



Report to: General Committee

Report Date: May 5, 2008

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**SUBJECT:** *Markham Energy Conservation Office (MECO) – Year in Review Report II*

**PREPARED BY:** Viive Sawler, Manager, Markham Energy Conservation Office

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**RECOMMENDATION:**

THAT the Report entitled, *Markham Energy Conservation Office (MECO) – Year in Review II*, dated May 5, 2008, be received for information.

**EXECUTIVE SUMMARY:**

The Markham Energy Conservation Office (MECO) was established in May of 2005 with funding support from PowerStream and the Town of Markham and continues to lead, develop and implement energy conservation programs that are in line with the Provincial goals of creating a ‘culture of conservation.’

This is the second annual “*MECO – Year in Review Report*” designed to summarize MECO programs and initiatives that have been undertaken since March 2007 when the first annual report was completed.

MECO’s portfolio of programs continues to be broad-based, targeting both internal and external stakeholders. At the corporate level, various retrofit projects for existing facilities are currently underway or have been completed. These are described in further detail in the report along with plans for future retrofits. A summary of the expected energy savings for these projects is provided in Appendix A.

MECO continues to leverage external partnerships and jointly deliver programs within the community with PowerStream, the Ontario Power Authority (OPA) and other organizations that are geared towards improving the energy efficiency of small-to-medium sized commercial businesses and to raising awareness about energy conservation. The “*No Catch to Conserve*” program was piloted in Markham with twenty four local businesses participating. The annual combined electricity savings for these businesses are anticipated to be 117,000 kWh or enough electricity to power approximately 13 houses for one year. The OPA provided up to \$1000 to each of these businesses to have energy retrofit projects completed such as converting T12 fluorescent lighting to T8 fluorescents, adding strip curtains to refrigerated areas, cleaning of freezer coils, replacing incandescent Exit signs with LED Exit signs and replacing all other incandescent lamps with compact fluorescent lamps.

In the last year, MECO has also expanded its education and awareness programs to the residential community. Initially, these programs were targeted at Town Staff but have now been broadened to include the residential community. MECO has hosted four energy conservation workshops in the spring of 2007 and four more workshops are planned with a focus on solar energy during the months of May and June.

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Finally, a Scorecard is included in Appendix B that summarizes the results for each of the programs and initiatives to-date while Appendix C includes a Financial Summary.

**PURPOSE:**

The purpose of this report is to provide Committee with an update on the program and activities undertaken by MECO over the last year.

**OPTIONS/ DISCUSSION:**

The MECO program highlights have been organized into three main categories: corporate initiatives undertaken at Town owned facilities; community based initiatives targeted at the small commercial sector and delivered in partnership with external stakeholders, and education and awareness initiatives.

Corporate Initiatives

MECO is working with various departments across the organization to carry out a number of retrofit and renewal opportunities at Town-owned facilities. Several energy retrofits have been carried out at different facilities but the largest project that is currently underway is the energy retrofit at the Milliken Mills Community Centre. When all retrofit projects currently underway are completed, it is anticipated that they will deliver over 545,000 kWh per year in electricity savings and over 200,000 m<sup>3</sup> per year in gas savings. This translates into an annual dollar savings of approximately \$129,000 and an estimated GHG emission reduction of 523 tonnes.

Community Based Initiatives

MECO continues to work with external partners, namely PowerStream and the OPA to design, deliver and promote various Conservation and Demand Management (CDM) programs within our community. MECO was involved with organizing the media launch for the *peaksaver*<sup>TM</sup> Program that was kicked off at the Civic Centre in July by Mayor Scarpitti. Another program supported by MECO was the *No Catch to Conserve* Pilot in Markham for small commercial businesses that provided up to \$1,000 from the OPA in free energy upgrades. Twenty four businesses participated with a combined savings of 117,000 kWh per year or a reduction of 28 tonnes of CO<sub>2</sub>. MECO also led the promotion within the community of Earth Hour on March 29<sup>th</sup> between 8:00 and 9:00 p.m. The result was a 6.02% electricity reduction measured by PowerStream.

Education and Awareness Programs

MECO continues to promote awareness about energy conservation in a variety of forms, i.e., through the internet or intranet, the MECO Newsletter and by hosting Lunch and Learn sessions for staff. While MECO's programs originally focused on staff education, last spring, the focus was expanded to the residential community. MECO, Markham Public Libraries and PowerStream partnered to deliver four energy conservation workshops for the public. These were so successful that another four are scheduled for this spring.

# Markham Energy Conservation Office



## **MECO Report – Year in Review II**

**Prepared By: Viive Sawler  
Manager, Markham Energy Conservation Office**

**Date: May 5, 2008**

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## Executive Summary

The Markham Energy Conservation Office (MECO), established by the Town of Markham in 2005 with funding support from PowerStream continues to lead, develop and implement energy conservation programs that are in line with the Provincial goals of creating a 'culture of conservation.'

This is the second annual, "*MECO – Year in Review*" report designed to summarize MECO programs and initiatives that have been undertaken since March of 2007 when the first annual update was delivered.

MECO's portfolio of programs continues to be broad-based, targeting both internal and external stakeholders. At the corporate level, various retrofit projects for existing facilities are currently underway or have been completed. These are described in further detail in the report along with plans for future retrofits. A summary of the expected energy savings for completed 2007 projects as well as 2008 projects underway is provided in Appendix A.

MECO continues to leverage external partnerships and jointly deliver programs within the community with PowerStream, the Ontario Power Authority and other organizations that are geared towards improving the energy efficiency of small-to-medium sized commercial businesses and to raising awareness about energy conservation. The "*No Catch to Conserve*" program was piloted in Markham with 24 local businesses participating. The Ontario Power Authority provided up to \$1,000 to each of these businesses to have energy retrofit projects completed such as converting T12 fluorescent lighting to T8 fluorescents, adding strip curtains to refrigerated areas, cleaning of freezer coils, replacing incandescent Exit signs with LED Exit signs and replacing all other incandescent lamps with compact fluorescent lamps.

In the last year, MECO has also expanded its education and awareness programs to the residential community. Initially, these programs were targeted at Town staff but we have now broadened the reach to the residential community by hosting four energy conservation workshops in the spring of 2007. Four more workshops are planned with a focus on solar energy for this upcoming spring.

Finally, a Scorecard is included in Appendix B that summarizes the results for each of the programs and initiatives to-date while Appendix C includes a Financial Summary.

## Introduction

Energy conservation starts within the community and shows that the wise use of resources is good for the environment, makes economic sense and secures a healthy future for our children and future generations. Cities must take responsibility for becoming more conscious about how energy is utilized and work towards becoming less wasteful, more resourceful and more efficient.

According to the C40 Cities Climate Leadership Group ([www.c40cities.org](http://www.c40cities.org)), cities cover less than one per cent of the earth's surface but are disproportionately responsible for causing climate change. Currently, around 50 per cent of the world's population live in cities (set to reach 60 per cent by 2030), yet cities consume approximately 75 per cent of the world's energy and are responsible for 80 per cent of greenhouse gas emissions.

If the majority of the world's energy consumption either occurs in cities or as a direct result of the way that cities function, cities must play a central role in tackling the problems they are partially responsible for causing and stand up to fight climate change. Markham is doing just that and has created a leadership example for other municipalities by ensuring that our efforts in conservation will enhance our local energy supply and reduce our traditional dependency on the electricity grid. Markham is taking a triple bottom line business approach and recognizes that energy conservation represents an opportunity for economic growth, environmental improvement and social cohesion.

For the purpose of this report, the MECO program highlights have been organized into three main categories: corporate initiatives undertaken at Town-owned facilities; community based initiatives targeted at the small commercial sector and delivered in partnership with external stakeholders, and education and awareness initiatives designed for both Town staff as well as local residents.

## CORPORATE INITIATIVES

MECO is working with various departments across the organization to carry out a number of retrofit and renewal opportunities at Town-owned facilities. A number of energy related projects have been completed at our Civic Centre including the conversion of eighty three, 175 watt metal halide down light fixtures to 55 watt compact fluorescent lamps (CFLs).

In 2006, a comprehensive energy audit of the Milliken Mills Community Centre (MMCC) was commissioned. The retrofit projects were tendered in September 2007 upon completion of the necessary engineering design work and the MMCC projects are now underway. Some of the upgrades have already been completed while others will be implemented this year. Other retrofit projects have been committed to and are at various stages of design and implementation – they are described here as well.

### *Civic Centre*

#### *Down Light Fixture Conversion*

Recently, eighty three 175 watt metal halide down light fixtures in the Civic Centre were converted to 55 watt CFLs and T8s resulting in an estimated savings of 44,026 kWh of electricity annually or \$3,962 in electrical savings. The retrofit project also includes a programmable timer and photo cell and will have two sets of controls – one for the north side of the building and one for the south side. This conversion represents a 72% reduction in electricity consumption.

#### *Elevators, Boardrooms and Hallways*

A lighting project to retrofit various boardrooms and offices to 20 watt PAR 38s from 90 watt halogens is underway. The anticipated savings is 16,817 kWh savings or \$1,514 in electricity cost savings annually.

#### *Cool Clothing Campaign*

During the summer months MECO implemented a “Cool Clothing Campaign” and turned up the thermostat at the Markham Civic Centre to conserve energy. To ensure comfort while working in the building, Civic Centre employees were encouraged to adopt a cool, business-casual dress—leaving their jackets, ties, and stockings at home.

The thermostat was turned up gradually to minimize discomfort. On July 3, the



## Cool Clothing

The thermostat's up at the Civic Centre, but they can still be cool!

Join Markham's Cool Clothing Campaign —  
dress down for the office without lowering your standards.

Throw away your jackets and ties and  
try Business Casual on for size.

Be cool — conserve energy



temperature was increased by 2 degrees, from 22° C to 24° C. On July 9, the thermostat was raised to 25° C and on July 16, to 26° C. By turning up the thermostat by 4 degrees, we estimated savings to be 12-15% in energy costs, and more importantly we contributed to ensuring the reliability of our electricity grid, and reducing our carbon dioxide emissions by the same amount.

### ***Milliken Mills Community Centre***

#### ***Energy Retrofits***

MECO, Recreation and Asset Management have been working together to identify opportunities to save energy at Milliken Mills Community Centre. Some simple operational changes have made a significant impact. By turning off lights along the hallway and corridors during the day, and raising the thermostat a few degrees to reduce the air conditioning load, staff at Milliken Mills Community Centre has saved over 66,000 kWh of electricity between June and August 2007 compared to the same three month period in 2006. This is estimated to represent a \$5,940 electricity cost savings.

Traditionally, hallway lights are turned on during the regular operating hours of the community centre. However, due to the fact that the facility has large skylights in the lobby area, sunlight penetrates into the building during the peak summer months providing sufficient daylight during most of the day. Seeing this, staff at Milliken Mills decided to make use of the natural light and thereby only turn on hallway lights when the lighting level becomes inadequate, i.e. late in the evening or during overcast days.

Also, the thermostat to control the hallway temperature was set at 65F in the summer of 2006. In late 2006, the thermostat was relocated to a secured place so that only designated staff could adjust the temperature and it was set at 72F. This increased set-point has also contributed to energy savings.

Additionally, all hallway lighting and the lights in the library meeting room have been retrofitted with compact fluorescent light bulbs, daylight sensors and a timer control. This should represent an additional savings of about 60,000 kWh annually, or \$5,400 in cost savings. Other energy saving projects underway at





Milliken Mills Community Centre include:

- Installation of a drain water heat recovery unit for the pool - this unit will recover heat from the drain water year round to pre-heat cold make up water
- Solar pool water heating system - this seasonal solar system will directly heat the pool make-up water most of the summer months; thereby saving natural gas
- Installation of a building automation system - this will ensure that all the mechanical and lighting systems in the building will be working together efficiently and will contribute to electricity savings
- Heating system upgrade with condensing boiler, modified heating loop, variable speed pumping, outside temperature reset control, etc. - this combined system will ensure that the heating system works at a maximum efficiency at an affordable cost.

Together these energy retrofits are expected to deliver over 200,000 kWh per year in electricity savings and 130,000 m<sup>3</sup> per year in gas savings. This translates into an annual dollar savings of approximately \$70,000.

### ***Thornhill Community Centre***

#### ***Demand Response***

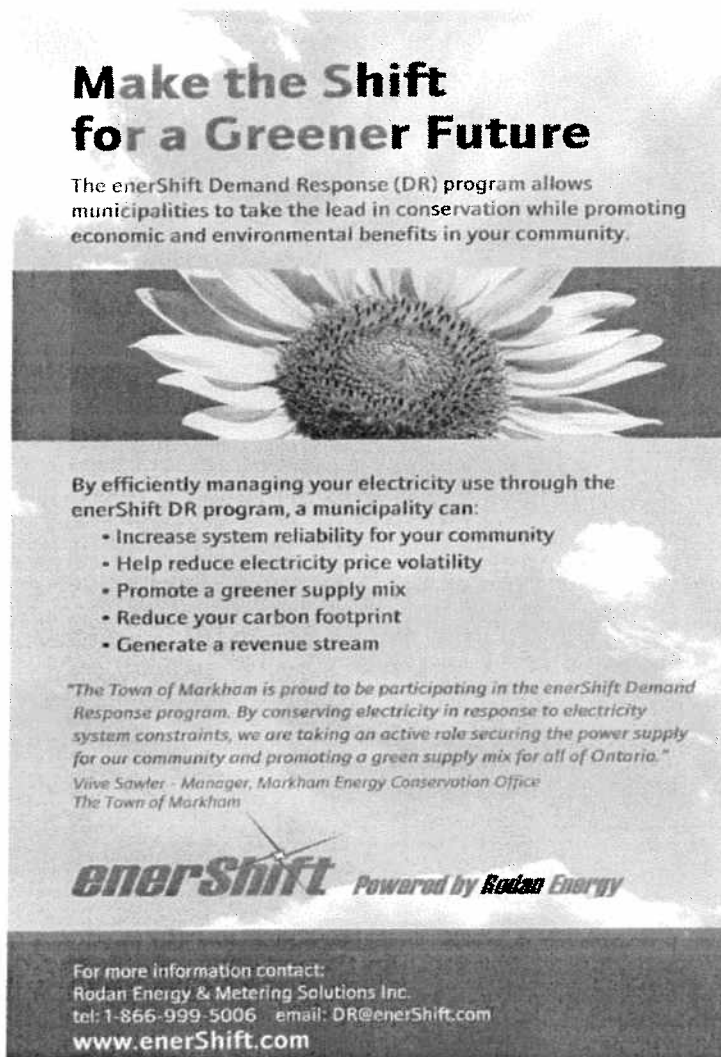
MECO has been working with PowerStream and Rodan Energy to integrate Demand Response (DR) resources into select Town facilities. The Thornhill Community Centre (TCC) represented our first pilot site for this initiative between July and September 2007.

DR is emerging as an effective solution in managing system reliability issues and providing an alternative to relying on coal power to meet Ontario's peak electricity demand needs. It refers to the short-term reduction of electricity consumption in response to system reliability concerns or a pre-determined market price and allows users of electricity to be compensated for reducing electricity demand at times when the system capacity is reaching its limits and during periods when wholesale electricity prices are very high.

During the summer months, TCC took an active role in reducing or shifting electricity usage. To minimize the load during a DR call, TCC employed a number of strategies to curtail electricity usage. Lighting was reduced or shut off in unoccupied or open concept areas. Where a complete reduction of lighting load reduction was not possible, the community centre would opt to shut off a pre-determined percentage of lighting. Another area of opportunity was with heating, cooling and ventilation. Heating and air conditioning consume a large proportion of energy costs so by adjusting the temperature by just a few degrees, TCC staff easily decreased the load on air distribution systems. Temperature adjustment strategies include: set-point reduction, fan speed limitation and increasing the supply air temperature. They also adjusted the set-point of the brine pumps/refrigeration plants of the ice rinks to reduce usage with minimal impact on the ice surface.

The initial results during the two provincial DR calls were slightly lower than anticipated. Only 545 kWh of electricity was saved during these curtailment calls. However, this was due in part to the fact that it was a new program and there was limited time in advance to notify all staff involved to target the systems to be shut down. A cheque for \$443.16 was received as part of our capacity and energy payment for participation.

MECO and TCC staff are exploring the opportunity to participate in a future DR program with the Province and PowerStream.



**Make the Shift  
for a Greener Future**

The enerShift Demand Response (DR) program allows municipalities to take the lead in conservation while promoting economic and environmental benefits in your community.

By efficiently managing your electricity use through the enerShift DR program, a municipality can:

- Increase system reliability for your community
- Help reduce electricity price volatility
- Promote a greener supply mix
- Reduce your carbon footprint
- Generate a revenue stream

*"The Town of Markham is proud to be participating in the enerShift Demand Response program. By conserving electricity in response to electricity system constraints, we are taking an active role securing the power supply for our community and promoting a green supply mix for all of Ontario."*  
Vivie Sawler - Manager, Markham Energy Conservation Office  
The Town of Markham

**enerShift** Powered by **Rodan Energy**

For more information contact:  
Rodan Energy & Metering Solutions Inc.  
tel: 1-866-999-5006 email: DR@enerShift.com  
[www.enerShift.com](http://www.enerShift.com)

### *Squash Court Lighting Retrofits*

Another opportunity currently underway is a lighting retrofit of the two squash courts. Thirty T12 fixtures are being switched out to T8s, representing a significant energy savings by switching from 54 watt (including 14 watt ballast) T12 lamps to 32 watt T8s. The estimated annual kWh savings is 4,818 or \$434 in cost savings.

### *Desiccant Dehumidification System*

Humidity, a by-product of ice rinks is a major contributor to energy consumption in arenas due to the fact that compressors must run longer to reduce humidity. One solution is to utilize a desiccant dehumidification system which costs less to run than other dehumidification systems and saves money as compressors are no longer required to overcome the refrigeration load caused by humidity. Many rinks recover the cost of desiccant dehumidification from energy savings within three years.

MECO and Recreation are currently working with a consultant to have the engineering design work done for this system. Currently, there are four dehumidification systems in each rink. In the hockey rink there are 3 Humicon systems and 1 Dectron system and in the figure skating rink, there are 4 Humicons. These currently operate at \$16.90 and \$19.70 per month per pound of moisture removed per hour, respectively. By moving to one desiccant unit and an air handling system in each rink the operating costs are expected to be reduced to \$7.80 per month per pound of moisture removed per hour.

### *Arena Lighting*

MECO and Recreation have been exploring more efficient arena lighting options given that arena lighting consumes significant amounts of energy. Many vendors have been promoting new technologies that claim to be more energy efficient but unfortunately, have not always been proven to meet the required lighting standards for an arena application. Therefore it was necessary to engage an independent lighting consultant to research and evaluate a more energy efficient solution that would still meet the required standards. An opportunity has been identified and will be tendered shortly. The solution is to continue with metal halide lights however there is a new Pulse Start metal halide lamp that is almost twice as efficient as the older metal halides. Currently, there are 36 fixtures in each of the two arenas, with two 400 watt metal halide lamps in them. These also include 98 watt ballast drives. Combined this means that each fixture consumes 898 watts of energy and with 72 fixtures in two arenas that represents 64,656 watts in total operating for approximately 5,840 hours per year. This translates into approximately 379,600 kWh of electricity consumed per year at a cost of \$34,164. By converting to a single 400 watt Pulse Start metal halide lamp with a 50 watt ballast the savings will be significant. These will consume 32,400 watts or 186,880 kWh per year, representing a savings of 192,720 kWh, or \$17,345 annually in electricity costs.

### ***Centennial Community Centre***

#### *Squash Court Lighting Retrofit*

Recently, the three squash courts at Centennial were retrofitted to include T5 fluorescent lights. When the retrofit was completed apparently, the lighting was so bright and exceeded the required foot candles that two of the four new lamps in the fixture had to be removed. These lamps will be kept on site as replacement lamps when the others burn out. In the meantime, the energy savings have been reduced by a further 50%. The original lighting consumed approximately 4,400 watts of power. Assuming the lights were on 10 hours per day, 365 days per year, this would mean the lighting consumed approximately 16,060 kWh of electricity annually. The new lighting

consumes about 2,200 watts and with a lighting sensor to ensure the lights are on only when the courts are being used, it is estimated they may be on an average of 5 hours per day 365 days per year. This would mean that the total consumption would be 4,015 kWh per year for a total annual savings of 12,045 kWh or \$1,084.

### *Sustainability Study – Green Technology Upgrades*

Environmental Leadership, Asset Management and MECO commissioned a study by Oleson Worland\_Taylor Smyth Architects to review and recommend a number of alternative technologies for Centennial that would result in energy savings. Council recently adopted the recommendation to implement a seasonal solar water heating unit for the pool and to retrofit two existing gas-fired boilers and domestic hot water tanks with more efficient technology. The estimated energy savings for the solar system is close to 40,000 m<sup>3</sup> of gas annually and approximately 41,000 m<sup>3</sup> annually of gas for the boiler upgrade. The combined gas cost savings are estimated at \$32,400. The other recommendations will be phased in as budgets permit.

### ***Streetlights***

MECO and Asset Management retained RTG Systems Corporation earlier last year to review existing streetlight installations in several typical older residential and industrial areas of the Town. The study was undertaken to confirm if typical historic installations were over or under illuminated compared to the Illuminating Engineering Society of North America (IESNA) standards. The consultant was to review opportunities to reduce lighting levels to save energy and reduce light pollution in areas where over illumination was found and as well to undertake a review and give recommendations on various new and emerging technologies that may reduce energy costs and improve performance for streetlighting in the future.

As a result of this study, we are looking to implement pilot projects for streetlight review/wattage reductions in residential and industrial areas. These projects will review in more detail the costs, light levels and energy saving payback periods for the streetlight modifications and further investigate the practicality of reducing wattages in additional areas during ongoing maintenance programs. An important aspect of any pilot program will be soliciting the community's opinions on lower lighting levels.

### ***Other Retrofit Opportunities***

Several other projects are currently being discussed. MECO has been working with various departments across the Town to discuss the potential opportunity for energy retrofit projects. Some of these include:

- An electrical and mechanical review for the Ward Building renovation was completed. The MECO budget will contribute towards the cost of the energy efficient lighting design upgrade.
- Varley Art Gallery staff has been looking at a dimmer rack replacement and occupancy sensor project which MECO will be funding.

- A lighting retrofit opportunity has also been identified for the Markham Theatre but staff is awaiting further specifications from the consultant.
- Staff at Fire Station 92 identified potential energy savings opportunities that are currently being explored further.

### ***Energy & Environmental Management System***

MECO continues to utilize the Energy and Environmental Management System (EEMS) purchased from the Region of York. EEMS is a web based software designed to record and manage energy consumption and expenses of buildings, street lights, and other types of facilities. EEMS has the capability to track electricity, natural gas, water and waste water accounts, and other fuel usage (gasoline, diesel, etc.), as well as provide analysis on utility performance. To-date, electricity and water data for all Town facilities has been entered up until March 2008 and October 2007 for gas.

As noted in previous update reports, EEMS is a tool and not an on-going 'project' as it was referred to in the original MECO Business Plan. As such, MECO staff continues to work with York Region on any enhancements or improvements to the software that may be necessary over time but otherwise, the purchase of this tool was a one-time cost with the expectation that hosting fees and selected upgrades will be paid for on an annual basis. MECO has been working with PowerStream and York Region to enable the electronic upload of the electricity and water bills. As of September 17, 2007, we have been receiving e-bills from PowerStream for electricity and water. Discussions with Enbridge are also underway to improve the efficiency of uploading the gas data to EEMS. Currently, staff manually inputs gas data from hard copy invoices.

### ***Electricity Procurement Strategy***

The Town of Markham consumes approximately 40 million kilowatt hours (kWh) of electricity per year at a cost of \$4 million. The Town was purchasing all of its electricity requirements under the Regulated Price Protection (RPP) Plan, a two tiered rate plan that as of November 1, 2007, charges 5 cents per kWh for the first 750 kWh consumed per month and 5.9 cents at the second tier rate for consumption over 750 kWh. Given the sheer volume of electricity consumed by the majority of the Town's electricity accounts, less than 2% of our consumption is billed at the first tier rate which suggests that for most of our electricity needs we are paying at the second tier, an amount that in most cases is higher than what we could be paying if we were to move select accounts to the wholesale spot market and/or enter into a fixed price contract or "hedge" for a targeted volume of electricity.

With authority from Council given in spring of 2007, the streetlight electricity account was moved to the spot market under a one year contract that will expire on July 31, 2008. In order to continue the savings achieved, it is proposed that this contract is renewed. To-date, the Town has been averaging \$0.038 per kWh on the spot market for the street light account versus \$0.059 per kWh it was previously paying at the second

tier of the RPP. In addition, the Town received a one time settlement credit of \$37,000 for removing the streetlight account from the RPP.

WattsWorth has also identified an opportunity for the Town to save additional dollars by moving two other account types, Large Net System Load Shape (LNSLS) and Interval accounts to the spot market with a hedge. The Small Net System Load Shape (SNSLS) accounts consume a lesser volume of electricity on a monthly basis and therefore it is financially advantageous for these accounts to remain on the RPP.

In December 2007, Council approved the recommended *Electricity Procurement Strategy* intended to improve the way the Town purchases electricity that will result in an estimated savings of over \$300,000 per year. MECO, Finance and Legal are working together to finalize all of the required agreements in order to move forward with this strategy that is intended to commence May 1, 2008. In the meantime, the six Interval accounts have been moved to the spot market and the Town received a one time settlement credit of almost \$58,000 for exiting the RPP.

## COMMUNITY BASED INITIATIVES

### ***Media Launch for peaksaver™ Program***

On July 31, 2007, MECO in partnership with PowerStream organized a media event at the Civic Centre where Mayor Frank Scarpitti helped launch a contest to promote PowerStream's *peaksaver™* conservation program by taking a spin on a new hybrid electric bicycle.

Participants in the *peaksaver™* program were eligible to receive a free Honeywell thermostat, valued at \$250, installed in their homes or businesses by a certified technician at no charge and \$25.00 from the Ontario Power Authority. The programmable thermostat allows customers to control their cooling and heating remotely through the internet. In addition, during peak demand times (hottest weekdays in the summer), PowerStream may remotely cycle down participating customers' central air conditioning compressors to help reduce electricity consumption and strain on the provincial power system. *peaksaver™* helps to decrease energy use during critical peak demand times thereby reducing the need to use coal fired generating stations, which, in turn, diminishes smog and air pollution and reduces the need for purchasing more costly energy from other jurisdictions.



### ***No Catch to Conserve Pilot***

The *No Catch to Conserve Pilot Program* recently ended with 24 Markham small businesses participating. Each of these businesses received up to \$1,000 in energy efficiency upgrades which will result in a combined energy savings for these businesses of approximately 117,359 kWh annually or \$10,562 in cost savings.

This program was being offered by MECO in partnership with PowerStream and the Ontario Power Authority. The Program is now moving into the second phase of the pilot whereby the OPA will make \$2,000 available per business but the target group will be restaurants and food service businesses. Ten companies will be eligible to participate in this pilot from Markham.



### ***Earth Hour 2008***



On March 29<sup>th</sup> between 8:00 and 9:00 p.m. the Town of Markham joined cities around the world and turned out lights at the Markham Civic Centre and other municipal facilities for one hour to raise awareness about climate change through the Earth Hour campaign.

The goal was to get thousands of Markham businesses and individuals to participate in this historic event and reduce our impact on climate change. PowerStream measured the conservation impact across its service territory representing a 4.85% reduction or 57,170 kWh hours, an equivalent of powering 2,382 homes for one day.

Markham's contribution to this reduction was 6.02%, second behind Aurora at 10.15% but ahead of Richmond Hill at 3.58% and Vaughan at 3.59%.

## **EDUCATION AND AWARENESS PROGRAMS**

MECO continues to promote awareness about energy conservation in a variety of forms, i.e., through the internet or intranet, the MECO newsletter, and by hosting Lunch

and Learn sessions for staff and the MECO webpage on the Markham website ([www.markham.ca](http://www.markham.ca)) is regularly updated to feature various initiatives or new programs that are being offered.

### ***Watt Reader Circulation***

MECO has also continued to circulate a 'Watt Reader' to Town Staff that they can take home with them to monitor the energy consumption of various appliances. When a Watt Reader is connected to an appliance, it will monitor and determine the number of kilowatt-hours used over a certain number of hours. It is then possible to calculate the cost of operating that appliance by comparing it with the monthly hydro bill. The benefit of this device is that it gives people an idea of how much electricity various appliances use in their homes and thereby will hopefully encourage them to be more conscientious about turning them off when not in use. In addition, MECO, in partnership with Markham Public Libraries (MPL) and PowerStream, offer the Watt Reader program throughout the libraries for residents to make use of. PowerStream provided 98 Watt Readers for circulation across MPL and since the program launch in September 2006 the Watt Readers have been signed out 923 times.

### ***Energy Conservation Workshops***

**Keep Your Cool This Summer. Come to an Energy Workshop**

Would you like to save money and help our environment?  
Are you concerned about your home's energy efficiency?

Come to one of our free energy workshops and learn the practical, simple steps you can take to save energy while still maintaining your cool during the hot summer months.

Join us at one of our **FREE Watts at Home Energy Workshops**.




All workshops are 7:00 p.m. to 8:30 p.m.

Date	Location	Address
Tuesday, May 15	Thornhill Community Centre Library	7755 Bayview Ave.
Thursday, May 24	Angus Glen Library	3990 Major Mackenzie Dr. East
Wednesday, May 30	Milliken Mills Library	7600 Kennedy Rd.
Wednesday, June 6	Uxville Library	11 Library Lane

You'll learn about energy saving programs and strategies, how to keep cool by using the microwave instead of your oven and enjoy a cooking demonstration. All participants receive a free conservation gift bag that can save you energy.

Space is limited so call 905-477-5530 to reserve your spot.

Brought to you by the Markham Energy Conservation Office in partnership with:

**Is there a bright future for solar power in your home or small business?**

**Come and find out!**  
**FREE SOLAR ENERGY INTRODUCTORY WORKSHOP**

Thornhill Library 7755 Bayview Avenue	Tuesday, May 6	7:00 - 8:30 p.m.
Markham Village Library 6041 Highway 7	Thursday, May 15	7:00 - 8:30 p.m.
Angus Glen Library 3990 Major Mackenzie Drive, East	Thursday, May 29	7:00 - 8:30 p.m.
Milliken Mills Library 7600 Kennedy Road	Wednesday, June 4	7:00 - 8:30 p.m.

**Space is limited so call to reserve your spot!**  
**905-477-5530**

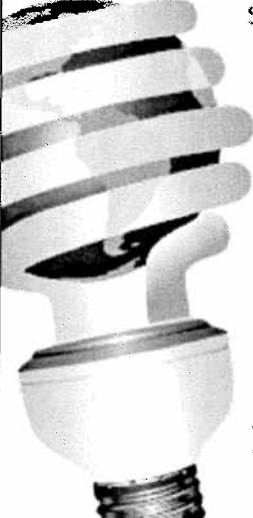
While the MECO@Work program was originally designed for internal staff, MECO in partnership with PowerStream expanded the educational focus to the community by running 4 energy conservation workshops for the public during the spring of 2007.



These workshops were held at four different Markham libraries. PowerStream discussed energy issues and ways to conserve and Barb Holland, a celebrity "Home Economist," presented a microwave cooking demonstration on how to cook energy efficient meals. All attendees were given a gift bag with literature, two light bulbs, a book light, and a fridge thermometer. These events were very successful with close to 200 local residents participating. A short survey was conducted afterwards and very positive feedback was received.

As a result MECO will be rolling out 4 more workshops this spring – May 6<sup>th</sup>, 15<sup>th</sup>, 29<sup>th</sup> and June 4<sup>th</sup>. In response to suggestions received, these will be focused on energy conservation in general but also an introduction to solar power opportunities for your home will be given including what requirements or permits need to be in place, what the costs are and projected savings.

### ***CFL Recycling Promotion***



**GREAT IDEAS NEED  
CAREFUL HANDLING!**

**Safely dispose of your CFL bulbs  
at Markham Recycling Depots!**

Starting April 19, get a  
free replacement CFL  
bulb\* when returning  
a burnt-out CFL bulb!

**Depot Locations:**

- Markham Village  
Community Centre
- Main Street Unionville
- Milliken Mills  
Community Centre
- Thornhill  
Community Centre

For more information,  
call 905-477-5530 or visit [www.markham.ca](http://www.markham.ca)  
\*one per customer, first 1000 residents only

**MARKHAM**

MECO and Waste Management have partnered to promote the environmentally responsible disposal of end-of-life compact fluorescent lamps (CFLs). The purpose of this initiative is to establish an education/outreach program to encourage the investment in energy efficient products and technologies, including CFLs. However, we need to ensure that the appropriate recycling infrastructure is in place to handle the proper disposal of CFLs that contain trace elements of mercury. The current practice of taking bulbs to the hazardous waste facility is onerous on Town residents given the limited service hours, and may lead to improper disposal in regular curbside pickup. The Town actively encourages the use of CFLs, and, together with PowerStream we have distributed over 6,000 units over the last 2 years. While recent media attention has

focused on the negative aspects of CFLs, our proposed program would highlight recent improvements to CFLs, the benefits of conserving energy and would address how to properly dispose of CFLs.

The plan is to launch the program with an incentive to encourage people to return burned out CFLs to one of the four Markham recycling depots. The first 1,000 people to return one or more CFLs will receive a new bulb (or one per family). This exchange will be run by Town employees who staff the recycling depots when they are open.

## **OTHER INITIATIVES**

### ***FCM-ICLEI – Partners for Climate Protection Program***

In February 2008, Markham Council committed to the Partners for Climate Protection (PCP) Program. PCP is a national program implemented by the Federation of Canadian Municipalities and ICLEI that brings Canadian municipal governments together to reduce the local production of greenhouse gas (GHG) emissions and improve quality of life. MECO and Environmental Leadership staff has been working with ICLEI to complete the GHG emission inventory for our municipal operations and the broader community with assistance from our local utilities, PowerStream and Enbridge Gas. With the inventory almost complete, the next step is to establish a GHG reduction goal and to start developing a Local Action Plan to meet the target. Consultation with the public will be a necessary investment in this Plan but will be coordinated through the Office of the CAO as the Town moves forward on developing a Green Print Plan.

## **CONCLUSION**

In summary, MECO continues to lead, develop and implement a number of energy conservation programs focused not only on Town owned facilities but also within the community. Education and awareness programs are also a key component of the MECO portfolio and have been expanded from their original focus on staff to include a residential and broader community reach.

Over the last year, MECO has also been successful in continuing to raise its profile and promote the Town of Markham as a leader in energy conservation. The Town has been recognized by the Province through the Ontario Power Authority for being the first municipality to formalize an energy conservation office. MECO will continue to work closely with a variety of internal and external stakeholders and leverage opportunities to design and deliver programs in partnership with PowerStream, the Ontario Power Authority and other organizations.

## **Appendix A – MECO Retrofit Energy Savings**

**APPENDIX A**  
**MECO ENERGY RETROFIT SAVINGS SUMMARY**

Facility	Project	Est. Electricity Savings (kWh)	Est. Gas Savings (m <sup>3</sup> )	Est. Cost Savings/Year*	Est. GHG Reductions (Tonnes)**
Civic Centre	Down light fixture conversion	44000		3960	10
	Elevators, boardrooms and hallway light conversion	17000		1530	4
<b>Milliken Mills Community Centre</b>	Operational Changes - Thermostat secured and set-point temperature increased in summer. Selected lights turned off if sufficient natural light available in corridors	66000		5940	16
	Hallway & library meeting room light retrofit	60000		5400	14
	Drain water heat recovery for pool		17000	6800	32
	Solar heating for pool make-up water		5600	2240	11
	Installation of Building Automation System	150000	40000	29500	111
	Heating system upgrade with condensing boiler, modified heating loop and variable speed pumping		68000	27200	123
<b>Thornhill Community Centre</b>	Squash court lighting retrofits	4800		432	1
	Dessicant dehumidification system for two arenas				
	Arena lighting retrofit	193000		17370	46
<b>Centennial Community Centre</b>	Squash court lighting retrofits	12000		1080	3
	Boiler and domestic hot water tank upgrade		41000	16400	77
	Seasonal solar water heating for make-up water		40000	16000	75
	<b>Totals</b>	<b>546800</b>	<b>211600</b>	<b>133852</b>	<b>523</b>
* Electricity Cost	\$0.09/kWh				
	\$0.40/m <sup>3</sup>				
** Electricity Coefficients (OPG 2006)					
	0.237 kg of CO <sub>2</sub> per equivalent kWh				
** Gas Coefficients (ICLEI)		CO2 Coefficient - 0.00188	N2O Coefficient - 2.00E-08	CH4 Coefficient - 4.30E-08	
	Energy Coefficient - 0.03806				

## **Appendix B – MECO Scorecard**

# MECO SCORECARD - 2005 & 2006\*

\*Scorecard is a work in progress and is updated as results become available

Program	Quantitative Measures	Units	Program Status
<b>Cool Shops</b>			
<b>Phase 1 - Launched Summer 2005</b>			Completed
2 street teams (English and Chinese) were sent out to visit 1300 stores. 541 agreed to participate, were given 1 free CFL and some rebate coupons on energy efficiency products. Also had a lighting audit completed - street teams used palm pilot to record data re - type and number of fixtures.	# of kWh saved from 541 CFLs	83,000	
	# of stores visited	1312	
	# of stores audited	541	
	# of English Cool Shops fliers distributed	589	
	# of Chinese Cool Shops fliers distributed	149	
	# of Cheap & Easy booklets distributed	423	
	# of stickers distributed	425	
	# of surveys distributed	469	
	# of CFLS distributed	541	
	# of energy efficient products purchased with rebate coupons	6	
	# of television interviews	3	
	# of newspaper/newsletter articles	5	
	# of advertisements	2	
	# of special events	1	
<b>Phase 2 - Winter 2006 (Pilot)</b>			Completed
2006 Cool Shops program revised - MECO ran program with less involvement from Clean Air Foundation. PowerStream provided CFLs to MECO and MECO staff contacted stores and scheduled installations. Stores participating were eligible for a complete change out of their incandescents for CFLs.	# of kWh saved from 310 CFLs	53,000	
	# of stores visited	11	
	# of CFLs installed	319	
	# of television interviews	1	
	# of newspaper articles	5	
	# of promotional events	4	
<b>Summer 2006</b>			
Continued with Program from Winter Pilot	# of kWh saved from 382 CFLs	58,000	
	# of stores visited	32	
	# of CFLs installed	382	
	# of PAR 38s	35	
	# of BR 30s	5	
<b>Fall 2006</b>			
Continued with Program from Winter Pilot	# of kWh saved from 43 CFLs	8500	
	# of stores visited	2	
	# of CFLs installed	43	
<b>Enbridge's Spray &amp; Save Program</b>			Completed
This program offered the installation of a low-flow, pre-rinse spray valve available to all full service restaurants and other food service operations.	Gas savings estimated at \$546/year and water and sewage cost savings estimated at \$630/year based on approximations that pre-rinse spray valve is used 4 hours/day	\$546 or \$630/year	
	# of Markham businesses participating	45	

Program	Quantitative Measures	Units	Program Status
<b>We Conserve - Doors Closed</b>			Completed
This initiative encouraged businesses to keep their doors closed in the summer when the air conditioning was running and in the winter when the heat was on.	# of posters handed out	25	
<b>MECO@Work and MECO@Home</b>			
<b>Launched November 2, 2005</b>			On-going
This program promotes MECO's brand and purpose across the Town and encourages staff to participate in energy conservation at work and at home. It's an employee awareness initiative aimed at creating a "culture of conservation".	Turn Off & Save Sticker Campaign - # of stickers distributed to staff	2000 (1000 of each design)	
	Lunch & Learns - # of events	5	
	Watt Reader Circulation to Staff - # of units circulated	50	
	# of times Watt Readers have been signed out through Markham Public Libraries' circulation	481	
	20/20 Energy Forum - # of attendees	103	
	OCAA's Go Clean & Green Challenge - # of staff participating	25	
	MECO BBQ - # of attendees	172	
	MECO Newsletter - # of copies printed	750	
	Celebrate the Environment - Think Green - # of attendees	72	
	# of internal/external publications	7	
	# of promotional events	1	
<b>Better Buildings Partnership</b>			
<b>Launched Fall 2005</b>			On-going
This program is focused on Town owned buildings and is geared to finding opportunities to improve the energy efficiency of existing assets through retrofit and renewal initiatives.			
<b>Gartner Lee - Decision Support Tool Developed</b>			On-going
Tool to assist in the evaluation of various energy savings technologies, programs and products.			
<b>RTG - Street Light Evaluation Study</b>			Completed
Aimed at evaluating select residential & industrial areas to identify if perhaps they are overlit - may be opportunities to reduce wattage of bulbs in re-lamping cycle.			
<b>MMCC Energy Audit</b>			Implementation planned for 2007 pending budget approval in April.
1st major energy audit conducted of Town owned building.	Projected electricity savings in kWh	372,000	
	Projected gas savings in m <sup>3</sup>	174,000	
	Projected water savings	TBD	
<b>Installation of Interval Meters at Select Facilities</b>			Completed
Upgraded meters at older community centres.			
<b>Load Shedding @ Civic Centre during August heatwave</b>	Electricity saved in kWh	1,749	Completed

Program	Quantitative Measures	Units	Program Status
Replacement of conveyor toaster in cafeteria with a more efficient pop-up toaster	Projected electricity savings in kWh	4,000	Completed
Parking garage lighting retrofit @ Civic Centre	Projected electricity savings in kWh	25,000	Completed
LED lighting pilot @ Civic Centre parking lot	Electricity saved in kWh	0	Pilot completed - LEDs removed - did not save energy
Roll-out of Energy Audit Assessment process at key Town facilities			Planned for 2007 following commencement of implementation of retrofit
Sustainability Study at Centennial Community Centre			Completed
The purpose of this study is to examine the potential to locate a green roof/solar panel or other alternative energy technologies that would provide energy savings benefits and a sound ROI.			
<b>Environment &amp; Energy Management Software (EEMS)</b>			
Launched Summer 2005			Working on implementation of upgrades to EEMS and electronic upload of 2006 electricity data
This is a web based tool that allows MECO to record and manage the energy consumption and cost of our buildings and streetlights by tracking electricity, gas and water accounts. Data entered for 2003 - 2005.			
<b>Advancing High Performance Buildings</b>			
Launched Fall 2005			On-going
This program focuses on new designs, construction and operating methods to reduce energy consumption of new infrastructure.	# of promotional events	2	
CUI Report - Framework for Advancing High Performance Buildings			Completed
CUI contracted to prepare a report on <i>A Framework for Advancing High Performance Buildings</i> - finalized in March 2006.			
Tom Emodi Study			On-going
Consultant hired to work with Markham Centre Advisory Group on Comparison of Markham Centre's Performance Measures Document against LEED Standard.			Participating in MCAC Working Group - Winter 2007
Hunt Club Condominium Corporation Retrofit			On-going
Received \$10K from MESF towards energy efficiency improvement projects - required to share savings information with Town of	Projected electricity savings in kWh	TBD	
	Projected gas savings in m <sup>3</sup>	TBD	
	Projected water savings	TBD	
<b>Haul Away Your Energy Hog Appliance Retirement Program</b>			
Launched November 1, 2006			Completed



Program	Quantitative Measures	Units	Program Status
An appliance retirement Pilot Project targeted at fridges, freezers & room ACs, in partnership with Mission Green and PowerStream - runs until March 5, 2007.	# of kWh saved	1,400,000	
	# of CO <sub>2</sub> emissions reduced (tonnes)	1006	
	# of fridges collected	845	
	# of freezers collected	411	
	# of window air conditioners collected	65	
<b>Seasonal LED Light Exchange</b>			
<b>Launched November 1, 2006</b>			Completed
Seasonal Light Exchange program offered through Markham recycling depots while supplies lasted.	# of seasonal lights given away in exchange for a string of incandescents	1500	
<b>External Promotion of MECO</b>			
MECO participates at select community events from time to time - some in conjunction with PowerStream events, others on behalf of the Town. The purpose is to promote MECO and its activities.	# of CFLs handed out at local festivals (Unionville June 3-4/06 / Markham June 17/06)	570/300	Completed 2006
	# of promotional events	4	

# MECO SCORECARD - 2007\*

\*Scorecard is a work in progress and is updated as results become available

## Haul Away Your Energy Hog Appliance Retirement Program

Nov. 1/06 - Mar. 5/07

Completed

An appliance retirement Pilot Project targeted at fridges, freezers & room ACs, in partnership with Mission Green and PowerStream - runs until March 5, 2007.

# of kWh saved	1,400,000
# of CO <sub>2</sub> emissions reduced (tonnes)	1006
# of fridges collected	845
# of freezers collected	411
# of window air conditioners collected	65

## MECO@Work and MECO@Home

### MECO Lunch and Learns

Apr. 11/07 - May 2/07 (4 Wednesdays)

Completed

Partnered with Environmental Leadership to bring 4 Lunch and Learns to Town staff on a variety of environmental/energy topics

Organic Lawn Care #	13
Energy Conservation #	15
Car Care #	15
Microwave Cooking Demo	17

### Watts at Home - Energy Conservation Workshops

May 15/07 - Jun. /07 (Weekly)

Completed

Workshops for the community held at MPLs.

PowerStream discussed energy issues and ways to conserve and Barb Holland presented a microwave cooking demo to cook energy efficient meals. All attendees were given a gift bag with literature, 2 light bulbs, a booklight, and a fridge thermometer

Thornhill	31
Angus Glen	37
Milliken Mills	69
Unionville	50

### Cool Clothing Campaign @ the Civic Centre

Jul. 3/07 - Sep. 30/07

Completed

Gradually turned up the thermostat to 26 degrees in the Civic Centre to reduce energy consumption - actually used more electricity in 2007 than in 2006 during same time frame but 2007 was hotter with 56.4 Cooling Degree Days 27,178kWh

# of kWh increased	27178
--------------------	-------

### No Catch to Conserve Program

Launched July 3, 2007

Completed

Pilot program providing free energy efficiency assessments and upgrades (up to \$1000) to local small businesses (partnership with PowerStream, OPA & GreenSaver)

# of assessments completed	24
# of kWh saved	117359
\$ saved	12997.09

### Better Buildings Partnership

### Demand Response Pilot Program at Thornhill Community Centre

Contract - July 9 - September 30, 2007

Completed

Entered into *enerShift* DR Program (PowerStream & Rodan Energy) to voluntarily reduce our load during peak periods - will be paid a capacity payment for participation & an energy payment for any DR curtailment calls for the

# of DR curtailments (Aug. 2/07 and Sept 6/07)	2
--	---

	# of kWh saved	545	
	\$ received in capacity/energy payments	443.16	
<b>Energy Retrofits at Milliken Mills Community Centre</b>			
Hallway lighting and the lights in the library meeting room retrofitted with CFLs, daylight sensors and a timer control			Completed
	# of kWh saved	60,000	
<b>Operational Improvements at Milliken Mills Community Centre</b>			
Staff turned off lights in halls and corridors during the daytime and set thermostat at 72F vs. 65F - savings for Jul-Aug/07 compared to 2006			Completed
	# of kWh saved	66000	
<b>Energy Retrofit at Centennial Community Centre</b>			
Lighting retrofit in squash courts - (savings calculations just estimates - due to uncertainty of # of hours and wattages of old lighting)			Completed
	# of kWh saved	12000	
<b>External Promotion of MECO</b>			
MECO participates at select community events - usually in conjunction with PowerStream events. The purpose is to promote MECO and its activities. Unionville & Markham Festivals, Philips Corporate Event, Oct. 17-07, Smuckers Fair, December 11)	# of CFLs handed out at local festivals (Unionville June 2/07 / Markham June 16/07)	300/300	Completed
	# of promotional events	4	
Articles/Publications featuring MECO	Markham Economist & Sun - Apr-14-07 - Environment Markham		On-going
	Celebrate our Environment 2007 Community Calendar		
	Rethinking Energy - Peel Region Corporate Energy Newsletter - "A Spotlight on Markham's Highly Successful Energy Efficiency Office" - Summer 2007		
	City Styles - Summer & Fall 07		
	MECO News - Summer '07		
	Markham Economist & Sun - June 21-07 - "PowerStream celebrates third year in power" - p. 2		
	Perspective Markham '07 - p. 4 - "Building a Sustainable Community"		
	YRMG - Nov-14-07 - "Plan shifts environment focus to towns"		
	YRMG - Nov-16-07 - "Milliken Community Centre being brought up to new standard"		
	YRMG - Nov-29-07 - "Plan would cut electricity demand, add transformer, gas-fired plant"		
PeakSaver Media Launch with PowerStream - July 31, 2007 @ Civic Centre	# of media hits (Rogers TV, Ming Pao, Economist & Sun)	3	Completed

# MECO SCORECARD - 2008\*

\*Scorecard is a work in progress and is updated as results become available

## Better Buildings Partnership

### Energy Retrofits at Milliken Mills Community Centre

Implementation scheduled for March 2008 - projects include boiler upgrade with modified heating loop, variable speed pumping and outset temperature reset control, drain water heat recovery unit for pool, BAS and, solar water heating system for pool make-up water	# of kWh saved		Underway
	# of m <sup>3</sup> gas saved		

### Energy Retrofit at Thornhill Community Centre

Lighting retrofit in squash courts - other opportunities as well under consideration,	# of kWh saved	4800	Underway
Desiccant Dehumidification system - replacing 8 other dehumidification units	# of kWh saved		Underway
Arena lighting retrofit - going from seventy two 898 watt two lamp metal halide	# of kWh saved	192,720	Underway

### Energy Retrofit at Civic Centre

Downlight fixture conversion - eighty three 175 watt metal halides converted to	# of kWh saved	44,026	Completed
Lighting retrofit in various boardrooms, CAO and Mayor's offices and Council	# of kWh saved	16,817	Pending

### Energy Retrofit at Centennial Community Centre

Seasonal solar water heating for swimming pool	# of m <sup>3</sup> gas saved	40,000	Pending
Retrofit of two existing gas fired boilers and DHW tanks	# of m3 gas saved	41,000	Pending

### External Promotion of MECO

MECO participates at select community events - usually in conjunction with PowerStream events. The purpose is to promote MECO and its activities.	Toronto Star - Jan-22-08 - "GTA cities warm to lights-out challenge"		
	YRMG - Feb-1-08 - "We'll all be in the dark"		
	Markham Spring Home Show - Markham Fair Grounds - Feb. 29 - Mar 2-08 - booth		
	IPPSO FACTO - Feb-08 - "Markham enters the competitive energy market," p. 13-14		

## **Appendix C – Financial Summary**

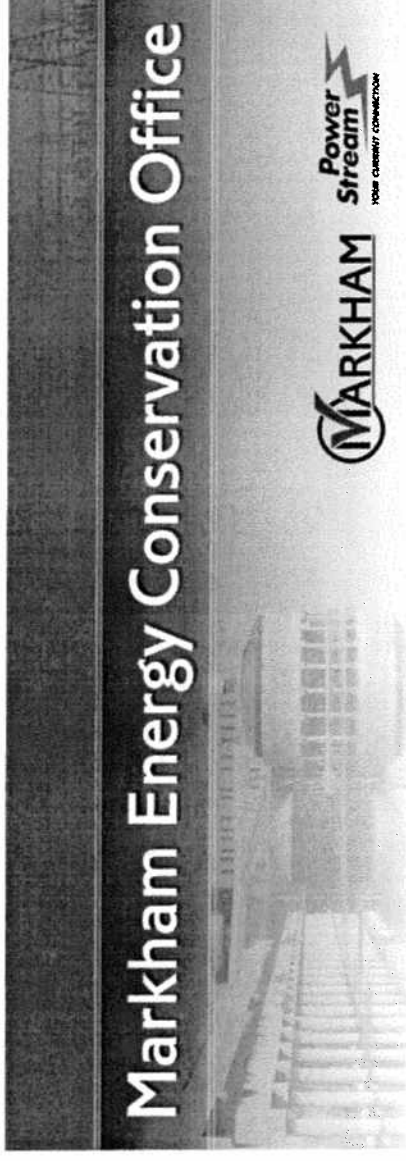
## APPENDIX C - MECO FINANCIAL SUMMARY - APRIL 2008

<b>Account-031-222-0034 - PowerStream</b>	<b>Budget</b>
Original Budget	\$1,000,000
<b>Budget Remaining</b>	<b>\$640,000</b>

<b>Projects Committed (PowerStream \$)</b>	
Street Lighting Energy Efficiency Pilot	\$50,000
Ward Building Lighting Design	\$55,000
Thornhill CC - Desiccant Dehumidification System*	\$395,000
Thornhill Arenas (2) - Lighting Retrofit	\$100,000
Total Projects Committed	\$600,000
*Estimated costs - awaiting firm proposals	
<b>Balance Remaining</b>	<b>\$40,000</b>

<b>Account-7761507638005 - Capital</b>	
Original Budget	\$306,000
<b>Budget Remaining</b>	<b>\$235,000</b>

<b>Projects Committed (Capital)</b>	
Milliken Mills CC Energy Retrofits	\$235,000
Total Projects Committed	\$235,000
<b>Balance Remaining</b>	<b>\$0</b>



# ***MECO Report - Year in Review II***

**Presentation to General Committee – May 5, 2008**

**Viive Sawler**

meco!

# Background

- Second Annual *MECO Year in Review Report* designed to summarize MECO's programs and initiatives
- MECO's portfolio continues to be broad-based, targeting both internal and external stakeholders
- MECO's objectives seek to champion energy conservation and position Markham as a leader in reducing GHGs
- Focus of MECO programs:
  - Corporate
    - Town owned facilities & street lighting
  - Community
    - Small commercial, residential programs
    - GHG emission reduction strategy
  - Education
    - Town staff and residential community awareness programs



# Highlights – Corporate

Facility	Project	Est. Electricity Savings (kWh)	Est. Gas Savings (m³)	Est. Cost Savings/Year*	Est. GHG Reductions (Tonnes)**
Civic Centre	Down light fixture conversion	44000		3960	10
	Elevators, boardrooms and hallway light conversion	17000		1530	4
Milliken Mills Community Centre	Operational Changes - Thermostat secured and set-point temperature increased in summer. Selected lights turned off if sufficient natural light available in corridors	66000		5940	16
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	Boiler and domestic hot water tank upgrade		41000	16400	77
	Seasonal solar water heating for make-up water		40000	16000	75
<b>Totals</b>		<b>546800</b>	<b>211600</b>	<b>133852</b>	<b>523</b>

# Highlights – Corporate

- ◆ Street Lighting
  - Evaluation undertaken of existing street lighting to identify opportunities for energy savings
  - On-going evaluation of new and emerging technologies
- ◆ Demand Response (DR) Program
  - Short-term reduction of electricity usage by curtailing loads and/or utilizing on-site generation when the power grid needs relief or HOEP is very high
  - Thornhill Community Centre entered into a voluntary DR contract – participated in 2 provincial DR curtailment calls between July & September
- ◆ Energy Procurement Strategy
  - Street light energy account now billed on the spot market
  - Broader energy procurement strategy for all accounts commenced May 1/08
    - ◆ Options include a mix of RPP, spot market & fixed price contracts
    - ◆ Anticipated savings of \$300,000/year
    - ◆ 1 time credit received for removing street light and interval accounts from RPP = \$95,000

# Highlights - Community

- Small Commercial
  - 2007 – *No Catch to Conserve* – Direct Install Program (Pilot)
    - 24 small commercial businesses participated
    - \$1000/business grant from the Ontario Power Authority for energy efficient upgrades
    - 117,000 kWh of electricity saved
    - 28 tonnes of CO<sub>2</sub> reduced
- Partners for Climate Protection (PCP) Program
  - Council endorsed PCP Program in February 2008
  - 5 Milestone framework aimed at reducing GHGs in municipal operations and throughout the community
  - Milestone 1 - GHG inventory completed – draft report from consultant under review

# Highlights - Education

- Energy Conservation Workshops
  - 4 workshops held at our libraries in the Spring 2007
  - 4 more workshops scheduled for Spring 2008 – focus on introduction to solar energy
- CFL Recycling Promotion
  - “Great Ideas Need Careful Handling” - Waste Management & MECO social marketing campaign to encourage the use of energy efficient CFLs while reminding the public to safely dispose of them at end of life
- Earth Hour 2008
  - Saturday, March 29<sup>th</sup> – 8:00 – 9:00 p.m.
  - PowerStream measured a 4.85% reduction across service territory – Markham’s contribution was 6.02%, second behind Aurora but ahead of Richmond Hill and Vaughan

# Future MECO Priorities

- ◆ Bill 21 – Energy Conservation & Environmental Leadership Act, 2006 (ECLA)
  - Requirement for provincial ministries and the wider public sector to create Energy Plans
    - ◆ Plans to be submitted annually and to include:
      - energy consumption/baseline data
      - conservation measures undertaken to-date
      - goals and commitments
      - action plan and opportunities assessment
- ◆ Corporate Energy Policy
  - Continue to facilitate achievement of Town-wide energy conservation efforts
  - Address legislated reporting requirements
  - Provide process for on-going measuring and monitoring of energy savings
  - Define policies related to capital investments in energy conservation and/or efficiency
  - Define policies related to energy procurement including alternative energy opportunities