INFORMATION REPORT

TO:	Chair and Members Audit, Finance and Administration Committee
COMMITTEE DATE:	June 8, 2015
SUBJECT/REPORT NO:	2014 Annual Energy Report on Commodity Price Hedging (FCS15027) (PW15040)(City Wide)
WARD(S) AFFECTED:	City Wide
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Council Direction:

The City's Corporate Energy Policy stipulates the General Manager of Finance and Corporate Services, reports to Council at least once each fiscal year with respect to any and all Energy Commodity price hedging agreements and other Energy Commodity agreements. The City of Hamilton approved the revised Corporate Energy Policy (PW14050) in May 2014, which now includes as section 10, the Energy Commodity Policy originally approved in December, 2008.

Information:

The City of Hamilton's 2014 Annual Energy Report on Commodity Price Hedging deals exclusively with the City's energy commodity price hedging agreements and utility rate transactions for natural gas, electricity and fuel to manage these costs efficiently.

As defined in the Corporate Energy Policy, "Energy Commodities" means electricity, green power, natural gas, methane and all other petroleum based fuel products such as: diesel, bio-diesel, gasoline, fuel oil, propane and any other bulk commodity primarily used by the City for the purpose of heating and cooling of buildings and other structures, electricity generation, cogeneration demand response programs, smart grid programs and the fuelling of City fleets, as determined by the Manager of Energy Initiatives. The Corporate Energy Policy also expressly contemplates that "green power" includes the selling of environmental attributes.

Policy Statement

The City will procure the necessary quality and quantity of Energy Commodities in an efficient, timely and cost-effective manner, while maintaining the controls necessary for a public institution in accordance with this Corporate Energy Policy. The City will encourage the negotiation of fair Master Agreements, and agreements with Contract Agents, with respect to the purchase, sale, delivery and storage of Energy Commodities. The City will strive to ensure that the best value is obtained and that the financial stability of Energy Commodity suppliers meets high thresholds to ensure sustainability and reliability of supply.

The City will consider commodity price hedging agreements as a means of fixing, directly or indirectly, or enabling the City to fix the price or range of prices to be paid by the City for the future delivery of some or all of a specific Energy Commodity, or the future cost to the municipality of an equivalent quantity of the Energy Commodity, where it is advantageous for the City to do so.

The City will also consider opportunities for entering into agreements with utilities and other transportation and delivery supplier contracts (i.e., pipeline supply) to secure commodity supply and utility rates of specific Energy Commodities.

Energy Commodity and Rate Savings

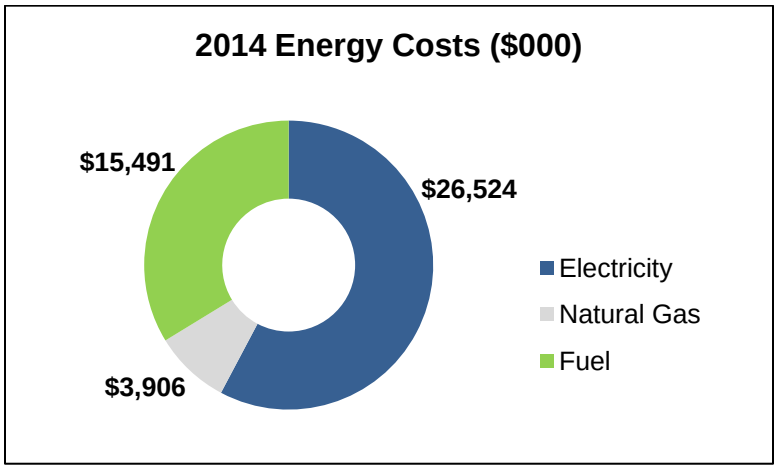
The energy commodity and utility avoided costs for the 2014 calendar year and the accumulated total from June 2006 to year end 2014 is outlined in Table 1:

	2014	Accumulated Avoided Costs to Date
Electricity	$ 2,348,577	$ 13,279,781
Natural Gas	$ 357,200	$ 5,778,861
Fuel*	$ -	$ 277,289
Total	$ 2,705,777	$ 19,335,931

* Fuel includes diesel and gasoline for the City's fleet.

The City reported its total actual energy costs in the 2014 Annual Energy Report (PW15020) as $45,921,000, (excluding water) with the breakdown below in Table 2:

Table 2

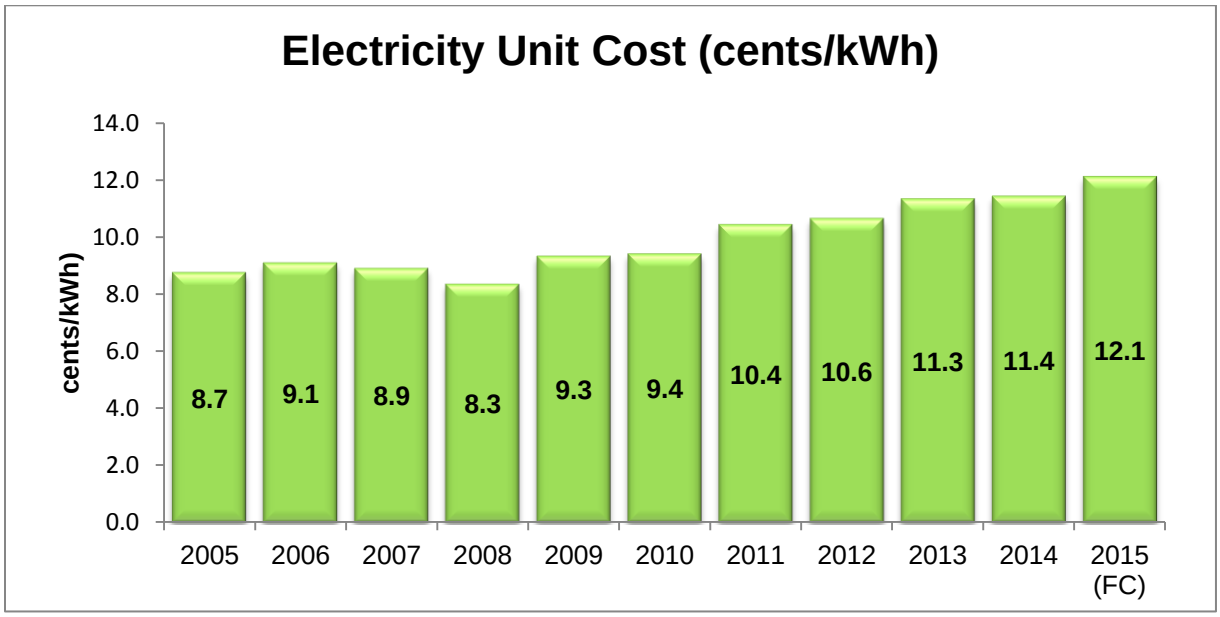


*Fuel excludes GO Transit, DARTS and Police.

Electricity

The average total price for electricity per kilowatt-hour (kWh) increased from 11.3 cents/kWh in 2013 to 11.4 cents/kWh in 2014. Projections for 2015 are an increase of 6% in electricity cost over 2014. The overall total cost for electricity, year over year, from 2005 to 2015 (forecast) is outlined in Table 3:

Table 3



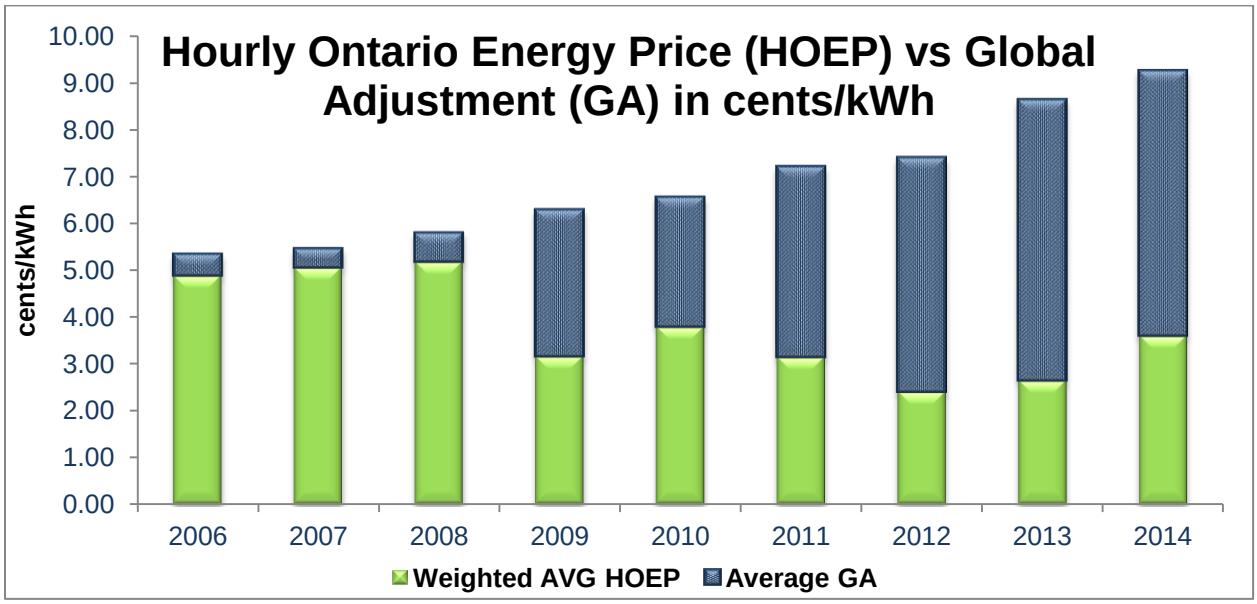
The City's overall expenditure for 2014 electricity including the commodity costs (Hourly Ontario Electricity Price (HOEP) + Global Adjustment (GA)), and regulated charges for transmission, delivery and debt retirement increased by $955,600 ($544,692 Rate and

$410,908 Levy) or 4% from 2013 costs as reported in the 2014 Annual Energy Report (PW15020). There was an increase of 3% in electrical consumption over 2013 numbers.

While it is possible to hedge the commodity portion of electricity, the only portion that can be hedged is the Hourly Ontario Energy Price (HOEP). Over recent years the HOEP portion of the overall electricity cost has been declining, while the GA portion has increased significantly. Given the market conditions in 2014, staff did not recommend hedging for electricity.

The annual average spot price or Hourly Ontario Energy Price (HOEP) was 3.6 cents/kWh in 2014, which was a 36% increase over 2013. It is; however, important to consider electricity prices as a whole and while the HOEP increased in 2014, the overall price was offset by a decrease in the Global Adjustment (GA) charges. The GA in 2014 was 5.64 cents/kWh, which was a 6% decrease over 2013. The overall price; therefore, amounted to a 7% increase in 2014 when compared to those in 2013. The portion of the HOEP in relation to GA is shown in Table 4:

Table 4



Global Adjustment

The Global Adjustment (GA) is a market mechanism to account for differences between the market price and the rates paid to regulated and contracted generators, and for conservation and demand management programs. Some of the GA costs arise from contracts that Ontario Power Authority (OPA) has with generators, many of which are fixed price or guaranteed revenue agreements. There is no market mechanism to hedge against the GA rate.

When spot prices (HOEP) are lower, the generator does not earn enough revenue from power sales to meet its revenue guarantees. In that case, the OPA pays the generator to make up this difference, and the costs are recovered from consumers through the GA. Therefore, in a month when the market price of electricity is low, the GA will be higher and conversely when market prices are high, the GA will be lower.

In 2011 and 2012, changes to the GA criteria provided some City facilities the opportunity to reduce costs by designating themselves as Class A customers. These sites at 900 Woodward Avenue (Hamilton Water), the Municipal Recycling Facility, First Ontario Centre, Central Utilities Plant (CUP), and the Hamilton Water pump station at Greenhill Avenue converted their rate to Class A. The rate class change continued to be beneficial in 2014, with an avoided cost of $2.4 million in GA charges alone. As previously mentioned, as the spot price for electricity increases, we would expect to see the Class A rate benefit decrease.

Natural Gas

In an effort to maintain control of costs and minimize the degree of price volatility, the City decided to purchase its natural gas directly from the market beginning in June 2006. The City established a strategy to procure natural gas more effectively than either purchasing from the utility (system gas) or purchasing as part of the Association of Municipalities of Ontario – Local Authority Service (AMO/LAS) program. Since that time, the City has purchased its natural gas commodity from wholesale suppliers, which offer a variety of hedging products.

The price of gas purchased under contracts in 2014 averaged 17 cents per cubic metre (m^3). Typically, the City purchases approximately 70 to 80% of its natural gas supply requirements on a forward basis when market conditions are deemed favourable. A portion of natural gas supply is purchased as much as 2 years in advance to protect against market volatility while other portions are purchased just a month or two in advance. Fixing the price on a portion of the City's natural gas volumes has allowed for better budget predictability and protection against high priced spot market fluctuations. Overall the procurement strategy is dynamic as Staff, in conjunction with industry experts and the retained consultancy firm make purchasing decisions based on market conditions and the City's natural gas requirements.

The ability to buy for forward terms allows the City to partially control natural gas prices for current and upcoming years. The 2015 price for natural gas is forecasted to be 17cents/m^3 and is subject to change as market conditions change. The forecasted budget for 2015 is expected to remain at a zero increase as compared to 2014.

In 2014, the City had master agreements for natural gas supply in place with Shell Energy North America (Canada) Inc. and EDF Trading North America, LLC. All current supply counterparties have credit ratings of a level or above that is compliant with the Corporate Energy Policy. As in the past, in order to strengthen our purchasing position

the City will be reviewing additional supplier agreements in an on-going effort to diversify City purchasing options.

Natural Gas – Transportation, Storage and Delivery

The City has several contracts in place that are required to facilitate the transportation, delivery and storage of the City's natural gas supply. Those agreements include:

- EDF Trading North America, LLC;
- Shell Energy North America (Canada) Inc. – natural gas;
- TransCanada Pipe Line;
- Alliance Pipeline;
- Vector Pipeline;
- Union Gas (including M13 Biogas).

Direct Purchase Agreements (DPA) with Union Gas

The City has three DPA's in place with Union Gas Limited. These agreements outline the terms of delivery of natural gas, contract volumes and storage within the Union Gas franchise area. The parameters are shown below in gigajoules (GJ) which is the unit in which gas is purchased to meet the requirements. Prices and consumption data on end use Union Gas bills are reported in cubic metres (1 GJ = ~26.4 cubic metres). In 2014 the agreements and parameters were:

- SA9367 for 129 GJ's/day – For Transit's natural gas bus fleet and transit site which run from February 1 to January 31 each year;
- SA9369 for 159 GJ's/day – 33 miscellaneous City natural gas accounts which run from February 1 to January 31 each year;
- SA7020 for 1,083 GJ's/day – 200 miscellaneous City natural gas accounts which runs from November 1 to October 31 each year.

Each DPA has specific delivery requirements, at different points along the variety of pipelines within North America and are reviewed and renewed annually.

Natural Gas Expected and Actual Results

The spot market saw a lot of volatility in 2014, particularly during the first quarter. A winter that was 22% colder (based on heating degree days) meant that demand for

natural gas increased and prices increased with it in the short term. Although the overall 2014 purchases resulted in a slight increase in cost and consumption over 2013, with the City's hedging strategies in place, the City was able to mitigate the exposure to the volatility in the market. In February 2014 the City was required to purchase an additional 29,765 GJs to accommodate for the increased consumption due to heating demand. The forecast for 2015 shows an expected increase in purchases as well due to another long and cold winter.

The annual volumes of natural gas purchased using hedging strategies (long term and short term) and the corresponding unit cost are summarized in Table 5 below. This is for commodity only, and does not include additional utility costs such as delivery and storage.

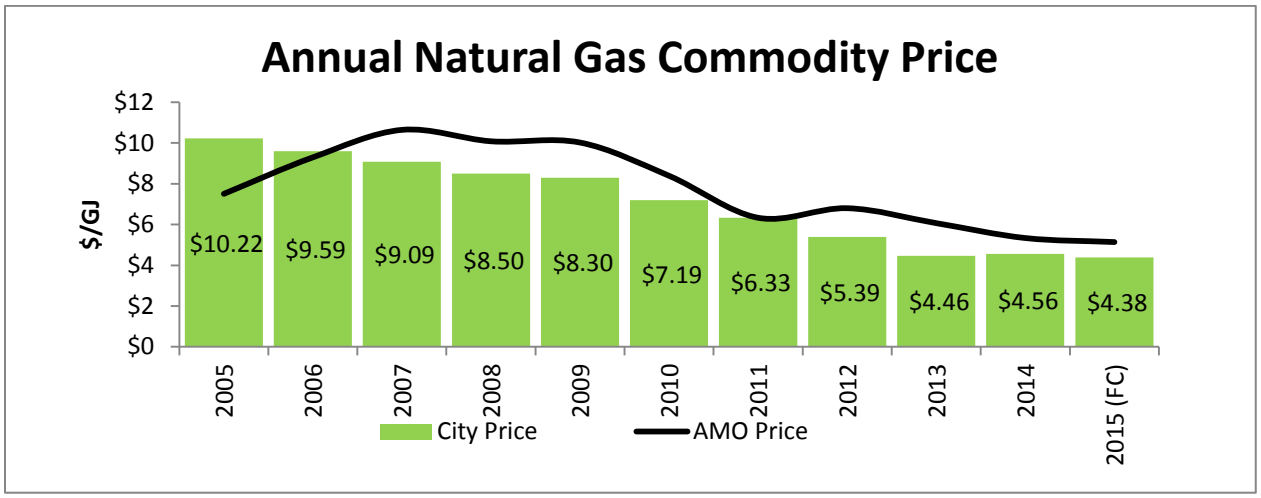
Table 5

Year	Annual GJs Purchased	Total Cost	$/GJ	¢/m3
2005	723,863	$ 7,399,073.15	$ 10.22	39
2006	627,290	$ 6,018,103.96	$ 9.59	36
2007	624,415	$ 5,663,439.28	$ 9.09	35
2008	631,394	$ 5,391,145.27	$ 8.50	32
2009	652,391	$ 5,411,612.93	$ 8.30	32
2010	531,895	$ 3,824,180.09	$ 7.19	27
2011	615,312	$ 3,891,624.99	$ 6.33	24
2012	505,397	$ 2,722,385.29	$ 5.39	20
2013	454,339	$ 2,028,149.73	$ 4.46	17
2014*	516,614	$ 2,333,650.00	$ 4.56	17
2015 (FC)	523,124	$ 2,291,550.48	$ 4.38	17

* 2014 includes February checkpoint purchase of 29,765 GJs

The City monitors the procurement program managed by the Association of Municipalities of Ontario/Local Authority Services (AMO/LAS) Natural Gas Program to compare the results of the City's own natural gas hedging strategies to their price offerings. Since Hamilton's volumes allow for direct purchases with wholesale suppliers we can manage our own program. Smaller municipalities may not have the volume or expertise to manage their own programs; therefore, they benefit from and highly value the AMO/LAS program and its consolidated volumes and centralized purchasing programs in Table 6.

Table 6



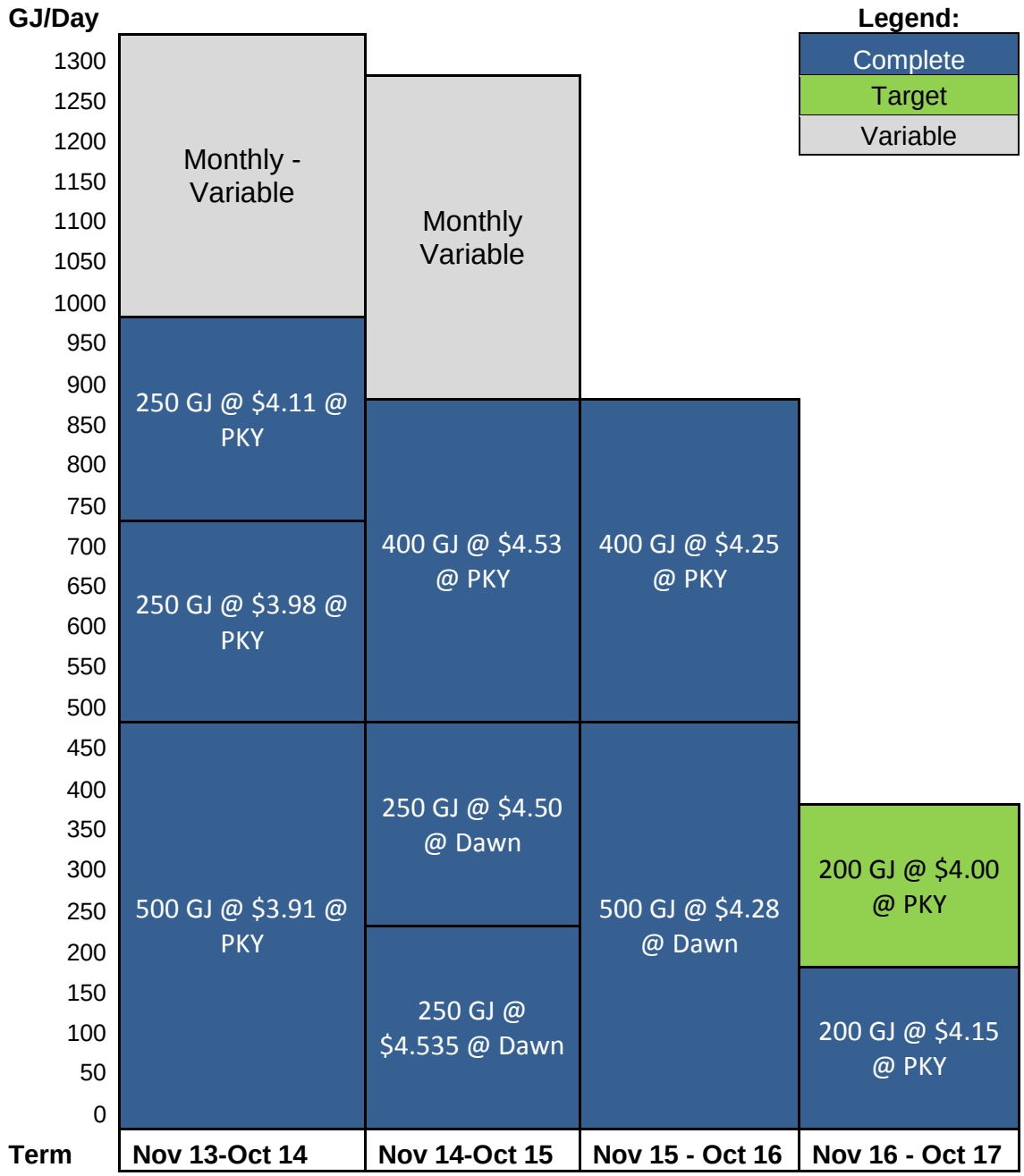
The savings for year 2014 and the accumulated savings for the period of 2006 to 2014 are noted below (see Table 7).

Table 7

Natural Gas Savings*	2014 Savings*	Accumulated Savings*
Levy (Tax) Supported Budget	$ 290,146	$ 4,895,350
Rate Supported Budget	$ 67,054	$ 883,511
Total Savings:	$ 357,200	$ 5,778,861
* Performance relative to AMO/LAS natural gas hedging program		

Based on the current delivery requirements, approximately seventy per cent (70%) of the City's natural gas supply is hedged up until the end of October 2016. Table 8 provides a profile of the completed hedges and outstanding targets. Staff monitor the market, and develop further strategies for purchasing into the 2016-2017 terms to further capture agreeable market opportunities.

Table 8



GJ = gigajoule per day
PKY = Parkway

*Dawn and Parkway are distribution delivery points

Market Update

North American gas markets overall were modestly priced throughout 2014. The markets did continue to experience a lot of volatility in the early part of the year, particularly in the short term. This was largely due to a winter that that started with colder than normal temperatures and increased demand for heating. Storage was drawn down quickly throughout the winter, but with a reduction in key commercial and industrial demand, and an increase in North American production, storage was replenished throughout the summer and autumn. The forward markets in the latter half of 2014 saw a moderate decrease in pricing compared to the start of the year. So far, 2015 markets have been similar in pricing patterns to those in 2014, with higher prices in first quarter, and lowering as the year progresses. Production remains strong which should limit the upside on pricing for forward terms.

The commodity is only one aspect of the City's total gas expenditure. The costs to the end use facility also include Union Gas charges for delivery, storage, transportation and administration costs. The City's overall expenditure for natural gas including the commodity and Union Gas charges, as reported in the 2014 Annual Energy Report (PW15020) increased $486,460 or 14% from 2013 costs. There was an increase in consumption of 17% over 2013 largely due to colder than normal winter in 2014.

Biogas Purification Unit (BPU)

The City has contracted with Union Gas Ltd. for gas produced at Hamilton Water's Biogas Purification Unit (BPU) to purify and subsequently deliver Renewable Natural Gas to Union Gas. The Biogas purification converts methane into pipeline-quality natural gas in accordance with specifications outlined in the M13 agreement between the City and Union Gas. The Renewable Natural Gas produced is used by the City as part of the City wide delivery requirements or is sold at spot market rates. In 2014, the unit produced approximately 20,000 GJs of natural gas, which the City used as part of the Dawn delivery requirements.

Fuel Supply

The City of Hamilton purchases fuel for its fleet of vehicles such as buses, waste collection, snow removal trucks, street sweepers, forestry and parks vehicles, as well as Fire and Emergency Medical Services (EMS) vehicles. In addition, the City purchases for some external groups including GO Transit, Horizon Utilities, DARTS and Hamilton Police Services.

Currently, the City's fuel procurement strategy involves contractual bulk supply agreements with two suppliers: Suncor Energy Products Partnership, and Shell Canada Products, with the total volumes and dollars for 2014 split approximately 45% - 55% respectively. The fuel contracts are reviewed annually, and based on pricing, deliverability and fuel types; the split between suppliers can be adjusted accordingly.
The pricing arrangement with both suppliers is based on the daily "Rack" price of each required fuel type (diesel and gasoline) from a designated source terminal, with negotiated discounts, delivery charges and taxes. Paying daily rack pricing for fuel

assures customers are getting the lowest available price on the market for that day. All current supply counterparties have credit ratings of a level or above that is compliant with the Corporate Energy Policy.

Fuel purchases as reported in the 2014 Annual Energy Report (PW15020) exclude GO Transit, DARTS and Police. City departments used approximately 12 million litres of diesel, a 3% increase over 2013, and approximately 2 million litres of gasoline, an increase of 11% over 2013. Increases in fuel usage can be partially attributed to harsh winter conditions that led to more frequent use of winter control vehicles.

The 2014 budget price for diesel was set at $1.10 per litre and gasoline was set at $1.12 per litre. For 2014, the diesel price came in on budget, whereas gasoline ended slightly above, with overall costs at 15% over budget.

Table 9

2014	Diesel Cost ($)	Diesel Consumption Litres	Gasoline Cost ($)	Gasoline Consumption Litres
Budget	$13,338,220	12,125,654	$1,972,396	1,761,238
Actual	$13,214,851	11,995,827	$2,276,382	2,001,903
Variance	($123,368)	(129,827)	$303,986	240,665
Price Per Litre	$1.10		$1.14	
% of Budget	99%	99%	115%	114%

Market Update

Rack prices for diesel and gasoline were volatile throughout 2014. Prices rose during the second quarter and then showed an overall downward trend in the latter half of the year. Diesel and gasoline rack prices decreased significantly at the end of 2014 and have remained on the low side into the first quarter of 2015. The following graphs (Table 10 and Table 11) illustrate how actual costs have fared over the past number of years as compared to budgeted prices.

Table 10

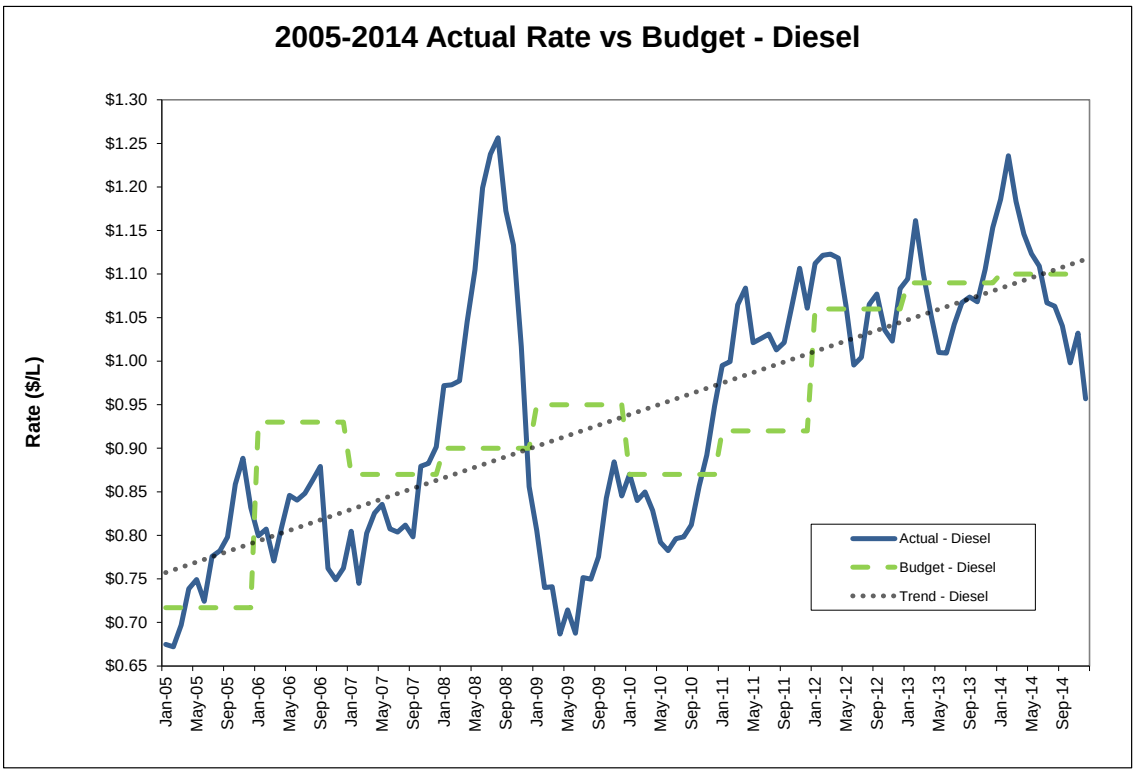
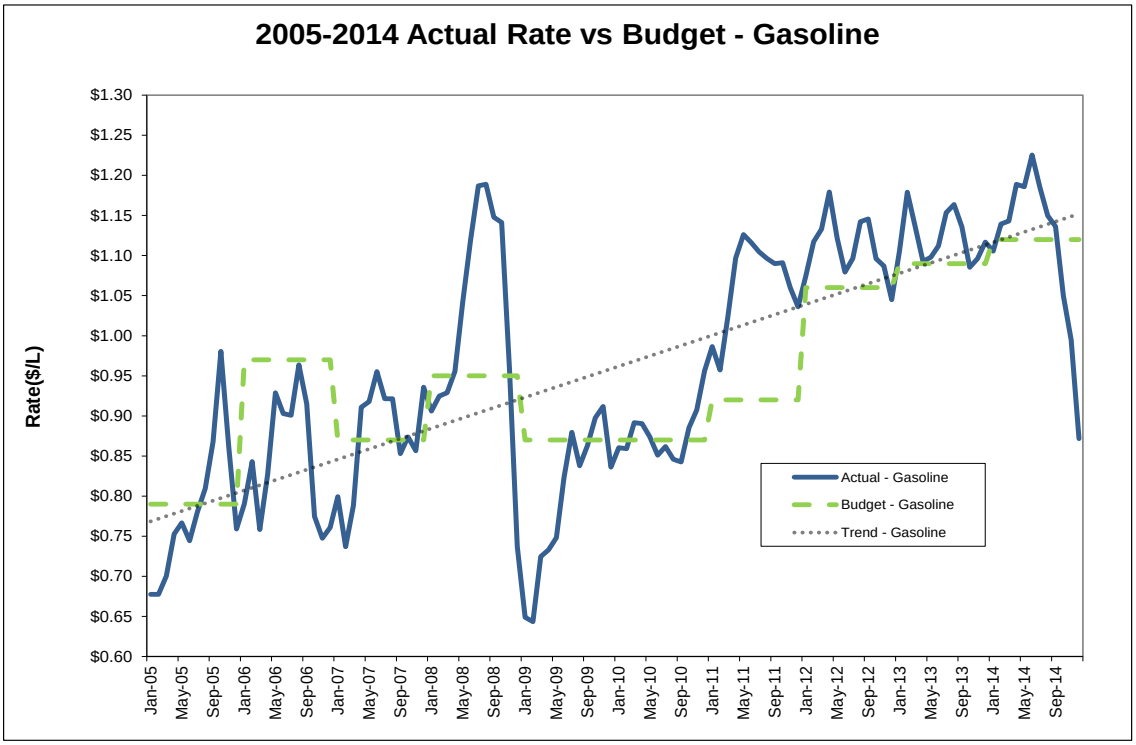


Table 11



Future Risk Management - Fuel

One method to manage volatility is to hedge volumes for a forward term at a set price. Like other commodities, diesel fuel prices have been volatile for many years. Attempts to hedge in the past were not possible as hedge values were higher than budget prices. However in December 2014, the City was able to hedge a portion of the City's diesel volume requirements for the 2015 calendar year by transacting a financial NYMEX Heating Oil Swap at $0.6255 CAD/litre with the Royal Bank of Canada. Other factors that impact the final all in budget price include ongoing spot market volatility (on the volumes not hedged), currency exchange rates, federal taxes and delivery charges. This financial hedge product converts floating prices into fixed prices for a set volume over a set term. The hedge is for price only so volatility will continue to impact budgets in areas like higher usage due to winter control measures. The hedge does enable the City to reduce volatility while protecting against upward swings in price with the hedged volume, and to continue to take advantage of lower market swings with non-hedged volumes.

Commodity Stabilization Fund

In light of the volatile and rising fuel costs a Commodity Stabilization Fund was established in 2011 by Council as a reserve to allow for commodity related budget over-runs. The use of this reserve is expected to occur when no other operating surplus is available to offset over budget commodity expenses. The reserve was established with an initial $1.5 million contribution.

Contract Agents

Managing the annual energy cost of over $45 million requires on-going attention to detail as it relates to the volatile and ever changing regulatory environment, billing and supply contracts. In order to maximize available expertise, the City uses outside consultants (Contract Agents), in order to assist staff in negotiating the unstable and complex energy commodity and associated regulatory markets. The use of these Contract Agents has proven valuable in that they are immersed daily in the energy commodity markets and have specialized expertise with respect to monitoring and responding to market changes. With Council approval, the City has a professional services agreement with Aegent Energy Advisors to assist with the day-to-day management of the City's natural gas portfolio which extends to December 2016.

Additionally, the City reviews several market-based publications and engages with outside parties to further gather information on factors influencing pricing both domestically and globally.

2015 Outlook - Budget

For 2015 budget purposes, the City accounted for a 6% increase in electricity rates, due largely to increases in regulated rates. The budgets for fuel accounted for an 11% decrease ($.99/litre) for diesel fuel and a 13% decrease ($.99/litre) for gasoline. No change was made in overall natural gas budget compared to 2014. The City's hedging

strategies for natural gas and fuel are expected to aid in meeting budget expectations and mitigating volatility in the spot market.

Consistency with City Energy Commodity Hedging Policy and Goals

The agreements entered into during the reporting period are consistent with the City's Commodity Price Hedging Policy and Goals:

- The agreements have provided for a price of natural gas that was more stable and, therefore, less risky than it would have been omitting the agreements;
- The actions taken through the authority of the Energy Commodity Policy have reduced uncertainty about energy costs, which has a direct impact on the City's financial position. It has also enabled staff to respond to favourable market conditions;
- Credit ratings for the City's primary natural gas suppliers remain above the minimum threshold outlined in the policy;
- Commodity hedging provides municipalities with added flexibility to potentially mitigate or manage potential price fluctuations.

Policy Reporting Requirements

The General Manager, Finance and Corporate Services shall report to Council at least once each fiscal year with respect to any and all energy commodity price hedging agreements and other energy commodity agreements, in place. The report shall contain, at a minimum, all requirements as set out in O. Reg. 653/05 (as it exists from time to time) and shall include:

1. A statement about the status of the energy commodity price hedging agreements during the period of the report, including a comparison of the expected and actual results of using the agreements;
2. A statement by the General Manager, Finance & Corporate Services indicating whether, in his opinion, all of the agreements entered, during the period of the report, are consistent with this Energy Commodity Policy relating to the use of financial agreements to address commodity pricing and costs;
3. An overview of any agreements with contract agents (including, without limitation, actual costs, services provided and frequency of use) and a statement by the General Manager, Finance and Corporate Services indicating whether, in his opinion, all of these agreements are consistent with this Energy Commodity Policy with respect to the use of contract agents;
4. An overview of any co-operative energy purchasing initiatives and/or agreements and a statement by the General Manager, Finance and Corporate Services indicating whether, in his opinion, all of these agreements are consistent with this Energy Commodity Policy with respect to the use of co-operative energy purchasing;
5. Such other information as Council may require; and
6. Such other information as the General Manager, Finance and Corporate Services considers appropriate to include in the report.