

TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON AUGUST 13, 2018
FROM:	KELLY SCHERR, P.ENG., MBA, FEC MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES & CITY ENGINEERING & ANNA LISA BARBON, CPA, CGA 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 can be found at www.london.ca under City Hall (Meetings) include:

- Report to the July 31, 2017 Civic Works Committee (CWC) meeting, Corporate Energy Management Program Update (Agenda Item #5)
- Report to the July 21, 2014 CWC meeting, Updates: Corporate Energy Management Program and Conservation and Demand Management (CDM) Plan (Agenda Item #17)

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

Leading in Public Service

- Collaborative, engaged leadership
- Proactive financial management
- Excellent service delivery

Growing our Economy

- Strategic, collaborative partnerships
- Local, regional and global innovation

BACKGROUND

PURPOSE

The purpose of this report is to provide the Civic Works Committee (CWC) and Council with an overview of the updated 2017 Corporate Energy Consumption and Activities Report.

The Consumption and Activities report (found on the Corporate Energy Management Program page on the City of London website www.london.ca) is key deliverable 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 annual Corporate Energy Consumption Reports, 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 for City of London's agencies, boards and commissions are handled by the individual organizations. City staff provides assistance when requested.

DISCUSSION

This CWC report contains details in two key sections with further details contained in a separate report found on the City's website:

- 2017 Corporate Energy Consumption – an update on the City's energy consumption and cost with emphasis placed in the period 2007 until 2017. Previous pertinent reports are available on the [Corporate Energy Management](#) website.
- 2017 Energy Management Activities – an update on the program with emphasis on energy reduction initiatives undertaken by the City since 2016.

For the 2017 reporting period, information on energy management activities have been merged within the energy consumption data into one report, as most of the activities or projects described in 2016 Corporate Energy Management Activities report are still in progress or due to be completed this year. Any new projects undertaken in 2017 have been included as well.

This report assists in tracking the City of London's performance to the CDM Plan's goal.

Why is this Important and How Will Londoners Benefit?

Providing information on corporate energy use and associated greenhouse gas emissions helps to inform City staff and Londoners on the progress being made to manage rising energy prices and deliver services more efficiently. The Corporation spent about \$19 million on energy in 2017, which represents about three percent of the operating budget. On a per-person basis, the Corporation spent \$49 on energy to deliver services to Londoners in 2017.

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

What is the Connection with Other City of London Programs?

Corporate energy management activities are connected to many City of London programs and initiatives, such as the London Plan and London's Community Energy Action Plan (CEAP).

How are the Data Acquired and Information Reported?

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

2017 Corporate Energy Consumption

The 2017 Corporate Energy Consumption and Activities Report can be found on the City of London website (www.london.ca). Similar to the 2016 report, the total energy consumption in 2017 is compared with two reporting periods, 2007 and 2014. The year 2007 was the first year that the EnergyCAP software was introduced for the tracking and monitoring of utility data for the Corporation. The year 2014 is the baseline year for the CDM Plan. Highlights include:

- **Total energy use in 2017 was almost ten percent lower than it was in 2014 (Figure 1).** This is two years ahead of the CDM Plan's goal for a ten percent reduction from 2014 levels by 2020. Over the longer term, total energy use is now 14 percent lower than it was in 2007.
- **Energy use per person was 13 percent lower in 2017 compared to 2014 and 21 percent lower 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%
 - Building energy use per person has decreased by 19%
 - Vehicle Fleet energy use per person decreased by 1%
 - Streetlights energy use per person decreased by 21%
- **Total energy cost in 2017 was reduced by \$1.6 million compared to 2016. In 2017 the energy expenditures were almost \$19 million (Figure 2).** This decrease is primarily due to lower electricity prices in the province. The electricity cost for the Corporation has decreased for the first time in the last five years. These reductions flow from the former provincial government's *Fair Hydro Plan* and eight percent price reduction from the *Ontario Rebate for Electricity Consumers Act*, effective since July 2017.
 - Total electricity costs for the Corporation decreased by 9% compared to 2016.
 - Energy costs would have been \$2.6 million higher in 2017 if the energy efficiency improvements since 2007 noted above were not in place.

- Energy related greenhouse gas emissions in 2017 were 64 percent lower than 2007 (Figure 3).** The Corporation’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, installed in 2014-2015, resulted in a significant reduction in the use of 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. Over 90 percent of Ontario’s electricity is now generated from emissions-free sources, such as nuclear, hydro-electric stations, wind and solar. In 2017, every 1,000 kilowatt-hours of electricity generated in Ontario produced about 20 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

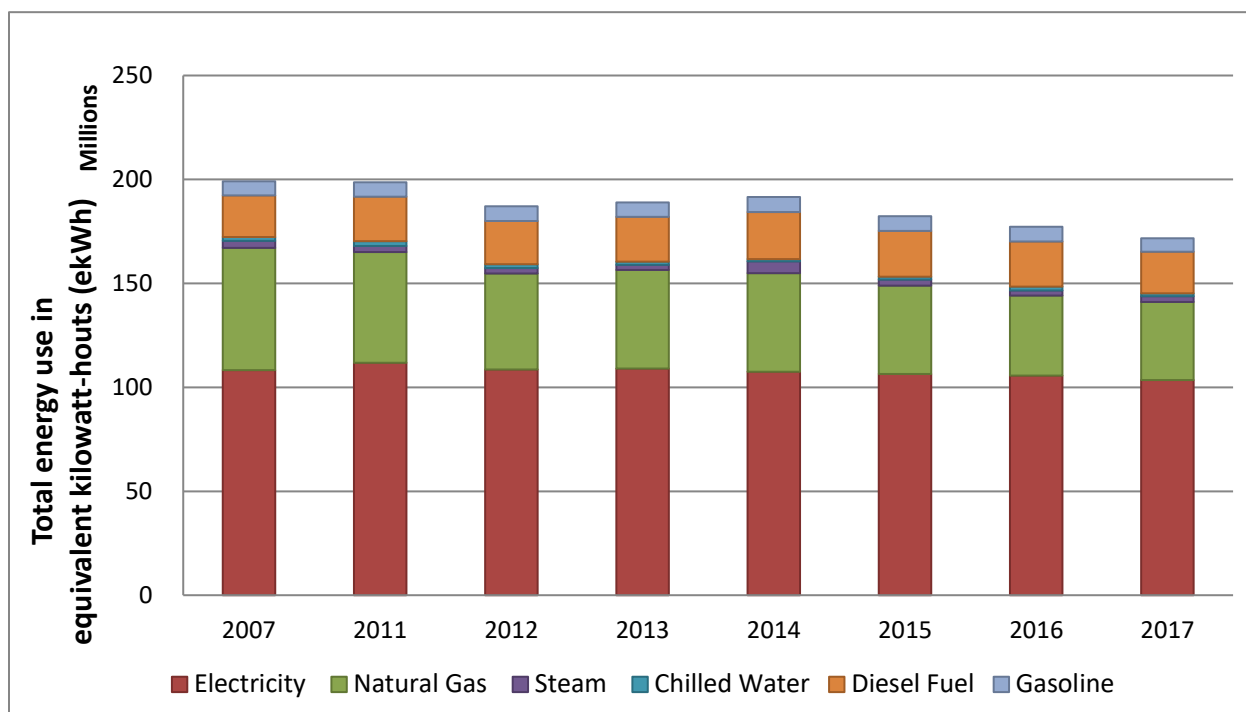


Figure 2 – Trends in Corporate Energy Costs (\$ Millions) by Municipal Service Categories

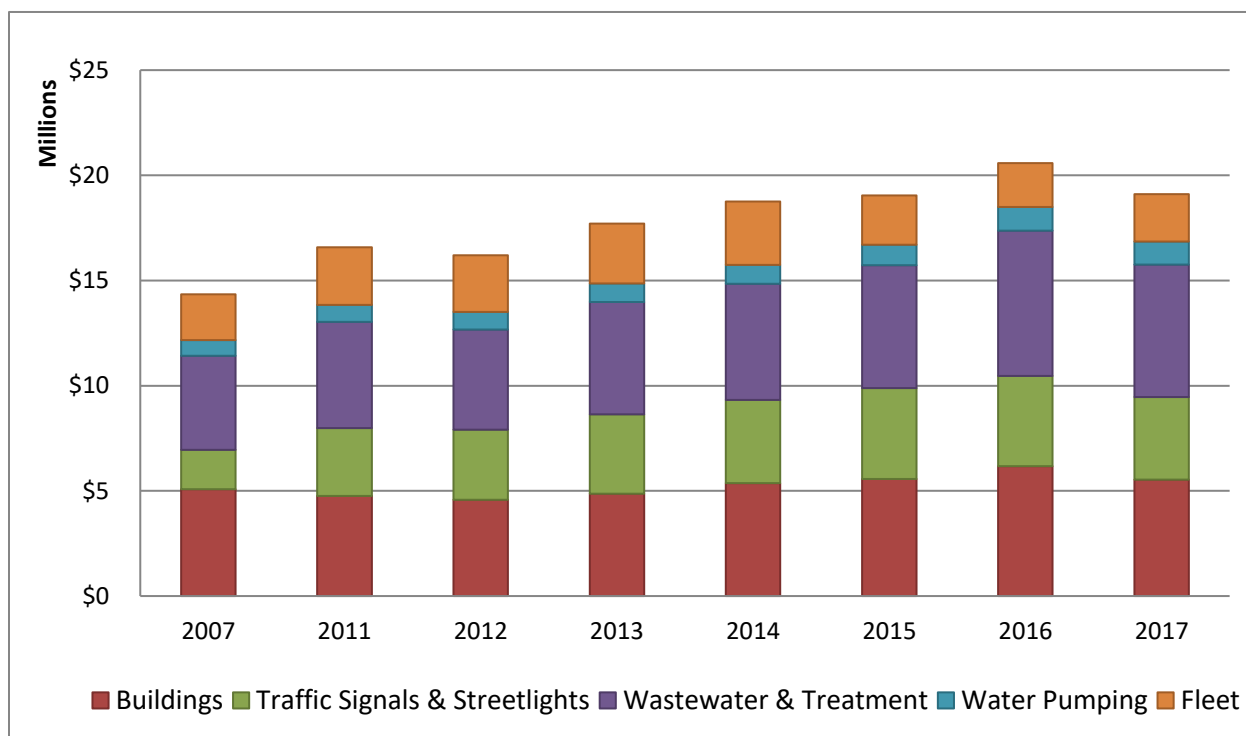
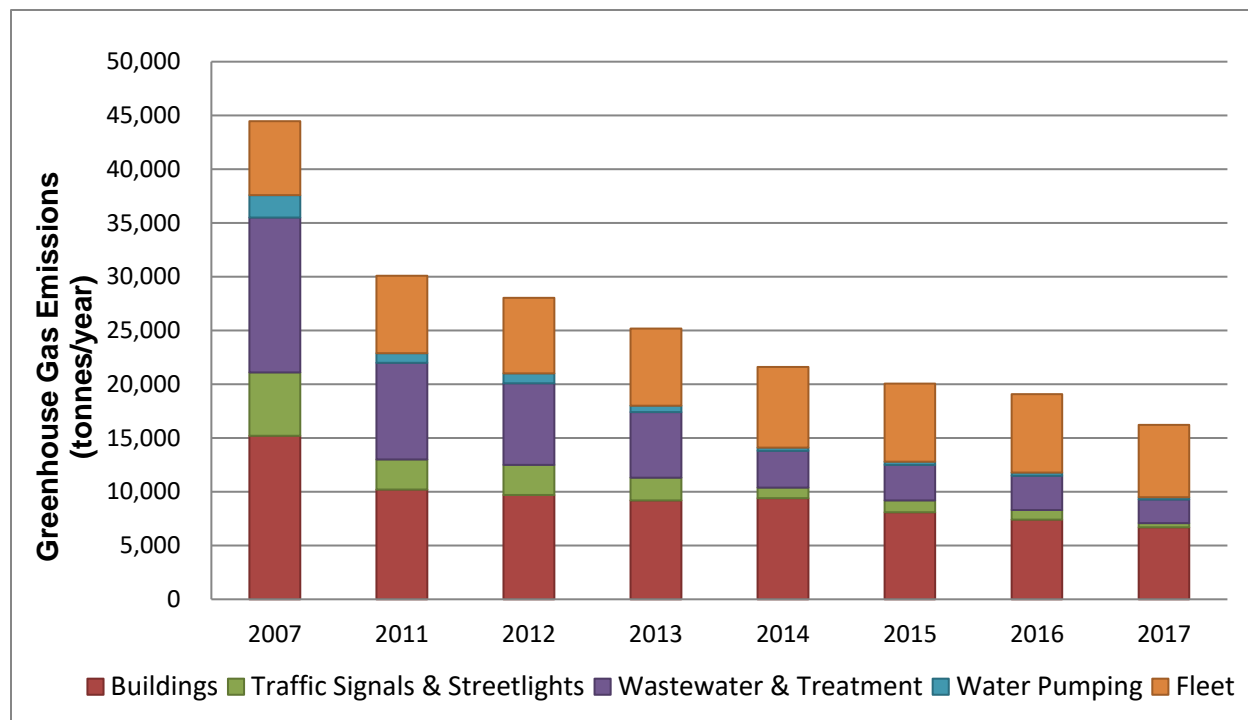


Figure 3 – Trends in Corporate Greenhouse Gas Emissions by Municipal Service Categories



2017 Energy Management Activities

Brief highlights of recent energy management activities include:

- **Wastewater treatment** electricity efficiency and renewable energy measures such as studying the feasibility of using fats, oils, and greases (FOG) collected by the City of London's FOG cup program as a supplementary fuel resource for the planned Organic Rankin Cycle (ORC) engine to generate additional electricity from waste heat at the Greenway Wastewater Treatment facility;
- **Water supply** completion of the new southeast Reservoir Pump Station, built to LEED standards, which uses 25 percent less energy than a similar building constructed to building code;
- **Building retrofits**, including larger projects such as completion of the award-winning renovation of the Canada Games Aquatic Centre, similarly, incorporating new and efficient technologies in smaller projects such as upgrading ice resurfacing machines at arenas with laser technology, heating and ventilation system upgrades as well as lighting upgrades in various City facilities;
- **Fleet**, addition of more Hybrid passenger cars and units using B5 bio-diesel blend increased the Green Fleet rolling stock by two percent in 2017 compared to 2016. Fleet continued examining the potential for compressed natural gas to be used as a fuel source versus diesel.

CONCLUSION

Next Steps

In July 2019, the Corporation is required to provide an update to the CDM Plan, developed back in 2014, as part of the Ontario Regulation 397/11. City staff will be preparing a complete review of the energy management activities undertaken between 2014 and 2018 as well as recommendations for actions to be included within the next iteration of the CDM Plan to cover 2019 to 2022 activities.

Summary

Energy use data suggest that the Corporation has achieved its ten percent energy reduction target by 2020 two years ahead of target and good progress is being made towards achieving the secondary goals associated with CDM Plan. In particular, actions undertaken and planned by Wastewater Treatment Operation, Water Engineering, and Facilities have made significant contributions towards performance to date. Activities in 2018 and 2019 should ensure that these numbers are maintained and likely improved upon.

ACKNOWLEDGEMENTS

This report was prepared with assistance from the following areas:

Environment, Fleet & Solid Waste – Sneha Madur, Jamie Skimming, Mike Bushby
 Facilities – Steve MacDonald
 Parks & Recreation – Lynn Loubert
 Purchasing – John Freeman
 Roads & Transportation – Shane Maguire
 Water & Wastewater – Scott Mathers, Geordie Gauld, Aaron Rozentals

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

2017 Corporate Energy Consumption and Activities Report