

Item 7.3
Public Works Committee
May 22, 2014



Hamilton
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Public Works
Corporate Assets and Strategic Planning
Corporate Energy Policy
(Corporate Energy and Energy Commodity Policies)

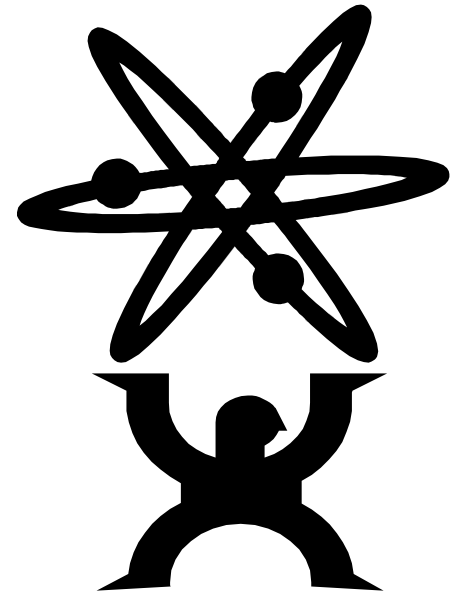
Providing services that bring our City to life !

Agenda:

City of Hamilton Corporate Energy Policy (Corporate Energy and Energy Commodity Policies)

- Community
- People
- Processes
- Finance

- ← Looking back
- Going Forward →



← Looking Back



- Original Corporate Energy Policy (PW07127) created and adopted by Council in 2007
 - Set energy intensity target of 20% reduction by 2020;
 - Creation of Energy Reserve to fund initiatives and staffing costs;
 - Annual Reporting;
 - Calls for review after 5 years.
- Original Energy Commodity Policy (PW08144/FCS08114)
 - Authority to enter into supply arrangements for commodities;
 - Annual reporting.

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← Looking Back



Forecast Savings vs Actual Savings

- Projected savings was to be \$6M with 5 new contract staff by 2015;
- Projected savings and avoided costs overall was to be \$14M - \$16M;
- Actual savings and avoided costs are over \$32M by year end 2013.

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Year by Year								
	2006	2007	2008	2009	2010	2011	2012	2013
Corporate Total Lewy	\$ 562,518	\$ 4,033,235	\$ 3,080,801	\$ 3,183,301	\$ 2,613,056	\$ 4,912,917	\$ 2,817,836	\$ 2,882,263
Corporate Total Rate	\$ 365,710	\$ 1,345,354	\$ 929,947	\$ 808,386	\$ 99,457	\$ 1,191,266	\$ 1,759,356	\$ 2,292,753
Corporate Total	\$ 928,229	\$ 5,378,589	\$ 4,010,747	\$ 3,991,687	\$ 2,712,514	\$ 6,104,183	\$ 4,577,192	\$ 5,175,016
Employee Related Costs	\$ -	\$ 216,070	\$ 376,150	\$ 475,200	\$ 494,360	\$ 728,390	\$ 967,030	\$ 880,570
Employee Cost Recovery-HRPI	\$ -	\$ -	\$ -	\$ (40,487)	\$ (33,738)	\$ (72,800)	\$ (77,650)	\$ (101,700)
Net Savings	\$ 928,229	\$ 5,162,519	\$ 3,634,597	\$ 3,476,000	\$ 2,184,416	\$ 5,302,993	\$ 3,532,512	\$ 4,192,746
Cumulative								
Corporate Total Lewy	\$ 562,518	\$ 4,595,753	\$ 7,676,554	\$ 10,859,855	\$ 13,472,911	\$ 18,385,829	\$ 21,203,665	\$ 24,085,927
Corporate Total Rate	\$ 365,710	\$ 1,711,064	\$ 2,641,011	\$ 3,449,397	\$ 3,548,854	\$ 4,740,120	\$ 6,499,475	\$ 8,792,228
Corporate Total	\$ 928,229	\$ 6,306,818	\$ 10,317,565	\$ 14,309,252	\$ 17,021,765	\$ 23,125,948	\$ 27,703,140	\$ 32,878,156
Employee Related Costs		\$ 216,070	\$ 592,220	\$ 1,067,420	\$ 1,561,780	\$ 2,290,170	\$ 3,257,200	\$ 4,137,770
Employee Cost Recovery-HRPI	\$ -	\$ -	\$ -	\$ (40,487)	\$ (74,225)	\$ (147,025)	\$ (224,675)	\$ (326,375)
Net Savings		\$ 6,090,748	\$ 9,725,345	\$ 13,201,345	\$ 15,385,760	\$ 20,688,753	\$ 24,221,265	\$ 28,414,011

← Looking Back

Annual Savings and Avoided Costs Summary:

- Community
- People
- Processes
- Finance



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	2006	2007	2008	2009	2010	2011	2012	2013	Cumulative
Levy RPP/Interval Change	\$ 176,153	\$ 769,379	\$ 1,165,727	\$ 775,391	\$ -	\$ -	\$ -	\$ -	\$ 2,886,651
Rate RPP/Interval Change	\$ 365,710	\$ 1,067,700	\$ 783,762	\$ 655,992	\$ -	\$ -	\$ -	\$ -	\$ 2,873,163
Levy Global Adjustment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 298,308	\$ 945,464	\$ 1,243,772
Rate Global Adjustment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,061,230	\$ 1,213,631	\$ 1,652,757	\$ 3,927,617
Levy Gas	\$ 351,941	\$ 684,336	\$ 657,476	\$ 719,823	\$ 429,954	\$ 610,946	\$ 587,416	\$ 563,312	\$ 4,605,204
Rate Gas	\$ -	\$ 42,280	\$ 146,185	\$ 152,394	\$ 99,457	\$ 130,036	\$ 119,524	\$ 126,581	\$ 816,457
Energy Conservation Levy	\$ -	\$ 458,703	\$ 751,330	\$ 1,215,974	\$ 1,403,687	\$ 1,248,486	\$ 1,798,887	\$ 1,152,996	\$ 8,030,063
Energy Conservation Rate	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 426,200	\$ 513,415	\$ 939,615
Incentives	\$ 34,424	\$ 364,247	\$ 87,776	\$ 172,940	\$ 440,252	\$ 2,957,967	\$ 94,625	\$ 40,515	\$ 4,192,746
Cash Recovery Levy	\$ -	\$ 1,756,570	\$ 418,492	\$ 299,173	\$ 339,163	\$ 95,518	\$ 38,600	\$ 179,975	\$ 3,127,491
Cash Recovery Rate	\$ -	\$ 235,375	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 235,375
Total(s):	\$ 928,229	\$ 5,378,589	\$ 4,010,747	\$ 3,991,687	\$ 2,712,514	\$ 6,104,183	\$ 4,577,192	\$ 5,175,016	\$ 32,878,156

← Looking Back

Energy Project and Program Success Highlights:

- District Energy (Forecast \$500k incentives, Actual \$650k);
- High Lift Incentives (largest in Ontario \$2.3M);
- Biogas – first ever M13 agreement with Union Gas;
- Rates – GA - \$2.5M electricity cost avoidance in 2013;
- Energy Efficient Lighting:
 - Convention Centre (Forecast/Actual - \$50k/\$90k savings, \$20k/\$40k incentives);
 - Sherwood Library (Forecast/Actual - \$8k/\$10k savings, \$8k/\$10k incentives);
 - Other projects at 14 Arena's, 31 Fire Stations.
- Procurement/ Commodity strategies with natural gas, electricity and fuel;
- Other activity with rates, billing recovery, projects, and technologies.

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← Looking Back

Hamilton Renewable Power Inc.:

- Office of Energy Initiatives (OEI) staff manage day to day operation, maintenance and contract issues;
- Optimize and prioritize cogeneration plants, with direct relationship to Biogas Purification Unit operations at Hamilton Water - 900 Woodward site;
- Also manage cogeneration plants at Glanbrook landfill site;
- \$10M aggregated benefit since 2006.

Annual Benefit from Hamilton Renewable Power Inc.

2006	2007	2008	2009	2010	2011	2012	2013	Total
\$11,257	\$591,719	\$447,373	\$2,000,345	\$2,213,378	\$2,033,743	\$1,708,212	\$1,683,608	\$10,689,635

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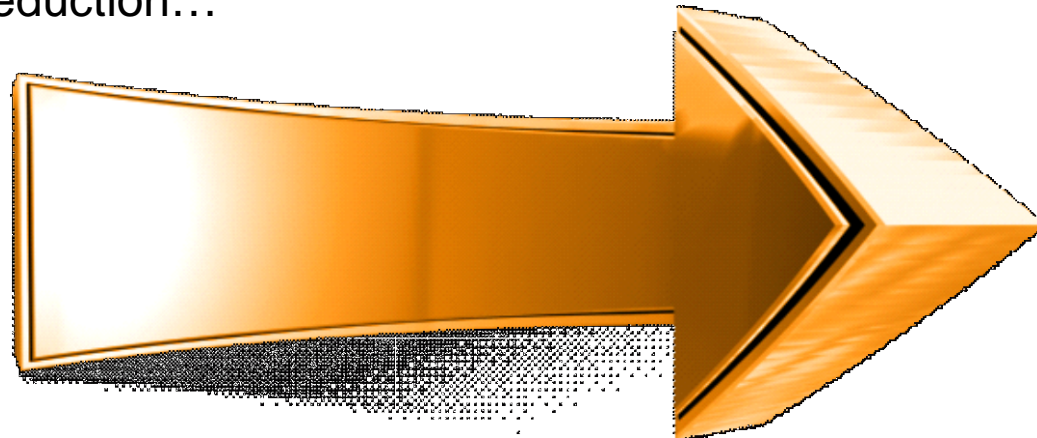


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Going Forward ➡

Good Shape – but more to do:

- ✓ Met Energy Intensity Reduction target of 20% by 2020 in City owned facilities;
- ✓ Met Green Energy Act requirements to date (annual reporting requirements);
- ✓ Met Vision 20/20 target of 20% Greenhouse Gas emission reduction...



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Going forward ➡

Province supports Long Term Energy Plan that calls for Energy Efficiency as a Top Priority:

- Suggests 45% increase in electricity costs over next 4-5 years;
- Equates to \$11M increase (\$25M to \$36M).



Strategy: Adopt New Targets:

Year	Energy Policy Reduction Targets	Emission Reduction and Offset Target
2020	Initial 20% (using 2005 as base year)	20%
2030	45%	50%
2050	60%	80%*

- Achieving the new 2030 targets alone are anticipated to deliver an additional \$50 million in energy savings and avoided costs;
- Achieving these targets will be accomplished through conservation, renewable energy and purchase of carbon off-sets.

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Going forward ➡

Hamilton Water:

- City's single largest energy user (34% energy use);
- Developing Energy Plan for Hamilton Water (underway);
- Establish metrics that measures energy intensity going forward (kilowatt-hour per mega-litre, per day);
 - *"If you don't measure it you can't manage it";*



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Going forward ➡

Fuel Consumption:

- 2nd largest energy related budget item (electricity largest);
- ~\$15M in 2013;
- 42,400 tonnes GHG CO₂e (40% of Corp. GHG)
- Establish metrics to drive improvements:
 - Existing CAFE (Corporate Average Fuel Economy):
 - Diesel - 54L per 100km;
 - Gasoline – 21L per 100km;
 - Target 20% improvement of CAFE by 2030.
- Also focus on:
 - Fit for purpose fleet vehicles (HP, sizing and amount of vehicles);
 - Other Policies to be leveraged include:
 - Fleet Policy (operator training, more efficient vehicles);
 - Anti-idling By-Law.
- Single biggest opportunity is CNG with Transit.



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Going forward ➡

Corporate Energy Policy Actions Summary:

- Corporate Energy Steering Committee;
- Base Building Standards;
- Project Approval Processes;
- Incentive/Funding Programs, Life Cycle Analysis;
- Sustainable Building Policy;
- Greenhouse Gas Emission (GHG) Emissions, Reporting And Protocol;
- Fleet & Transit Fuel Consumption;
- Energy Reserve;
- Energy Efficient Lighting;
- Building Automation Systems;
- Energy Efficient Equipment;
- Generation, Cogeneration, District Energy and Renewable Energy;
- Emergency Generators and Back-Up Power Systems;
- Monitoring And Verification;
- Building Labelling;
- Energy Procurement.

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Going forward ➡

Energy Commodity Policy:

- Merged into one single Corporate Energy Policy since
 - Continues to be managed by OEI;
 - Reporting and responsibilities all remain unchanged;
 - Continues to report to AF&A.

Emerging Opportunities:

- Hamilton Water (Woodward Waste Water project);
- CNG for Transit, other possible vehicle classes;
- Combined Heat and Power (Macassa Lodge);
- BAS (optimizing and updating systems);
- Arena chiller plant optimization;
- LED Lighting (Street lighting, most lighting applications);

