools; equipment damage; loss of data due to lack of integration with central data collection systems; and unwanted shut-downs due to site-operator error.

Despite the many challenges associated with these installations, some key lessons were clearly established including: the importance of sensor placements and set points – affecting times at which the pool is programmed to access the thermal heating – to the ability of the pool to make full use of available solar energy; the susceptibility of solar pool heating systems to add unwanted cooling to the pool due to inadequate check-valve systems; and the need to ensure that on-site pool staff are engaged and have a basic understanding of the system and the skills to do ensure that it is functioning throughout the pool season.

Please see the Performance Review of Public Outdoor Pool Solar Thermal Heating Systems in the City of Toronto for more in depth analysis.

For more information, contact:
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Project Overview
Project Owner: City of Toronto
Location: 75 Gihon Spring Drive, Toronto
Building Type and Use: Outdoor City Pool
System Type: Solar Pool Heating
System Power Rating: 87 kWt
Installation Date: October 2008
Installer: Solar Ontario

System Configuration
System Surface Area: 127.8 m²
Collector Manufacturer: Techno-Solis
Pump: Pentair Intelliflo 4-160
Solar Controller: Goldline Aqua SolarTC

Annual Performance
Estimated: 39,409 kWh

Financial
System Cost: $35,760
Grants: $17,842.50
Net Cost Per kW: $205.95
Annual Cost Savings: $1,960*
Simple Payback: 9.05 years

Environmental Benefits
Estimated emission reduction: 7.1 tonnes eCO₂/yr**

*based on 51 ¢/m³
**based on 1.86 kg eCO₂/m³