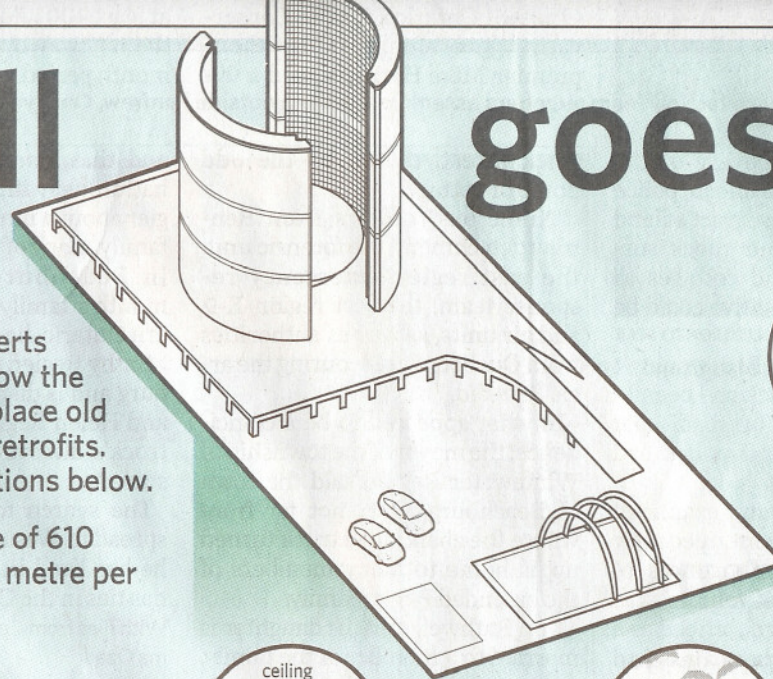


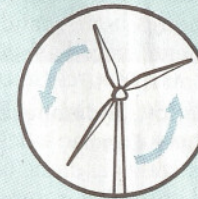
# City Hall

# goes green



Wind turbines on top of City Hall?  
The eternal flame lit by biogas fuel?  
You betcha. Three teams of energy experts recently toured city hall to determine how the city could reduce its energy use and replace old systems with environmentally friendly retrofits. The city is seriously considering the options below.

**Goal:** Reduce current annual energy use of 610 kWh/square metre to 100 kWh/square metre per year by 2010.

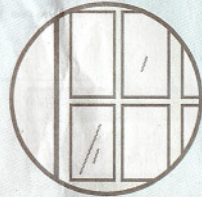


## Wind generation

**Option:** Six 3.5-kilowatt wind turbines atop City Hall.

**Wind speed on towers:** Double what it is at ground.

**Savings:** About 1% of electricity use; more symbolic than anything else.



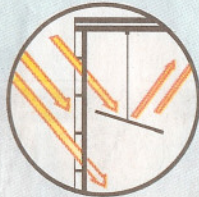
## Windows

**Problem:** Inside climate hard to control with single-paned windows.

**Option:** Replace with double-glazed windows.

**Cost:** At least \$3 million.

**Savings:** \$300,000 annually.

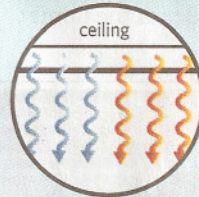


## Lighting

**Problem:** Artificial lighting used throughout building.

**Option:** Hang a light shelf, with highly reflective material, from ceiling; replace textured ceiling with smooth one to reflect light; move overhead lighting farther into building and add task lighting.

**Potential reduction in artificial lighting:** 95%.



## Induction units

**Problem:** Heating and cooling units run along every floor, taking up space.

**Option:** Radiant heating and cooling in ceiling using water from deep in Lake Ontario, supplied by city owned Enwave.

**Reclaimed space:** 1860 sq.metres.

**Savings:** \$100,000 annually.

**Cost:** No estimate, in the millions.



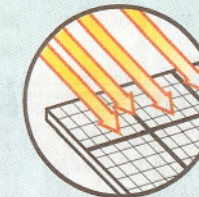
## Hot water efficiency

**Problem:** Existing hot water storage tanks lose heat.

**Option:** Instantaneous hot water heating system which uses steam to heat water for immediate use, and eliminate storage tanks.

**Cost:** About \$100,000 to install.

**Savings:** \$10,000 annually.



## Solar

**Option:** Incorporate solar panels into redesign of podium roof above second floor.

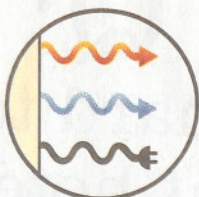
**Savings:** Less than what is normally attained due to shading issue on the roof.



## Computer screens

**Ongoing:** City is replacing old monitors with LCD flat screen monitors.

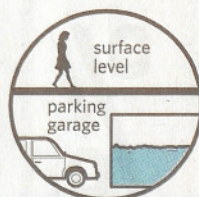
**Savings:** Will lower heat and energy use; save \$500,000 annually.



## Electricity generation

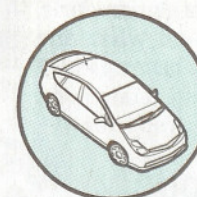
**Future option:** City seriously considering creating a 1.5 megawatt on-site electricity generator using an environmentally friendly fuel such as biodiesel.

**Cost:** About \$4 million.



## Water harvesting

**Go-ahead:** As part of Nathan Phillips redesign, city will build large concrete cisterns in parking garage to collect rainwater run-off, which will be used for watering needs on the grounds.



## Electric cars

**Ongoing:** The city's Fleet services department has had a "greening" program for 3 years, replacing dozens of city vehicles with hybrids or other more fuel-efficient vehicles. It plans to test reconfigured plug-in Toyota Prius



## Eternal flame

**Option:** One group proposed fueling the eternal flame with waste gases from organic material, says Jim Kamstra, manager of energy and waste management.