



CITY OF HAMILTON

CORPORATE SERVICES DEPARTMENT
Financial Planning and Policy Division

and

PUBLIC WORKS DEPARTMENT
Corporate Assets and Strategic Planning Division

TO: Chair and Members Audit, Finance and Administration Committee	WARD(S) AFFECTED: CITY WIDE
COMMITTEE DATE: December 9, 2013	
SUBJECT/REPORT NO: 2012 Annual Energy Report on Commodity Price Hedging (FCS13046(a)/PW13034(a)) (City Wide)	
SUBMITTED BY: Mike Zegarac Acting General Manager, Finance and Corporate Services Gerry Davis, CMA General Manager, Public Works Department	PREPARED BY: John Savoia (905) 546-2424, Extension 7298 Tom Chessman (905) 546-2424, Extension 2494 Tom Tinmouth (905) 546-2424, Extension 2810 Frank Gazzola (905) 546-2424, Extension 7518
SIGNATURE:	

RECOMMENDATION

- (a) That the General Manager, Finance & Corporate Services or approved designate, be authorized and directed to retain Aegent Energy Advisors Inc., for on-going natural gas advisory services on a monthly retainer of \$3,035 for a period of three (3) years with a mutual option to renew for an additional two (2) years, at the same monthly rate, to be funded from the Energy Reserve account (No. 112272);

**SUBJECT: 2012 Annual Energy Report on Commodity Price Hedging
(FCS13046(a)/PW13034(a)) (City Wide) - Page 2 of 11**

- (b) That the General Manager, Finance & Corporate Services or approved designate, be authorized and directed to retain En-Pro International Inc., for on-going petroleum management advisory services on a monthly retainer of \$2,250 for a period of three (3) years with a mutual option to renew for an additional two (2) years, at the same or lower monthly amount, to be funded from the Energy Reserve account (No. 112272);
- (c) That the General Manager, Finance & Corporate Services or approved designate, be authorized and directed to enter into an Energy Management Tool Services Agreement, with the Association of Municipalities of Ontario, Local Authority Services, for a term of five (5) years, with an option to renew for an additional term of two (2) years, at an average annual fee of \$31,680, with the initial year being higher and remaining years slightly lower, in a form satisfactory to the City Solicitor, and to be funded from the Energy Reserve account (No. 112272).

EXECUTIVE SUMMARY

The City of Hamilton's Energy Commodity Policy (PW08144/FCS08114) approved by Council in December 2008 requires the General Manager, Finance and Corporate Services to report to Council at least once each fiscal year, regarding any and all energy commodity price hedging agreements.

This report also recommends that the City enter into contracts with Contract Agents for natural gas, fuel advisory services and for Energy Management Information System (EMIS) services.

The City of Hamilton's, 2012 Annual Energy Report on Commodity Price Hedging in Appendix "A" (attached to Report FCS13046a/PW13034a) deals exclusively with the City's energy commodity hedging agreements and energy/utility rate transactions for natural gas, electricity, fuel and other ancillary services to manage these costs efficiently.

Energy Commodity and Rate Savings

The following table outlines the combined energy commodity and utility rate savings and avoided costs for the 2012 calendar year and the City's accumulated saving results from June 2006 to year end 2012. Levy savings are attributed to the tax bill, while rate savings are attributed to water rate savings.

Combined Energy Commodity and Utility Rate Benchmark Savings

2012 Savings:	\$ 2.22 million (40% Levy, 60% Rate)
Accumulated Savings to Date:	\$ 13.1million (55% Levy, 45% Rate)

Electricity

The City's overall average price for electricity has increased by 9.2% from 9.8 cents/kWh in 2011 to 10.7 cents/kWh in 2012. For 2013, staff projected an electricity price increase of 6.0% over 2012 budget pricing. This is estimated to impact the levy by \$630,000 and the rate by \$750,000. The overall cost for electricity includes the unregulated electricity commodity portion of the bill, known as the Hourly Ontario Energy Price (HOEP) and the Ontario Energy Board's regulated charges for the Global Adjustment, transmission and distribution rates.

Recent changes to the Global Adjustment criteria enabled the City to take advantage of a limited opportunity to reduce electricity costs by securing a "Class A" rate for a few of the City's larger electricity accounts. In January 2011, Hamilton Water's facility at 900 Woodward Avenue was the City's first electricity account to be designated under the new "Class A" rate. This was followed in 2012 by "Class A" reclassifications for the Municipal Recycling Facility, Copps Coliseum, Central Utilities Plant and Hamilton Water pump station at 850 Greenhill Avenue. These changes have resulted in a gross cost reduction of \$1.5 million for 2012 alone. Most of the savings were reflected in the rate budget.

Natural Gas

The price per Gigajoule (GJ) of the natural gas commodity purchased in 2012 was at \$5.39/GJ (or 20.3 cents/M3). This translates into a 14.8% year over year decrease or 36% decrease in natural gas commodity pricing since June 2006.

The ability to buy natural gas on a forward basis allows the City to partially control natural gas pricing for current and upcoming years. This also allows for better budget predictability. The current projected commodity price for natural gas for 2013 is estimated at \$4.94/GJ (18.6 cents/m3).

Fuel (Diesel and Gasoline)

The City's fuel procurement strategy involves contractual bulk supply agreements with two different suppliers. The pricing arrangement with both suppliers is based on a discounted daily "rack" price for both gasoline and diesel from a designated source terminal. These contracts also give the City the option to hedge a portion of its fuel supply, should the market price fall below the City's budgeted price per litre. To date pricing has not been favourable for hedging at or below budget.

The overall cost for gasoline and diesel in 2012 increased by 7.0% and 4.6% respectively. These increases were driven by an increase in fuel consumption of 51%, primarily attributed to the addition of 37 diesel buses in transit. The remainder of the increase was due to higher than budgeted pricing per litre.

Use of Contract Agents

The City of Hamilton's annual energy expenditure of approximately \$40 million requires on-going management and monitoring of market conditions with respect to volatile energy markets and an ever-changing regulatory environment. In order to maximize

efficiency and effectively manage the City's energy costs the City utilizes the expertise of outside energy advisors (Contract Agents) to manage its energy and utility portfolio, as per the Energy Commodity Policy.

Value for Money

By definition, value for money measures the cost of goods and services and also takes into account quality, cost, resource use, fitness for purpose, timeliness, and convenience to judge whether or not, together, they constitute good value. Through this definition, achieving value for money is described in terms of economy, efficiency and effectiveness. The definition of the three "E's" is as follows:

- **Economy** - careful use of resources to save expense, time or effort.
- **Efficiency** - delivering the same level of service for less cost, time or effort.
- **Effectiveness** - delivering a better service or getting a better return for the same amount of expense, time or effort.

Using the three "E's" above as a guideline, each recommendation in this report has its merits and does indeed meet this definition of value for money.

In the case of retaining contract agents for natural gas and fuel services, retaining an expert that watches the markets daily and has the expertise in the regulatory and supplier contracting areas warrant the economic or careful use of resources definition above. In terms of efficiency and effectiveness, some municipalities participate in buying groups and pay for these services on a volume based value (higher volumes pay higher fees) that is built into the group price. The recommended method of securing these services for the City is a fixed annual amount not linked to volume. Staff identified other municipalities that pay over \$45,000 per year to up to \$100,000 per year for such contract agent type services. The City's annual costs are below these amounts (\$35,420). The issue of securing quality service is also paramount. Working with a low price service provider could lead to far greater risk on the entire energy portfolio that far exceeds the cost savings of a low priced service provider.

Contract agent services for fuel are priced in a low risk methodology that passes the economic, efficiency and effectiveness value for money criteria. Contract costs will be the lesser of \$27,000 or half of the yet to be identified savings. For example, should the fuel savings be \$20,000, the City would pay only \$10,000 for these services. This arrangement is desirable considering the annual fuel expenditure of over \$15 million.

The Energy Management Information System (EMIS) service meets the three "E's" in the sense that it is the best use of capital resources (none from the levy) and no additional staff resources required. This system was assessed by looking at in-house, off the shelf and external options. The Association of Municipalities of Ontario/Local Authority Services (AMO/LAS) option delivers far better service than can currently be provided for the same time and effort. The new service will meet future Green Energy Act requirements.

Considering the City's annual expenditure for energy exceeds \$40 million in combined energy costs (natural gas, electricity and fuel) and that these contract agent costs will

not impact the levy (paid from the Energy Reserve) these recommendations provide excellent value for the City.

Contract Agent for Natural Gas

Aegent Energy Advisor's has been the City's Contract Agent for natural gas since amalgamation. Aegent Energy Advisor's Inc. (Aegent) provides the City with reliable and professional advisory services with the day-to-day management of the City's natural gas portfolio. The agreement with Aegent is now up for renewal and staff recommends the City continues to use Aegent as its Contract Agent for natural gas.

Contract Agent for Fuel

In a similar fashion to natural gas, the procurement of fuel (diesel and gasoline) for Fleet and Transit involves complex and detailed transaction and accounting processes. The City's annual expenditure for fuel in 2012 exceeded \$14 million. Staff recommends that the City engage the services of En-Pro International Inc. (En-Pro) as the City's first fuel management advisor to assist in on-going monitoring market conditions and tracking and verifying supplier and transportation invoicing. An agreement with En-Pro would include a clause for a reduction in fees to the City if savings are not achieved after the first year. Staff are recommending En-Pro for its contract agent for fuel advisory services.

Contract for Energy Management Information System (EMIS) Services

In order to comply with the legislative requirements outlined as part of the Province of Ontario's *Green Energy Act* (GEA) it is now mandatory for municipalities to implement an Energy Management Program (EMP). As part of the EMP requirement, municipalities are required to provide on-going tracking and annual reporting of energy data and energy savings results. Staff is proposing that the City enter into a service agreement for an Energy Management Information System (EMIS) that incorporate Monitoring and Targeting of energy commodities combined with Measurement and Verification activities at the building level and will be key to the on-going success with the City's future Energy Management Plans.

The main objective of this initiative is to reduce energy and enhance the total energy performance of all City facilities. Monitoring and detailed analysis of the energy consumption in existing facilities will improve energy awareness within various Client groups, and empower them to act upon inefficiencies.

The City's existing software system is difficult to maintain but the biggest issue is retrieving data on a timely basis. The existing system, bought in 2006 has standard reports that "pull" data from the system when requests are made. Also, the existing system requires data to be vetted for quality and imported manually.

The new system allows users web access with authorized login and password. Data can be accessed at any time and in custom reports for buildings or portfolios. This will also mean quicker response time for data requests if client groups can get the data they need on-line. Weather normalization is included with the new EMIS system which will

allow for more accurate analysis of energy initiatives. Applying weather normalization (a feature not currently available with existing software), verifies true energy savings from measures being implemented for future projects. Greenhouse gas emissions calculations are also a built in function of the new system.

In addition to providing the above, the new system will allow the City to comply with regulation 367/11 *Green Energy Act*.

After a thorough review of available options, staff recommends engaging the Association of Municipalities of Ontario /Local Authority Services (AMO/LAS) to provide their Energy Management Tool.

Alternatives for Consideration - See Page 10

FINANCIAL / STAFFING / LEGAL IMPLICATIONS

Financial: Funding for the consulting services and Energy Management Information System are to be provided by the Energy Reserve (No. 112272).

Staffing: N/A

Legal: N/A

HISTORICAL BACKGROUND

The City of Hamilton's Energy Commodity Policy approved by Council in December 2008, requires the General Manager, Finance and Corporate Services to report to Council, at least once each fiscal year, regarding any and all energy commodity price hedging agreements.

In recognition of the unique position of Energy Commodities, energy prices are set by varying market conditions (i.e. supply and demand), fluctuating hourly, daily and seasonally. Supply challenges for these commodities and varying supply and demand have contributed to price volatility and have created pressures creating budgetary uncertainty.

Ontario energy consumers who wish to mitigate price risk may do so by executing some form of commodity price hedging agreements. This Statement of Policies and Goals lays out the strategy framework for the purchase, sale, delivery and storage of Commodities and the consideration of price hedging by the City of Hamilton (City) for all Energy Commodities.

As defined in the Policy, "Energy Commodities" means electricity, Green Power, natural gas, methane and all other petroleum based fuel products, e.g., diesel, bio-diesel, gasoline, fuel oil, lubricants, 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, co-generation and the fuelling of City fleets, as determined by the Manager of Energy Initiatives.

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 Energy Commodity 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. The Corporate Energy Policy was approved by Council in December of 2008 to address the challenges of rising energy costs and to reduce the City's contribution to greenhouse gases.

The Use of Contract Agents

Since the inception of the Office of Energy initiatives, the City has only utilized the services of a Contract Agent for advisory services to assist in procurement and rate management of the City's natural gas supply. Agent Energy Advisors Inc. has serviced the City as its Contract Agent for many years. Since 2006, Agent works with City staff to develop strategies that have resulted in a significant decrease in unit price of natural gas. Fuel's \$14 million annual expenditure warrants retaining a Contract Agent with the opportunity to lower fuel costs.

Energy Management Information System (EMIS)

The Corporate Energy Policy sets objectives and goals for a 20% reduction in energy intensity by 2020 and addresses the need for monitoring and targeting as a means to achieve this target. In 2007 the City invested in an Energy Management Information System (EMIS) called Utility Manager to track and record all City utility billing and account information. This database has provided adequate information to assist in achieving success to date. In order to meet the requirements of the Green Energy Act and to continue to improve information provided to the public, council and client groups, staff is recommending modernizing the City EMIS to the functionality and capabilities needed.

POLICY IMPLICATIONS/LEGISLATED REQUIREMENTS

These recommendations are being put forth in order to assist City staff in meeting the objectives directed by the Corporate Energy Policy and the Energy Commodity Purchasing Policy (PW08144/FCS08114).

Energy related projects and activity directly impact Green House Gas emissions which link these efforts and our successes to the Vision 2020 policy.

The EMIS system will enable the City to better manage its obligations as outlined in regulation 397/11 of the *Green Energy Act*.

RELEVANT CONSULTATION

Corporate Services, Financial Planning & Policy; Information Services

Public Works, Corporate Assets & Strategic Planning

City Manager's Office, Legal Services

Tory's LLP, Partner

ANALYSIS / RATIONALE FOR RECOMMENDATION

Concerning recommendation (a)

Aegent has had a long standing relationship with the City that has assisted in significantly lower natural gas costs. Staff recommends this firm as the best option based on their market intelligence, staff expertise and credibility in the market. To engage Aegent; The nuances of managing the natural gas supply for the City have evolved over time and the addition of the Biogas purification unit adds another layer of complexity. At this juncture engaging another consultant for natural gas would require a lengthy period for the consultant to familiarize themselves with the City's needs and could result in penalty charges if our gas supply systems are not properly managed. Aegent has held their fees steady from 2008 and from time to time has demonstrated their co-operation to provide services when called upon to do so. They have also been involved in new services including the biogas unit and negotiating and managing the M13 contract with Union Gas which calls for daily nominations. Fees for this agreement are recommended to be paid from the Energy Reserve (112272).

Concerning recommendation (b)

To engage En-Pro; the annual expenditure for petroleum fuels is in excess of \$14 million dollars and has been managed with minimal in house staff expertise. It is the opinion of City staff that monitoring market conditions and tracking and verifying supplier pricing will yield savings greater than the fees being charged which results in a net benefit to the City. The firm is proposing to provide services that will reduce the City's fuel costs and is prepared to take a reduction in fees if savings do not materialize. Fees for this agreement are to be paid from the Energy Reserve (112272).

Concerning recommendation (c)

AMO/LAS is a service provider to the municipal sector. City staff reviewed several options for acquiring an Energy Management Information System that included an in house hosting solution and an external hosted solution. It was determined that the externally hosted option would be more cost effective as it did not require additional IS support and IT infrastructure and the start-up time or commissioning would be minimal. Using existing software that is out of date, not supported and has limited capability to meet current regulations is not a recommended option. The upfront cost of a new software system to meet the City's needs is estimated between \$250,000 and \$350,000, while the AMO/LAS system is expected to cost \$31,680. The AMO/LAS program is proven and is currently utilized by a number of municipalities. Using AMO/LAS's services not only enables the City to meet its reporting needs for the Green Energy Act it also adds greater flexibility to see how reporting requirements mandated by the province may evolve over the next few years without making a major financial investment. AMO/LAS provide multiple energy related services to several other municipalities that have already engaged this service.

ALTERNATIVES FOR CONSIDERATION

Concerning recommendation (a)

The alternative would be to seek quotations from other industry contract agents who claim to have similar expertise with natural gas. Staff believes that the cost benefit would be negligible. Past performance of the City's existing contract agent has been excellent. The existing agent is well versed with the City's natural gas portfolio of over 700 natural gas accounts and approximately \$3.9 million in annual spending.

Financial: Fees for their services were unchanged from 2008 till 2013 and have been revised to reflect the extra services provided for daily management the M13 contract associated with the Biogas purification unit at 900 Woodward Avenue. Fees for this agreement are recommended to be paid from the Energy Reserve (112272).

Staffing: n/a

Legal: The agreement to be established will be in a form satisfactory to the City Solicitor. The terms and conditions of this agreement which remain unchanged except for fees will be vetted and reviewed by City legal.

Policy: Agreement to be established in a form that meets the requirements of the City's Energy Commodity Policy.

Pros: Use of local firm that has an understanding of Canadian natural gas markets and several years of service for the City provide continuity with the gas utility company, Union Gas, internal and external accounts, suppliers and the City's accounting system.

Cons: The value of engaging a consultant (retained through a competitive process) could exceed the value of missed opportunity costs associated with bringing a new consultant up to present service levels. There is a performance risk of introducing a new

contract agent for negligible contract savings benefit versus the risk of errors associated with a change over to a new and unproven service provider.

Concerning recommendation (b)

The alternative would be to create a new Request for Information and proceed with a public tender process. The financial benefit secured for this service through a competitive process is limited, if any. Independent expertise in this area is limited. Since there are very few credible players known in this market the desire to go to lowest cost provider may not yield the best results.

Financial: Fees for this agreement are to be paid from the Energy Reserve (112272).

Staffing: n/a

Legal: The agreements will be established in a form that is satisfactory to the City Solicitor.

Policy: Agreement to be established in a form that meets the requirements of the City's Energy Commodity Policy.

Pros: Fees will be reduced if their recommendations do not produce savings, equal to two times their fees. Potential for lower costs from large volume advisor with built in motivation on fee schedule.

Cons: The services provided by the consultant will be a new cost item to the City. Potential for lost opportunity based on savings model proposed by consultant.

Concerning recommendation (c)

The alternative would be for the City to issue a Request for Information and proceed with a public tender process to upgrade and purchase EMIS software.

Financial: Fees for this agreement are to be paid from the Energy reserve (112272).

Staffing: n/a

Legal: The agreement to be established will be in a form that meets the Energy Commodity Policy.

Policy: Agreement to be established in a form that meets the requirements of the City's Energy Commodity Policy.

Pros: Use of the system provided within the Ontario municipal sector has ideal synergies, built in knowledge of municipal challenges and regulations, knowledge of the Ontario energy markets and a competitive price.

Cons: There is no direct control over software updates, version control and data storage with external vendors. This software does not have the enhanced presentment features that are offered by other vendors.

ALIGNMENT TO THE 2012 - 2015 STRATEGIC PLAN

The overall objective of the Office of Energy Initiatives (OEI) is to reduce energy consumption and cost which in turn yields reductions in greenhouse gas emissions. These objectives are in alignment with the Strategic Plan objectives:

Objective 1.6 - Enhance overall sustainability (financial, economic, social and environmental) and;

Objective 2.1 - Implement processes to improve services, leverage technology and validate cost effectiveness and efficiencies across the Corporation.

Reducing energy consumption contributes to the City's economic sustainability by lowering costs and by avoiding higher costs from escalating energy use from uncontrolled use. These reductions in energy use are directly coupled to emission reductions which contribute to the City's environmental sustainability.

APPENDICES / SCHEDULES

Appendix A City of Hamilton - 2012 Annual Energy Report on Commodity Price Hedging



Hamilton

2012 Annual Energy Report on Commodity Price Hedging

Prepared by:

Office of Energy Initiatives

Corporate Assets and Strategic Planning Division

Public Works Department

Introduction

The City of Hamilton's, 2012 Annual Energy Report on Commodity Price Hedging deals exclusively with the City's energy commodity price hedging agreements and energy rate transactions for natural gas, electricity and fuel and with ancillary services to manage these costs efficiently.

As defined in the Energy Commodity Policy, "Energy Commodities" means electricity, Green Power, natural gas, methane and all other petroleum based fuel products, e.g., diesel, bio-diesel, gasoline, fuel oil, lubricants, 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, co-generation and the fuelling of City fleets, as determined by the Manager, Office of Energy Initiatives.

The Energy Commodity Policy also expressly contemplates that "Green Power" includes the selling of environmental attributes as embodied in a certificate.

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 Energy Commodity 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 following Table outlines the combined energy commodity and utility rate savings for the 2012 calendar year and the accumulated total from June 2006 to year end 2012:

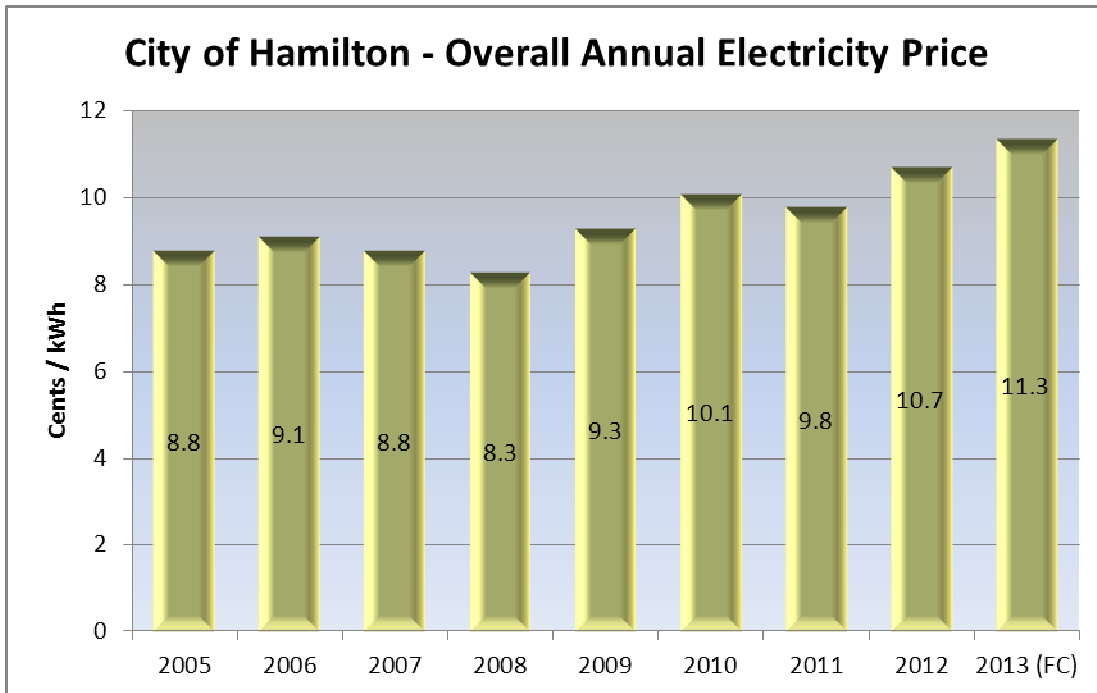
Combined Energy Commodity and Utility Rate Benchmark Savings

2012 Savings:	\$ 2.22 million	(40% Levy, 60% Rate)
Accumulated Savings to Date:	\$ 13.1million	(55% Levy, 45% Rate)

For 2013 budget purposes, utility cost budget guidelines accounted for a 6% increase in electricity rates, 4.6% (\$1.09/litre) for budgeted diesel fuel, 7% (\$1.11/litre) for budgeted unleaded fuel and a decrease of 10% in overall natural gas rates compared to 2012.

Electricity

The average electricity price increased by 9.2% from 9.8 cents/kWh in 2011 to 10.7 cents/kWh in 2012. Projections for 2013 are an increase of 6% in electricity cost over 2012. The graph below outlines the overall cost for electricity year over year from 2005 to 2013 (forecast).



Note: kWh = kilowatt hour

The all in costs for electricity is made up of the commodity portion (or energy) the Global Adjustment, transmission and distribution charges. Recent changes to the Global Adjustment criteria enabled the City to take advantage of a limited opportunity to reduce

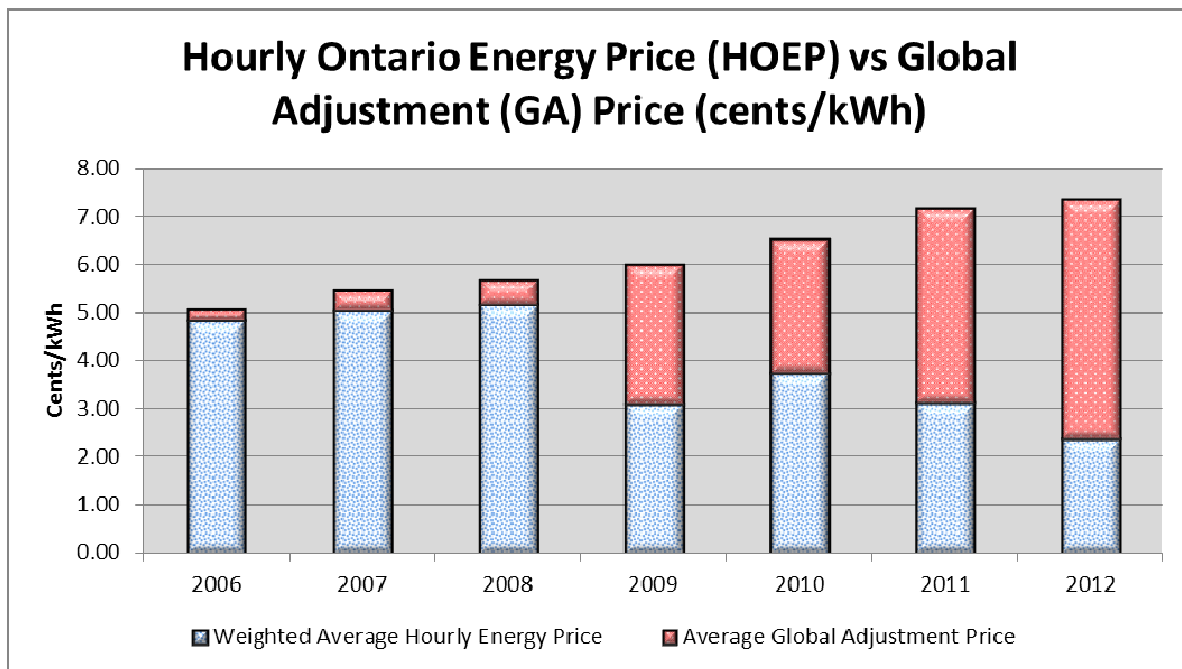
electricity costs by securing a "Class A" rate for a few of the City's larger electricity accounts.

While it is possible to hedge the commodity portion of the overall electricity costs, it does represent a lesser portion of the all in cost and given current and anticipated electricity market conditions; City staff have concluded that hedging is not appropriate at this time.

As Ontario's electricity commodity price is heavily driven by natural gas prices the recent trend has been a decline in these prices as demonstrated in the next graph and it is expected to remain at or near these levels for the foreseeable future. On that basis, there is no hedging in place for electricity and therefore, it is purchased from Horizon Utilities at the default spot market price.

In 2006, the annual average spot price or Hourly Ontario Energy Price (HOEP) was 4.85 cents/kWh, increased moderately to a peak of 5.16 cents/kWh in 2008 and from that time has decreased to 2.38 cents for 2012.

Offsetting this downward trend is the rise in Global Adjustment charges and the graph below illustrates the downward trend in the Hourly Ontario Energy Price in relation to the rising Global Adjustment charges.



Note: kWh = kilowatt hour

Global Adjustment

For 2012 as in recent years, the Global Adjustment (GA) has become the driving force behind the rising price of electricity. The 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 the contracts that Ontario Power Authority (OPA) has with generators, many of which are at fixed prices or guaranteed revenue.

When spot prices are lower, the generator does not earn enough revenue from power sales to meet its revenue guarantees. 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 when market prices are high, the GA will be lower.

Recent changes to the Global Adjustment criteria provided some City facilities the opportunity to reduce costs by designating themselves as Class A customers. In January 1, 2011, the 900 Woodward Avenue Hamilton Water facility was designated as Class A. This was followed in 2012 by Class A reclassifications for the Municipal Recycling Facility, Copps Coliseum, Central Utilities Plant (CUP) and Hamilton Water pump station at 850 Greenhill Avenue. These changes have resulted in a cost reduction of \$1.5 million for 2012 alone.

Natural Gas

Starting in June of 2006, the City made the mindful decision to deal direct with the wholesale supply market and choose third party supply of natural gas in order to maintain control of costs, minimize the degree of price volatility and to procure natural gas more effectively than the proposed AMO/LAS strategy of multi-layer block purchases securing prices beyond a two year term.

The price for a Gigajoule (GJ) of gas (approximately 26.5 cubic meters) purchased under contract in 2012 averaged \$5.39 (or 20.3 cents/M3). This translates into a 14.8% year over year decrease or 36% price decrease since June 2006. Typically, the City purchases approximately 80% of its natural gas supply requirements on a forward basis when market conditions become favourable. Some of the 80% of natural gas supply is purchased as much as 2 years in advance to protect against market volatility while other portions are sometimes purchased just a month in advance. Overall the procurement strategy is somewhat dynamic as Staff makes purchasing decisions based on market conditions and the City's natural gas requirements.

This ability to buy forward allows the City to partially control natural gas prices for current and upcoming years. At this time our price for natural gas for 2013 is expected to be \$4.94/GJ (18.6 cents/m³) and our forecasted price for natural gas for 2014 is \$4.30/GJ.

In 2012, the City had Master Agreements for Natural Gas Supply in place with BP Canada Energy Company and Shell Energy North America (Canada) Inc. 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 contracts include:

- BP Canada Energy Company
- Shell Energy North America (Canada) Inc. – natural gas
- TransCanada Pipe Lines
- Alliance Pipeline
- Vector Pipeline
- Union Gas (including M13 Biogas)
- Trunkline Pipeline
- Panhandle Pipelines

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 Union Gas' franchise area. The agreements are:

- SA9367 for 170 GJ's/day – For Transit's natural gas bus fleet which runs from February 1 to January 31 each year
- SA9369 for 49 GJ's/day – 15 City natural gas accounts which runs from February 1 to January 31 each year
- SA7020 for 1148 GJ's/day – 203 City natural gas accounts which runs from November 1 to October 31 each year

Each DPA has specific delivery requirements, at different points along a variety of pipelines within North America.

Natural Gas Expected and Actual Results

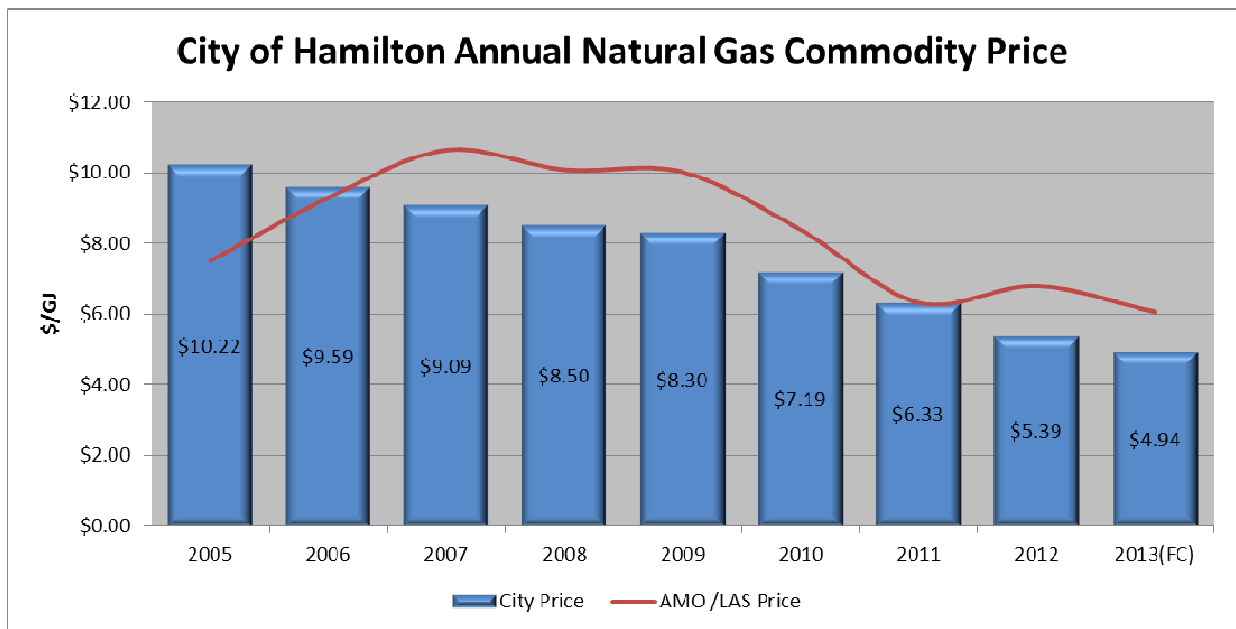
The actions to procure natural gas throughout 2012 resulted in continued downward pricing as market conditions moved in a favourable direction and the demand for natural gas also decreased. The City's overall expenditure for natural gas decreased by \$847,000 or 18% and consumption decreased by 1,064,000 cubic meters or 8%.

Reductions in natural gas usage have been primarily achieved through conservation efforts, the relatively mild winters in 2011 and 2012, and a reduction in the number of

natural gas fuelled buses. The table below summarizes the annual contracted volume of natural gas purchased and the corresponding unit cost.

Year	Annual GJs	Total Cost	\$/GJ
2005	723,863	\$7,399,073	\$10.22
2006	627,290	\$6,018,104	\$ 9.59
2007	624,415	\$5,663,439	\$ 9.09
2008	631,394	\$5,391,145	\$ 8.50
2009	652,391	\$5,411,613	\$ 8.30
2010	531,895	\$3,824,180	\$ 7.19
2011	615,312	\$3,891,625	\$ 6.33
2012	505,397	\$2,722,385	\$ 5.39
2013 (Forecast)	497,957	\$2,459,907	\$4.94

The following chart illustrates the City's natural gas price, per unit, from 2005 to 2012 with a forecasted price for 2013. Seventy five per cent (75%) of the City's 2013 natural gas supply up until the end of October 2013 has been hedged. For the upcoming gas year (2014) roughly forty per cent (40%) of the requirements are hedged at a price of \$3.91/GJ.



Note: GJ = gigajoule = 26.5 cubic meters

North American gas markets continued to be moderately priced throughout 2012 and thus far into 2013 as weather demands for heating were not extreme, production and storage levels are above normal and there has been a slight increase in the economic recovery.

These factors all point to a price for natural gas that will remain at or close to current levels for the short term and with no major upsets on the horizon, prices are expected to remain at or near these levels for the next 2 – 3 years.

The City monitors the procurement program managed by the Association of Municipalities of Ontario / Local Authority Services (AMO/LAS) Natural Gas Program for Municipalities to compare the results of the City's own natural gas hedging strategies to those price offerings. The table below notes the savings for year 2012 alone and the accumulated savings for the period of 2006 to 2012.

Natural Gas Savings*	2012 Savings*	Accumulated Savings*
Levy (Tax) Supported Budget	\$ 430,736	\$ 4,041,892
Rate Supported Budget	\$ 89,840	\$ 689,876
Total Savings:	\$ 520,576	\$ 4,731,768
* Performance relative to AMO/LAS natural gas hedging program		

Biogas - Green Natural Gas

The City has contracted with Union Gas Ltd. for gas produced at Hamilton Water's Woodward Facility which is purified and subsequently delivered to Union Gas as biomethane. The quality and volume of gas delivered to Union Gas is carried out in accordance with specifications outlined in the M13 agreement between the City and Union Gas. In 2012, the Ontario Energy Board (OEB) denied Union Gas and Enbridge's application for a renewable natural gas premium rate which would have provided higher revenues to the City consequently the green natural gas produced is sold at spot market rates. For 2012 the Biogas Purification Unit generated approximately \$50,000 of incremental revenue to the City.

Incremental revenue may be generated in 2013 from the sale of the environmental attributes or the Green Natural Gas Certificates associated with the production of the green natural gas. The revenue would be directly proportional to the amount of biomethane produced. Staff estimate the annual volume of biomethane to be between 19,000 Giga-Joules (GJ) and 50,000 GJ per year which could yield corresponding new revenue in the range of \$28,800 to \$80,000 annually.

Fuel Supply

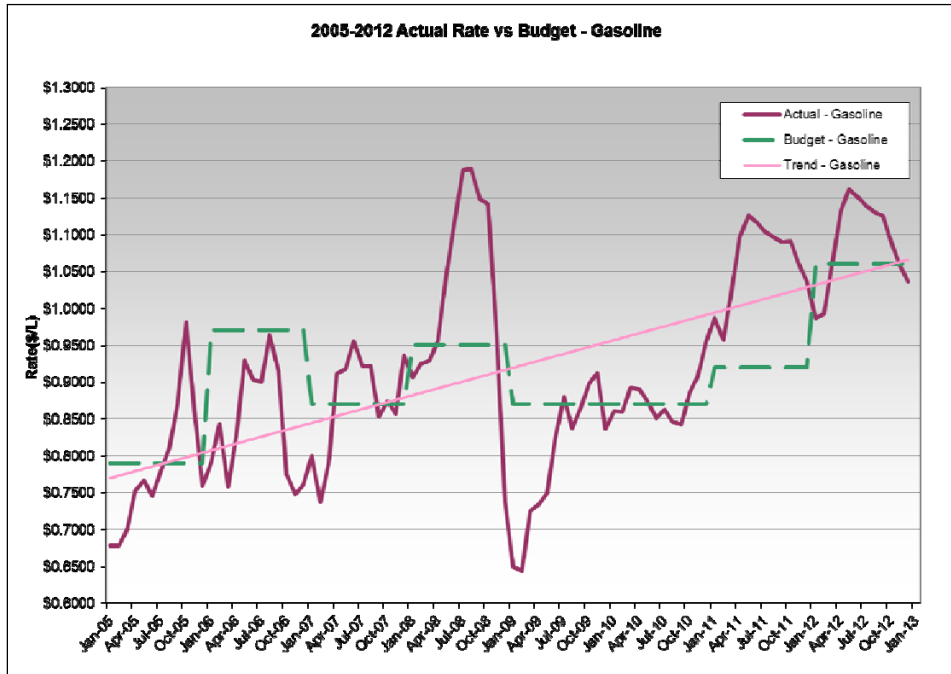
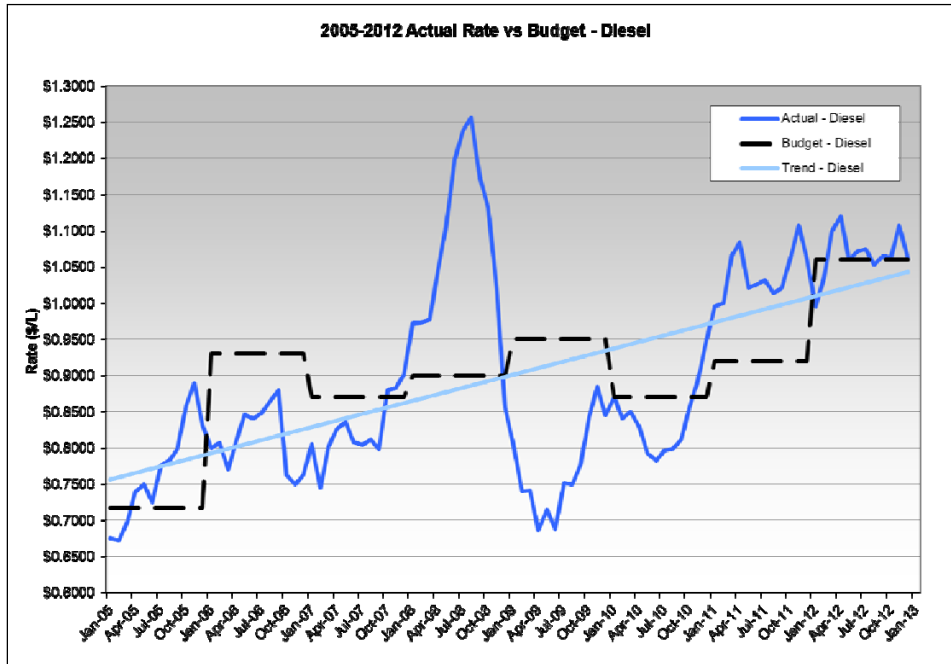
The fuel purchased by the City is used by all internal departments that utilize City owned/leased fleet vehicles, as well as some external groups including GO Transit, Horizon Utilities, DARTS and Hamilton Police Services.

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 2012 split approximately 41% - 59% respectively. The pricing arrangement with both suppliers is based on the daily "Rack" price of each required fuel type (gasoline and diesel) 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. The 2012 fuel budget was set at \$1.06 per litre.

Overall costs for gasoline and diesel rose by 7% and 4.6% respectively from 2011 to 2012, with an increase in fuel prices accounting for 51% of that increase and increased volume making up the remaining increase.

Average rates for 2012 did not rise as high as the previous year's trend would suggest, allowing fuel costs to rise slightly above budgeted rates. The unusually warm winter of 2012 resulted in a reduction in fuel required for winter operations. Also, in August, diesel volume increased because Transit replaced 37 natural gas buses with diesel powered buses. The following graphs illustrate how actual costs have risen over the past number of years as compared to budgeted prices.



Fuel Reserve Fund - "Commodity Stabilization Fund"

In light of the volatile and rising fuel costs a Commodity Stabilization Fund was established in 2011 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. Although 2012 fuel costs were \$283,000 above budget,

surplus from other budget areas compensated the increased cost without the need to utilize the Commodity Stabilization Fund.

Future Risk Management - Fuel

One method to manage volatility is to hedge volumes for a forward term. The City continues to look at many available options for cost and risk mitigation. There are various hedging options, from Fixed Price contracts, to ceiling/floor-based Collar products. As daily rack pricing continues to rise, so too do forward fixed price indications. At the time that this report was written, a premium of 10-25 cents per litre for fixed price contracts would be paid for the next 6-12 months. Supply contracts have been finalized with suppliers where hedging strategies can be executed if required. The higher prices for forward term contracts have prevented the City to hedge at or below its annual budget values.

Contract Agents

Managing the annual energy cost of \$40 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 executed a Professional Services Agreement with Aegent Energy Advisor's to assist with the day-to-day management of the City's natural gas portfolio which extends to December 2013.

In a similar fashion, the procurement of fuel (diesel and unleaded gas) for Fleet and Transit involves a complex and detailed process. With an annual spend in excess of \$14 million, Staff are evaluating the services of outside consultants to assist in monitoring market conditions and to track and verify supplier pricing.

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 & 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 & 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 such other information as the General Manager, Finance and Corporate Services considers appropriate to include in the report.