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CORPORATE ENERGY REPORT 2009

The Finance and Administration Committee recommends the adoption of the recommendation contained in the following report dated April 9, 2010, from the Commissioner of Corporate Services and the Chief Administrative Officer.

1. RECOMMENDATION

1. It is recommended that this report be received for information.

2. PURPOSE

The purpose of this report is to update Committee and Council on Regional energy management activities for 2009 and outline the new energy reporting requirements set out in the *Green Energy Act, 2009*.

3. BACKGROUND

Since 2003, the Corporate Energy Service section of the Property Services Branch has been mandated to implement energy cost reduction initiatives across Regional buildings and operations.

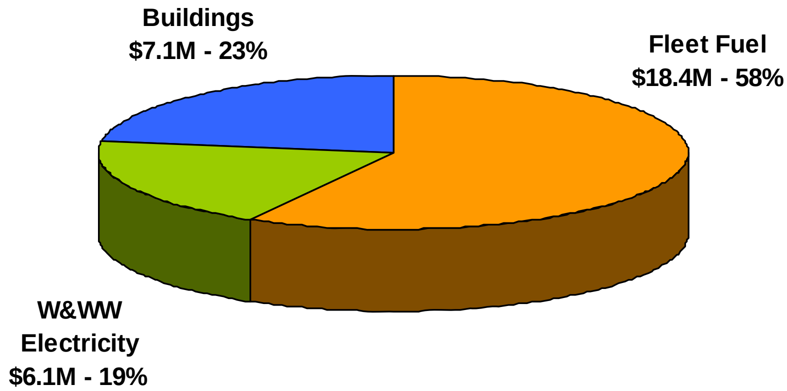
$4.5 million in energy savings realized since 2006

In 2006, the annual Corporate Energy Report began reporting on energy savings to the Region. Since that time, over $4.5 million in energy savings has been realized. 2009 represents the Region's lowest utility cost expenditure since 2006.

Efforts primarily focused on the Region's three largest energy consumers

As shown in Figure 1, the three largest energy consumers within the Region are fleets, water and wastewater processes and Regional facilities, respectively. These areas offer the greatest opportunity for efficiency gains and cost reductions.

Figure 1
Energy Cost Allocation by End Use in 2009



4. ANALYSIS AND OPTIONS

This section of the report serves to outline the results of the Energy Management Program for 2009, as well as set out the next steps in corporate energy reporting.

Corporate energy expenditures decreased by $5.6 million in 2009

Corporate energy costs decreased fifteen percent over 2008, resulting in a savings of $5.6 million in 2009. This savings is due largely to lower cost of vehicle fuel. Table 1 shows the annual energy costs and Table 2 shows annual energy consumption to the Region since 2006.

Table 1
Regional Energy Costs, 2006-2009 ($Millions)

Component	2006	2007	2008	2009
Electricity	11.3	11.0	11.2	10.9
Natural gas	1.8	2.0	1.7	1.6
Vehicle fuel	18.0	18.7	23.6	18.4
Water	0.5	0.6	0.6	0.7
Totals	31.6	32.4	37.2	31.6
Per capita[1] ($)	**$33.27**	**$32.97**	**$36.76**	**$30.64**

[1]Based on year-end population estimates from Planning Department

Table 2
Regional Energy Consumption, 2006-2009

Component	Volume Measure	2006	2007	2008	2009
Electricity	kWh	110,446,684	110,504,508	112,138,626	110,902,697
Natural gas	cu.m.	3,774,025	4,439,608	3,905,982	3,755,429
Vehicle fuel	litres	17,975,737	18,553,142	18,673,558	18,867,003

The Region's energy costs are decreasing year-over-year

A key finding from Table 1 is the bulge in per litre fuel cost for 2008. Accounting for the spike in fuel prices in 2008, the Region's energy costs remain on a downward trend, year-over-year. The drop in electricity cost by 4% as a result of the efficiencies through retrofits and the application of LEED® policy for design and construction of new facilities have contributed to the savings in 2009.

Savings reoccur every year following implementation of retrofit and LEED® projects. For example, the Administrative Centre retrofit completed in 2006 for $1.3 million resulted in utility savings of $186,000 annually with a payback period of 8 years (2010 is year 4 of the payback period). This savings calculation assumes utility rates remain constant from the time of implementation which is a conservative approach to report savings. Energy price fluctuations and other factors impact the actual cost savings each year. For example, as energy prices rise, the payback period shortens.

The Region's greenhouse gas emissions continue on a downward trend

Greenhouse gas (GHG) emissions for the Region are primarily due to energy use. Total GHGs have declined slightly in the last two years due to green electricity purchases (500 tonnes in 2009) and the use of biodiesel in Viva buses (1500 tonnes). Table 3 shows the corporate GHGs emissions since 2006.

Table 3
Regional Greenhouse Gas Emissions, 2006-2009 (tonnes CO_2e^1)

Component	2006	2007	2008	2009
Electricity	23,193	23,205	23,548	23,290
Natural gas	7,171	8,435	7,421	7,135
Vehicle fuel	47,591	49,115	50,292	51,527
Subtotals	77,955	80,755	81,261	81,952
Green credits	0	0	-1,192	-2,068
Totals	77,955	80,755	80,069	79,884
Per capita (kg)	82.1	82.2	79.1	77.4

The Regional facilities built to LEED® standard are growing

The list of Regional facilities being built to LEED® standards is increasing. Table 4 shows the various projects in progress during 2009 constructed to Regional Council's adopted LEED® Silver policy. Table 4 lists the Region's LEED® projects either started or completed in 2009.

Four York Region staff achieved LEED® Accredited Professional status in 2009, with tutoring assistance from Property Services, bringing the total to eight LEED® Accredited Professionals at the Region. This will improve the delivery of LEED® projects by reducing the Region's dependence on external consultants.

Table 4
The Region's LEED® Projects at Year-End 2009

Project	Construction Status	LEED Certification Level and Status
Vaughan Community Environmental Centre	Completed 2009	LEED Gold awarded
Leeder Place	Completed 2009	LEED Certified target
Stouffville Zone 2 Pumping Station	Completed 2009	LEED Certified target
Police Investigative / Support Services	Construction in progress	LEED Silver target
Bus Maintenance Facility (8300 Keele Street)	Construction in progress	LEED Silver target
Kingview Addition (90 Dew Street)	Final design	LEED Silver target

Central Services Centre	Architect selection	LEED Silver minimum target
Bales EMS Operations Centre	Early design	LEED Silver target
Mapleglen Residence	Final design	LEED Silver target

Continue energy audits and building retrofits for further savings in 2010

Throughout 2009, Property Services continued to validate and implement energy efficiency upgrades identified in Building Energy Feasibility Studies from prior years resulting in increased energy savings. 2009 upgrade projects included:

- Ventilation, controls and kitchen exhaust improvements at Maple Health Centre
- Domestic hot water system replacement at Newmarket Health Centre
- Controls replacement and expansion at York Regional Police District #1 office
- Ventilation heat recovery at Oak Ridges Childrens' Centre
- Lighting upgrades and automatic controls at seven facilities

Green Energy and other supply management efforts to continue in 2010

The Region is actively engaged in green energy and other energy supply measures as a means of reducing energy consumption and costs. The Region continues to participate in the bulk natural gas purchase program offered by the Association of Municipalities of Ontario. Additionally, the Region's Finance Department has recently begun hedging diesel fuel. Other measures being employed include:

- Use of green electricity through Bullfrog Power at the Administrative Centre, the Household Hazardous Waste depot in East Gwillimbury and the Stouffville Zone 2 Pumping Station.
- Feasibility study respecting the benefits of solar electric installations given the province's new Feed-in Tariff under the *Green Energy Act*.
- Three Housing York Inc. locations benefiting from SolarWall® steel building cladding. The Mount Albert Water Pollution Control Plant will also get a SolarWall® in early 2010.
- Feasibility studies at the Maple Pumping Station and Leslie Street Sewage Pumping Station in 2010, with respect to demand response using emergency generators.

Next steps in corporate energy reporting

The reporting requirement set out in the *Green Energy Act* significantly changes the content of future energy reports. Commencing in 2011, Committee and Council can expect to see an expanded annual report on energy consumption and conservation.

The *Green Energy Act* requires annual reporting on various aspects of municipal energy consumption, conservation and demand management

Bill 150, the *Green Energy and Green Economy Act, 2009*, pending Regulations, will require all public agencies to prepare an energy conservation and demand management plan summarizing annual energy consumption for each of the public agency's operations and a description of the expected results of current and proposed conservation activities.

The Property Services Branch will continue to lead the annual energy reporting as it has done since 2004 and report content will expand to include the new reporting requirements set out in the Regulations.

The Regulations have yet to be set, including a prescribed reduction target

The Act will also set out through Regulation a prescribed energy reduction target for all public agencies. In 2009 and throughout 2010, the Strategic Initiatives Branch of the Chief Administrative Office has embarked on a project to better understand and prepare for the implications associated with a mandated reduction target. This work involves:

- Refinement of the current corporate baseline of energy consumption to account for all aspects of energy in the delivery of our services, including fuel use for corporate fleets (transit, police, EMS, Roads, employee vehicle use for Regional business);
- Forecasting of energy required to meet the growth mandate under the *Places to Grow Act*;
- Financial modeling of the cost implications associated with reducing against a target;
- Development of a suite of initiatives to reduce consumption relative to possible reduction targets.

The Region is currently working with the Association of Municipalities of Ontario, the Ministry of Energy and Infrastructure and the Ministry of Municipal Affairs and Housing to establish a realistic, achievable and sustainable reduction target. The Region has done much work to understand its present and future energy needs.

Alignment of corporate strategies to maximize efforts in energy portfolio

The *Green Energy Act* reporting requirements greatly mirror Regional Council's previously adopted mandate for the *Corporate Air Quality Strategy*. To maximize efficiencies and expertise, these two reporting mandates will be combined into a single annual Corporate Energy Report to Finance and Administration Committee under the direction of the Property Services Branch of the Corporate Services Department commencing in 2011.

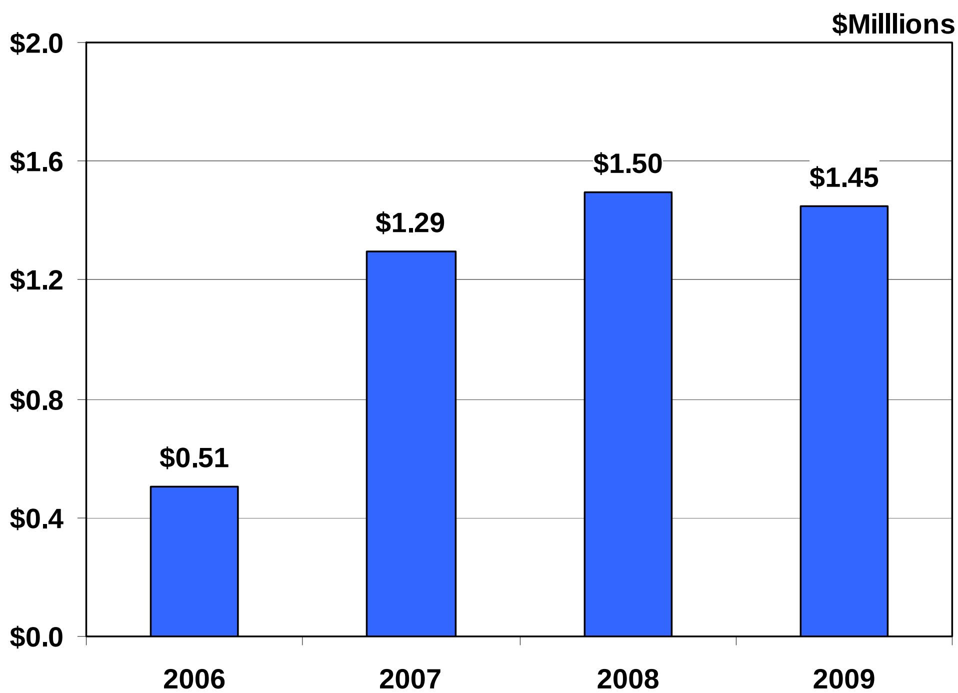
5. FINANCIAL IMPLICATIONS

Total energy cost savings continues upward trend

The Region's annual energy savings for 2009 was $1.45 million. Year-over-year savings shows a slight drop between 2008 and 2009. However, a one-time electricity billing refund in 2008 due to over-billing in previous years accounts for this slight variation. Annual energy savings continues to increase year-over-year. Energy cost savings potential from retrofits and other energy management initiatives are affected by energy price fluctuations. Figure 2 shows the annual energy savings to the Region since 2006.

A total of $1.52 million was expended in 2009, as per budget approval. Planned capital investment into other energy-saving projects in 2009 and 2010 will contribute greatly to the annual cost savings stream.

Figure 2
Program Savings



6. LOCAL MUNICIPAL IMPACT

The Region's energy management activities benefit residents and local municipalities by reducing costs and demands on infrastructure, mitigating environmental impacts, providing an advisory outreach role and promoting sustainable practices.

7. CONCLUSION

The energy management program is returning value-for-the-money and helping to position the Region for imminent reporting obligations

Significant progress was made in the corporate energy portfolio in 2009. Corporate energy expenditures dropped by $5.6 million in 2009 due to the stabilization of fuel prices. The Region continues its downward trend in energy consumption and resultant Greenhouse gas emissions. Energy savings of $4.75 million has been realized since 2006. Correspondingly, Greenhouse Gas emissions have reduced by nearly 5% per capita over the last four years. Energy reporting will evolve over the course of 2010 to meet the new reporting requirements set out under the *Green Energy Act*.

Collaboration between the Property Services Branch and the Office of the Chief Administrative Officer to respond to *Green Energy Act* is on-going for 2010. Shared work includes: the merging of the *Corporate Air Quality Strategy* mandate with the Corporate Energy program; refinement of the energy sources database and corresponding Greenhouse gas emissions inventory; and measures to respond to an energy reduction target, including cost implications, reduction initiatives and timeframe to meet target.

For more information on this report, please contact Barry Crowe, Director, Property Services Branch at Ext. 1684 or Heather Beairsto, Program Manager, Strategic Initiatives at ext. 1230.

The Senior Management Group has reviewed this report.