TO:	**CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON AUGUST 22, 2016**
FROM:	**JOHN BRAAM, P.ENG. MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES & CITY ENGINEERING & MARTIN HAYWARD MANAGING DIRECTOR, CORPORATE SERVICES & CITY TREASURER, CHIEF FINANCIAL OFFICER**
SUBJECT:	**CORPORATE ENERGY MANAGEMENT PROGRAM UPDATE**

RECOMMENDATION

That on the recommendation of the Managing Director, Environment & Engineering Services & City Engineer and Managing Director, Corporate Services & City Treasurer, Chief Financial Officer, the Corporate Energy Management Program Update report **BE RECEIVED** for information.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

Relevant reports that can be found at www.london.ca under City Hall (Meetings) include:

- Updates: Corporate Energy Management Program and Conservation and Demand Management (CDM) Plan (July 21, 2014 meeting of the Civic Works Committee - CWC, Agenda Item #17)
- Community Energy Action Plan – Update and Status (June 8, 2016 of the CWC, Agenda Item #11)

STRATEGIC PLAN 2015-2019

Municipal Council has recognized the importance of managing energy costs, energy conservation, and climate change and other related environmental issues in its 2015-2019 - Strategic Plan for the City of London (2015 – 2019 Strategic Plan). Providing corporate energy use and associated greenhouse gas emissions data supports three of the four Areas of Focus as follows:

Building a Sustainable City
- Strong and healthy environment
- Robust infrastructure
- Responsible growth

Growing our Economy
- Strategic, collaborative partnerships
- Local, regional and global innovation

Leading in Public Service
- Collaborative, engaged leadership
- Proactive financial management
- Excellent service delivery

BACKGROUND

PURPOSE

The purpose of this report is to provide the Civic Works Committee (CWC) and Council with an overview of the updated *2015 Corporate Energy Consumption Report* and the *2013-2015 Corporate Energy Management Activities* report.

These reports (found on the Corporate Energy Management Program page on the City of London website www.london.ca) are key deliverables of the City of London's Corporate Energy Conservation and Demand Management (CDM) Plan and the Corporate Energy Management Program.

CONTEXT:

In August 2011, the provincial government introduced Ontario Regulation 397/11 under the *Green Energy Act*, which requires municipalities, municipal service boards, schools boards, universities, colleges and hospitals to report on facility energy consumption and associated greenhouse gas (GHG) emissions annually beginning in 2013. The scope of this mandatory report was limited to those facilities that:

- are heated or cooled and in respect of which the public agency is issued the invoices and is responsible for making the payments for the energy consumptions; or

- are related to the treatment or pumping of water or sewage and in respect of which the public agency is issued the invoices and is responsible for making the payments for the energy consumptions.

London's Corporate Energy Conservation and Demand Management (CDM) Plan was approved by Council in July 2014. The scope of the CDM Plan covers all forms of energy used in activities undertaken by the Corporation of the City of London. The CDM Plan established a goal to reduce total corporate energy use by ten percent from 2014 levels by 2020.

The Ontario Regulation 397/11 reporting requirement does not include significant corporate energy users such as streetlighting and corporate fleet fuel use, nor other needs such as sports field lighting. These energy needs and impacts are included within the scope of the *2015 Corporate Energy Consumption Report* as it is imperative that all energy uses and impacts within the City's control are continuously examined for reductions, containment and opportunities.

Energy Management activities and reporting of City of London's agencies, boards and commissions is handled by the individual organizations. City staff provides assistance when requested.

DISCUSSION:

This report contains details in two key sections highlighted below and separate reports found on the City's website:

- Part A - 2015 Corporate Energy Consumption Report – an update on the City's energy consumption and cost with emphasis placed in the period 2007 until 2015. Previous pertinent reports are available on the Corporate Energy Management website.

- Part B - 2013-2015 Energy Management Activities – an update on the program with emphasis on energy reduction initiatives undertaken by the City between 2013 and 2015.

These reports assist in tracking City of London's performance to CDM Plan goal.

Why is this Important and How Will Londoners Benefit?

Providing corporate energy use and associated greenhouse gas emissions data helps to inform City staff and Londoners on what progress is being made to manage rising energy prices and deliver services more efficiently. The City spent about $19 million on energy in 2015, which represents about two percent of the operating budget. On a per-person basis, the City spent $50 on energy to deliver services to Londoners in 2015.

It is also important for the City to lead by example in corporate energy management in order to promote sustainable energy practices that reduce greenhouse gas-emitting activities that we do have direct control over.

What is the Connection with Other City of London Programs?

The corporate energy use and greenhouse gas inventory data is connected to many City of London programs and initiatives, such as the London Plan, London's Community Energy Action Plan (CEAP), and the London Energy Connections Program.

How is the Data Acquired and Information Reported?

Corporate utility data – electricity, natural gas, steam, and chilled water – is maintained in-house by Facilities staff using the Energy Cap utility bill management system software. Corporate fleet fuel data – diesel and gasoline – is maintained in-house by Fleet Services staff. Environmental Programs staff compile the data, prepare the greenhouse gas (GHG) analysis and prepare the corporate reports on behalf of a number of City services.

Part A - 2015 Corporate Energy Consumption Report

The *2015 Corporate Energy Consumption Report* can be found on the City of London website (www.london.ca). The total energy consumption in 2015 is compared with two reporting periods, 2007 and 2014. The tracking and monitoring of utility data for City was made possible in 2007 through EnergyCap software and is hence used here for comparison. 2014 is the baseline year for CDM Plan and is being tracked. Highlights include:

- **Total energy use in 2015 was almost five percent lower than it was in 2014 (Figure 1)**, which is nearly half-way towards the CDM Plan goal for a 10 percent reduction from 2014 levels by 2020. Over the longer term, total energy use is now eight percent lower than it was in 2007. It is important to note that year-to-year comparisons can be influenced by weather conditions whereas a longer view smooth out weather spikes that influence energy consumption.

- **Energy use per person was 14 percent lower in 2015 than it was in 2007**. Dividing the corporation's total energy use by London's population provides an indication of improvement in energy efficiency for service delivery:

    - Wastewater treatment energy use per person has decreased by 27 percent
    - Water pumping energy use per person has decreased by 20 percent
    - Building energy use per person has decreased by 12 percent
    - No change for streetlighting nor fleet fuel use

- **Total energy cost in 2015 increased to over $19 million (Figure 2)**, which is solely due to rising electricity prices. Total electricity costs have risen by 63 percent since 2007 (unadjusted for inflation) even though total electricity use actually dropped by two percent over that period. It is important to note that:

    - energy costs would have been $1.6 million higher in 2015 compared to 2007 if the energy efficiencies noted above were not in place, and
    - more than $4.7 million in avoided energy costs have been accumulated since 2007.

- **Energy related greenhouse gas emissions in 2015 were 51 percent lower than 2007 (Figure 3).** The City of London's improvement in energy efficiency accounts for about 25 percent of this reduction. In particular, the new centrifugal sludge dewatering system at the Greenway Pollution Control Centre's sludge incinerator resulted in a significant reduction in natural gas at that facility. The remaining 75 percent of the reduction comes from Ontario's actions to replace coal-fired power plants with cleaner forms of power generation. About 90 percent of Ontario's electricity is now generated from emissions-free sources, such as nuclear, hydro-electric generating stations, wind and solar. In 2015, every 1,000 kilowatt-hours of electricity generated in Ontario produced less than 60 kilograms of carbon dioxide emissions. This is significantly better than it was in 2007, when 1,000 kilowatt-hours of electricity produced around 240 kilograms of carbon dioxide emissions.

Figure 1 – Total Corporate Energy Use Since 2007 by Commodity

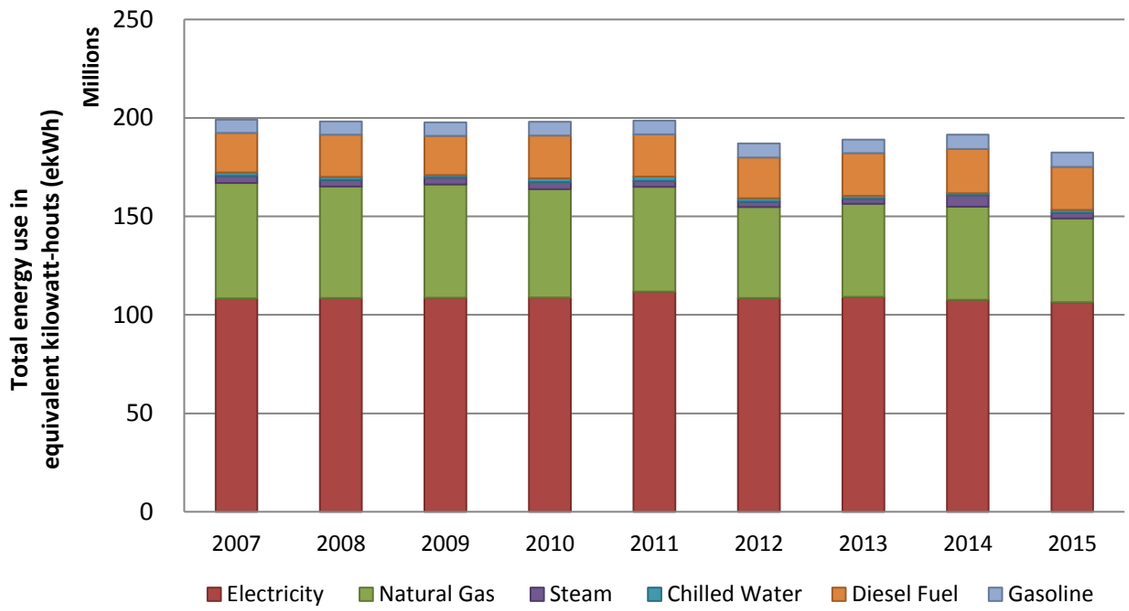


Figure 2 – Trends in Corporate Energy Costs ($ Millions) by Municipal Service Categories

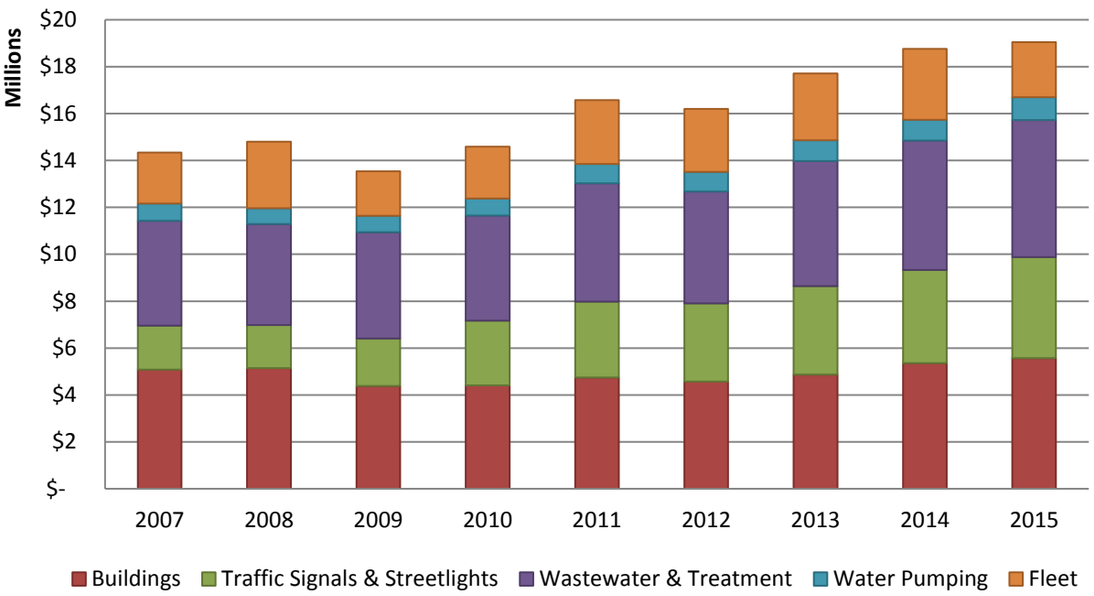
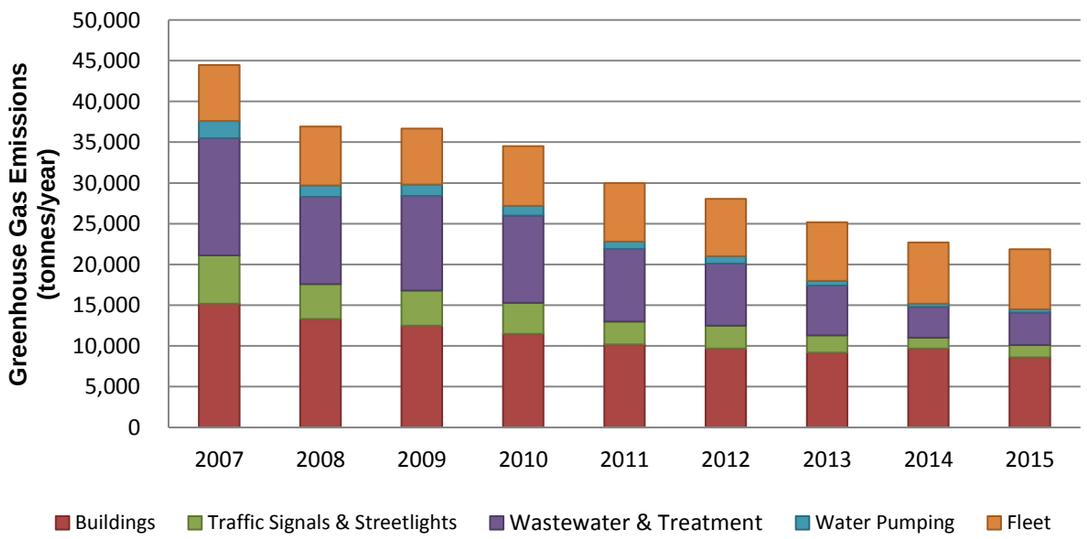


Figure 3 – Trend in Corporate Greenhouse Gas Emissions by Municipal Service Categories



Part B - 2013-2015 Energy Management Activities

The *2013-2015 Energy Management Activities* report can be found on the City of London website (www.london.ca). Highlights of recent activities include:

- **Wastewater treatment** electricity efficiency measures, such as the commissioning of the sludge dewatering system and slurry heat recovery at Greenway, ventilation optimization at Adelaide, the upcoming replacement of existing centrifugal wastewater treatment aeration blowers with energy efficient turbo blowers, and investigation of waste heat utilization for power generation at Greenway;
- **Water supply** pump optimization and replacement;
- **Streetlighting** upgrades to LED lighting on major arterial roadways and other streets with “cobra head” style streetlight infrastructure;
- **Building retrofits**, including larger projects such as the award-winning renovation of the Canada Games Aquatic Centre as well as lighting upgrades in other City facilities;
- **Green fleet** activities, such as the use of biodiesel in garbage collection trucks; and
- **Culture of Conservation** activities, such as the award-winning arena energy conservation challenge initiated by Parks & Recreation (Aquatics, Arenas and Attractions) as well as other conservation pilot projects undertaken for the Corporate Energy Management Program.

SUMMARY:

Good progress is being made towards achieving the CDM Plan’s goal for a ten percent reduction in total corporate energy use by 2020. In particular, actions undertaken and planned by Wastewater Treatment Operation, Water Engineering, Roadway Lighting and Traffic Control and Facilities have made significant contributions towards performance to date.

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Documents found on the City of London website (www.london.ca) are:

2015 Corporate Energy Consumption Report
2013-2015 Energy Management Activities