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TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON OCTOBER 7, 2013
FROM:	JAY STANFORD, M.A., M.P.A. DIRECTOR, ENVIRONMENT, FLEET & SOLID WASTE
SUBJECT:	UPDATE ON CORPORATE ENERGY MANAGEMENT & REPORTING REQUIREMENTS

RECOMMENDATION

That, on the recommendation of the Director, Environment, Fleet & Solid Waste, the update on Corporate Energy Management reporting **BE RECEIVED** for information; it being noted that the update included the following companion documents:

- Past and Current Energy Management Activities;
- Culture of Conservation – The Next Steps;
- 2011 Corporate Energy Consumption Report;
- 2011 Energy Consumption and Greenhouse Gas Emissions (Ministry of Energy); and
- 2012 Corporate Energy Consumption Report.

PREVIOUS REPORTS PERTINENT TO THIS MATTER
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Relevant reports that can be found at www.london.ca under City Hall (Meetings) include:

- Comments on Environmental Bill of Rights Registry – Conservation First: A Renewed Vision for Energy Conservation in Ontario (August 19, 2013 meeting of the Civic Works Committee, Agenda Item #3)
- Environmental Programs Updates (April 8, 2013 meeting of the Civic Works Committee, Agenda Item #2)
- Update on Rethink Energy London – Celebrating Progress – Sustainable Energy London (February 25, 2013 meeting of the Civic Works Committee, Item #4)
- Environmental Programs Updates (April 23, 2012 meeting of the Civic Works Committee, Agenda Item #17)
- Update on Corporate Energy Management & Conservation Projects (May 13, 2009 meeting of the Board of Control, Item #8)

BACKGROUND

PURPOSE:

The purpose of this report is to provide the Civic Works Committee and Council with:

- An update on corporate energy management and a copy of five documents which combined will form a large part of the future Corporate Energy Conservation and Demand Management (CDM) Plan for the Ontario Ministry of Energy, due in June 2014 including:
 - Past and Current Energy Management Activities;
 - Culture of Conservation – The Next Steps;
 - 2011 Corporate Energy Consumption Report;
 - 2011 Energy Consumption and Greenhouse Gas Emissions (Ministry of Energy); and
 - 2012 Corporate Energy Consumption Report;
- Economic development and business opportunities in energy conservation and sustainable energy; and

- A brief update on the actions to prepare a Corporate Energy CDM Plan as required by the Ontario Ministry of Energy.

CONTEXT:

In August 2011, the provincial government introduced *Ontario Regulation 397/11* under the *Green Energy Act, 2009*. This regulation requires certain public agencies – Municipalities, Municipal Service Boards, Schools Boards, Universities, Colleges and Hospitals – to report on their energy consumption and greenhouse gas (GHG) emissions annually beginning in 2013. The affected public agencies are also required to develop and implement five-year energy CDM plans starting in 2014. The intent of the regulation is to help the broader public sector organizations better understand their energy consumption, to help them benchmark energy use and to encourage energy conservation and demand management activities within them.

In the last year there have been a number of changes made by the Ministry of Energy with respect to reporting requirements. The changes resulted in the deadline for the CDM Plan being pushed out one full year. The table below illustrates the targets and deadlines required of the City of London under the *Green Energy Act*.

DEADLINE	TEMPLATE REPORTING REQUIREMENTS	CDM PLAN REPORTING REQUIREMENTS
July 1, 2013	Report on 2011 calendar year	None
July 1, 2014	Report on 2012 calendar year	Post CDM plan
July 1, 2015	Report on 2013 calendar year	None
July 1, 2016	Report on 2014 calendar year	None
July 1, 2017	Report on 2015 calendar year	None
July 1, 2018	Report on 2016 calendar year	None
July 1, 2019	Report on 2017 calendar year	Post updated CDM plan
July 1, 2020	Report on 2018 calendar year	None
July 1, 2021	Report on 2019 calendar year	None

Source: A Guide for Public Agencies on Completing the Energy Consumption and Greenhouse Gas Emissions Template, Ministry of Energy, 2012

In order to comply with the minimum requirements of the *Green Energy Act and the Ontario Regulation 397/11*, the City of London must submit annual energy consumption and greenhouse gas emissions for each calendar year in buildings or facilities the public agency owns or leases that,

- a) 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
- b) 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.

DISCUSSION

In order to meet the requirements for the annual energy consumption and greenhouse gas emissions report, the City of London proactively approached the Ministry of Energy requesting that the City participate in the pilot development of the draft reporting template. The City of London, along with 23 other broader public sector organizations from all designated sectors participated in the pilot to test the reporting template for the Ministry of Energy. By participating, the City of London was able to understand and fulfill the reporting requirements efficiently. The report of 2011 energy use and greenhouse gas emissions for the Corporation of the City of London was submitted to the Ontario Ministry of Energy and was accepted in time to meet the July 1, 2013 deadline.

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It is important to note that the Ministry of Energy only requires reporting on a select list of operations, excluding significant non-building energy uses such as street lighting and sports field lighting. This creates two separate sets of numbers for the City of London’s corporate energy use – one for the Ministry of Energy, and another more-comprehensive report for Committee and Council. Our focus is to provide Committee and Council with a complete picture of energy use by the Corporation while fully meeting the requirements of the Ministry of Energy.

When addressing the requirement for municipalities to set reduction targets as part of the CDM Plan for 2014, consideration needs to be given to the fact that the City of London has already been engaged in corporate energy management activities since the early 1990’s. In order to understand where the City actually stands today, and in order to set the stage for a meaningful plan moving forward, City staff have captured the past achievements and current management activities for all of the Corporation’s energy needs, including those that the City is not required to report to the Province (e.g., street lighting, parks, vehicle fleet). The background interrelated reports and documents that will support and assist in the development of the Corporate Energy CDM Plan due in 2014 are identified on the table below:


	Status
Past and Current Energy Management Activities	Complete
Culture of Conservation	Complete
2011 Corporate Energy Consumption Report	Complete
2011 Energy Consumption and Greenhouse Gas Emissions (Ministry of Energy)	Complete
2012 Corporate Energy Consumption Report	Complete
City of London Green Fleet Plan (E3 - Environmental, Energy, and Excellence)	Q1 2014
Future Corporate Energy Reporting – Ministry of Energy Requirements <ul style="list-style-type: none">• 2012 Energy Consumption and Greenhouse Gas Emissions (Ministry of Energy)• City of London Corporate Energy CDM Plan (in compliance the Green Energy Act. 2009 Ontario Regulation 397/11)	June 2014

The five completed documents will be placed on the City’s website. They identify the significant amount of work that has been undertaken to date on corporate energy management. These documents build on previous submissions in the last ten years to Committee and Council. The work undertaken to date will be invaluable in completing the minimum requirements of the Ministry of Energy for the Corporate Energy CDM Plan. Highlights of these documents are provided below.

Past and Current Corporate Energy Management Activities

This document summarizes a selection of the significant energy management projects and supporting initiatives completed in recent years that have set the stage to capture the City of London’s contributions in energy management activities.

The document recognizes that the City of London is not starting from a blank slate when it comes to energy conservation and demand management activities by showing that many conservation projects were undertaken as far back as the early 1990’s.





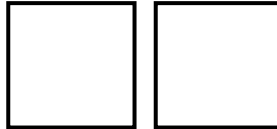
Energy Efficient LED Lights at 46000 Taylor Building, London, Ontario

CITY OF LONDON

Past and Current Corporate Energy Management Activities

September 2013



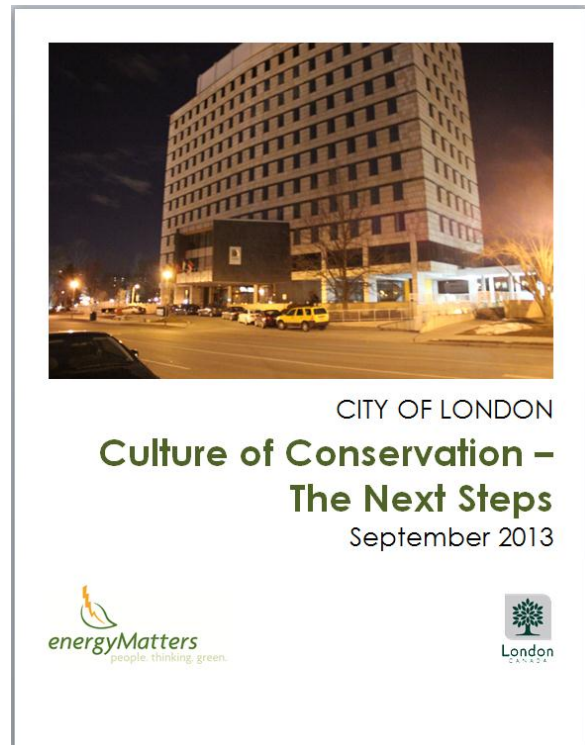


Culture of Conservation – The Next Steps

This document proposes staff and stakeholder energy conservation and engagement measures by creating and promoting a “Culture of Conservation” program. This internal program is key to the development of the mandatory five-year CDM Plan required by the Ministry of Energy to show continued support and commitment in energy management activities

The document focuses on the enhancement of the existing *energyMatters* program to engage and educate City of London staff on what roles they can take to save energy.

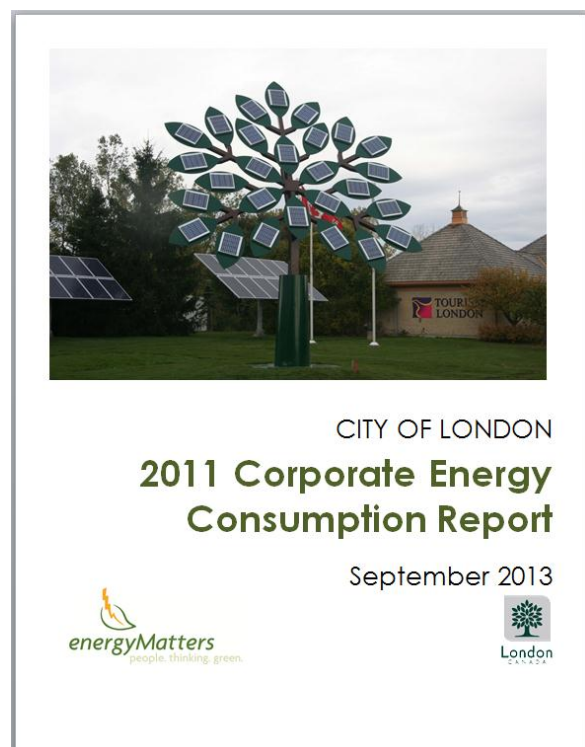
The enhancement to the existing program will assist to inspire employee behaviours that reduce energy consumption, increase public awareness of conservation principles and strengthen employee commitment to energy conservation.



2011 Corporate Energy Consumption Report

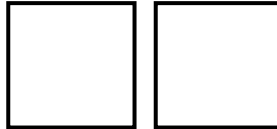
The 2011 Energy Consumption Report provides a summary of the City of London’s 2011 annual energy consumption and GHG emissions for all operations. The document provides a total of all significant energy costs associated with City of London operations. In addition to the report requirements mandated by the *Green Energy Act and Ontario Regulation 397/11*, information on all energy consuming infrastructure (e.g., street lighting, sports fields) as well as fleet fuel has been included to provide a complete picture of energy needs for our municipal operations.

City of London activities include building operations, traffic signals and street lighting, water supply, wastewater & treatment; and vehicle fleet, which all require energy to operate. The City of London uses 2007 as a baseline, due to the fact that this is the first set of utility data within the EnergyCAP software to track, monitor and capture data for tracking purposes and to help form our baseline calculations. It is important to note, that this information does not include energy use by London’s agencies, boards and commissions.



Highlights from this report include:

- The Corporation spent approximately \$16.4 million on energy, an increase of 12 percent from 2010. Electricity represents approximately 72 percent of corporate energy costs, and most of the increase is associated with increase in both electricity use and price that year.
- The Corporation consumed approximately 200 million “equivalent” kilowatt-hours (ekWh) of energy, an increase of 1 percent from 2010.
- Energy-related greenhouse gas emissions were 30,000 tonnes in 2011, a reduction of 32 percent from the baseline year of 2007. This is mainly due to the reduced use of coal-fired power plants to generate electricity in Ontario.



2011 Energy Consumption and Greenhouse Gas Emissions (Ministry of Energy)

The Energy Consumption and Greenhouse Gas Emissions Template is provided to public agencies by the Ministry of Energy. In order to comply with the reporting requirements of Regulation 397/11 under the *Green Energy Act*, 2009, beginning in 2013, public agencies must submit their energy consumptions and GHG emissions annually using the template provided by the Ministry.

On July 1, 2013, the City of London's 2011 Energy Consumption and Greenhouse Gas Emissions data was completed and submitted to the Ministry of Energy in compliance with the minimum requirements of the *Green Energy Act and the Ontario Regulation 397/11*.

The publication can be found at
http://www.london.ca/residents/Environment/Energy/Documents/2011_Org_Municipality_London.pdf

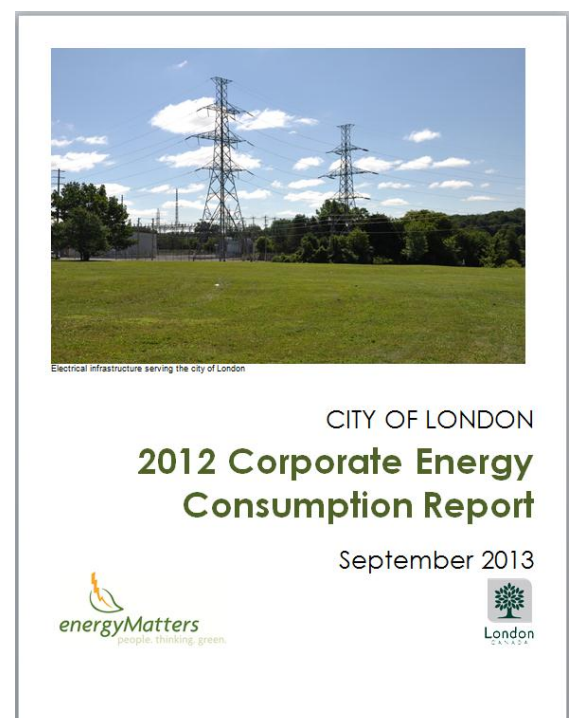
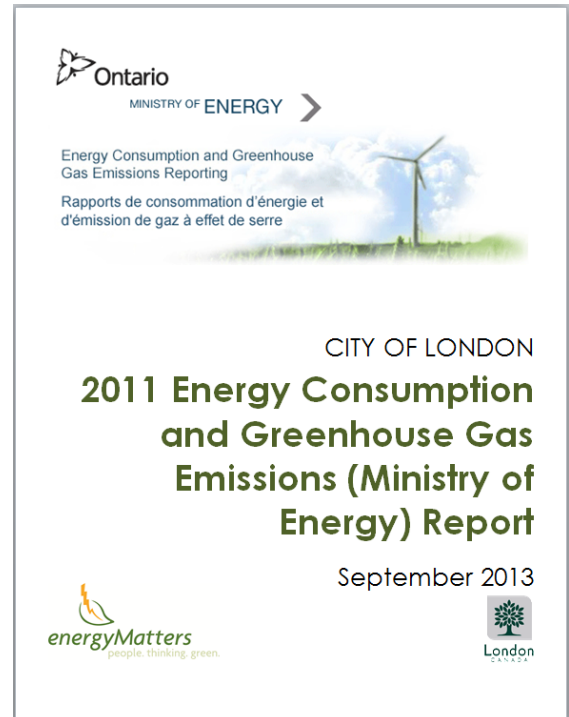
2012 Corporate Energy Consumption Report

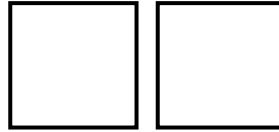
The 2012 Energy Consumption Report provides a summary of the City of London's 2012 annual energy consumption and GHG emissions for all operations. The document provides a total of all significant energy costs associated with City of London operations. In addition to the reporting requirements mandated by the *Green Energy Act and Ontario Regulation 397/11*, information on all energy consuming infrastructure (e.g., street lighting, sports fields) as well as fleet fuel has been included to provide a complete picture of energy needs for our municipal operations.

Similar to 2011, this information does not include energy use by London's agencies, boards and commissions.

Highlights from this report include:

- The Corporation spent approximately \$16.2 million on energy, a decrease of 1.2 percent from 2011. Electricity represents approximately 75 percent of corporate energy costs.
- The Corporation consumed approximately 190 million "equivalent" kilowatt-hours (ekWh) of energy, a decrease of 6 percent from 2011.
- In terms of service delivery to Londoners, corporate energy use per person dropped by 10 percent from 2007 levels. This reduction can be attributed to recent energy conservation measures and facility upgrades, as well as above-average winter temperatures in 2012 that reduced the need for building heat. These energy savings required a financial investment which produces both annual savings (true savings) and an accumulating avoided future cost (money that would have been spent under a 'business as usual' model):
 - Energy costs in 2012 were \$750,000 less than they would have been if the City still used energy at 2007 levels. This number would be even higher if compared against the year 2000.
 - The City has accumulated more than \$1.5 million in avoided energy costs so far since 2007 due to improved energy efficiency in service delivery and capital investments.
 - Between 2007 and 2012, the City spent between \$300,000 to \$600,000 per year in operating costs associated with energy management staff, feasibility studies, and other consulting costs.
 - In this same period, the City spent between \$250,000 and \$1 million per year in capital investments related to energy-efficiency projects. These investments create energy



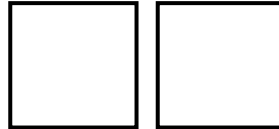


- savings every year over the life of the investment.
- Energy cost for each commodity increases each year. Therefore, sustained energy reductions become more important each year as each unit of energy consumed becomes more expensive with rising energy prices.
- Energy-related greenhouse gas emissions were 29,200 tonnes in 2012, a reduction of 34 percent from the baseline year of 2007. This is mainly due to the reduced use of coal-fired power plants to generate electricity in Ontario.

Economic Development and Business Opportunities in Corporate Energy Conservation and Sustainable Energy Projects

In addition to the corporate energy cost savings associated with corporate energy management activities, these projects also generate economic development and business activity in London. Examples of this include:

- Energy retrofits of municipal buildings are primarily carried out by London area service providers, and can also generate demand for London area suppliers of energy-saving products. These product and service providers can then use the experience gained from municipal projects to the benefit of London area businesses and institutions.
- Green municipal building projects, such as the Stoney Creek Community Centre, provide opportunities for London area product and service providers to increase their capacity to deliver these products and services to other London area businesses and institutions.
- Technology demonstration projects, such as LED lighting trials on London roadways and parking lots, allows this technology to be tested in local conditions against existing standards often based on older technologies. This helps to bring new technology to the London area, either by providing London area product and service providers with experience in utilizing this new technology or by bringing new product and service providers to London to serve our market.
- Concepts, technology and business strategies developed and/or tested in London represent export opportunities in North America, Mexico and South America.
- Municipal renewable energy projects provide London area product and service providers with experience in undertaking projects that help to expose unexpected challenges, such as transmission grid constraints and technology standards developed for older technologies, that can then be addressed and/or taken into account for future projects. This activity will represent a number of different business opportunities and/or community opportunities.
 - The City of London's lease of land to London Hydro for the installation of ground-mounted solar power systems (solar trackers) at the Oxford Wastewater Treatment Plant (WTP), Adelaide WTP, the new South East Reservoir, and the Materials Recovery Facility have helped London Hydro raise the profile of solar power within London.
 - Proposed leasing of rooftops on a number of City buildings to a joint-venture partnership between London Hydro and the London District Renewable Energy Cooperative that would install rooftop solar power projects under the Ontario Power Authority (OPA) Feed-in-Tariff (FIT) program represent both financial opportunities for the City (e.g., proposed rooftop lease payments), opportunities for London area product and service providers, and community co-op participants.
 - A new provincial competitive procurement process for larger renewable electricity projects is expected to open in early 2014 and the City will be re-submitting its application for a 2.4 megawatt power plant using landfill gas as the energy source to create electricity. This activity will represent a number of different business opportunities and/or community opportunities.
 - The City of London is working with London Hydro to explore the use of innovative Organic Rankine Cycle technology to recover waste heat at the Greenway WTP in a "behind-the-meter" electricity load displacement application. This project requires the provincial Technical Standards and Safety Authority to revise outdated requirements mandating full time operators for this innovative technology.



- Numerous energy conservation and sustainable energy projects are underway at Western University and Fanshawe College, and municipal facilities can continue to act as a test site for a number of these projects, in partnership with London Hydro, Union Gas and many local, regional and international businesses.
- The London Economic Development Corporation (LEDC) is a partnership between the City of London and the private sector. The goal is to attract new investments and expand existing investments in London. LEDC has a CleanTech Sector overview that it makes available to interested companies with respect to energy conservation and sustainable energy opportunities, and municipal facilities can continue to act as a test site for product and service providers looking to break in to the Ontario and Canadian marketplace.
<http://www.ledc.com/pdf/Manufacturing/Cleantech.pdf>.
- It is worth noting that in July 2013 many 'Small FIT' projects (less than 500 kW generating capacity) were awarded in London as part of the FIT process. This will represent opportunities for London area product and service providers.

City of London Green Fleet Plan Update (E3 - Environmental, Energy, and Excellence)

In October 2009, many Green Fleet initiatives were highlighted in a report to the Environment & Transportation Committee (ETC) including:

- Right-sizing vehicles to meet user needs;
- Replacement of two gas powered units with electric powered units at golf courses (green mower and utility work cart);
- Developed a 'green reserve' using Federal Gas Tax funding to assist with the purchase of capital costs for 'green' vehicles;
- Commitment to continue with Hybrid vehicle choices and to continue researching emerging technologies; and
- The steps to seek E3 (Environmental, Energy, and Excellence) certification.

Further updates on these activities are provided in the report entitled Past and Current Energy Management Activities (referred to earlier in this CWC report).

The City's Fleet Services has been a registered municipality with Fleet Challenge Ontario for over three years. The City of London is one of 10 municipalities in 2011 to have completed a fleet review process and developed a guideline for continuous improvement. Since the review Fleet Services has developed key components of a Green Fleet Plan that highlights improvements and targets for increased fleet utilization/rationalization models, idling control initiatives, measures to increase fuel efficiency, strategies to reduce greenhouse gases, incorporating new technologies like electric vehicles and using alternative fuels like Biodiesel and Compressed Natural Gas. This work will be completed and reported to Committee and Council in early 2014.

The E3 Fleet registration is a third-party process that reviews, verifies, and "rates" the environmental and energy management aspects of maintaining a vehicle and equipment fleet. Similar to Leadership in Energy and Environmental Design (LEED), this program offers opportunities to work with Fleet experts from Fleet Challenge Ontario in a comprehensive review process and subsequently seek a "Fleet Rating" (Bronze, Silver, Gold or Platinum). The E3 program is a Canadian wide trademark for recognizing both municipal and private Fleets that are demonstrating environmental stewardship and asset management effectiveness.

Future Corporate Energy Reporting – Ministry of Energy Requirements

Future corporate energy reporting will consist of two separate documents to fulfill the reporting requirements of the Ministry of Energy's *Green Energy Act and the Ontario Regulation 397/11*. Both are to be submitted by July 1, 2014.

2012 Energy Consumption and Greenhouse Gas Emissions Template

The Energy Consumption and Greenhouse Gas Emissions Template for 2012 will be updated and provided to public agencies by the Ministry of Energy to support their compliance with reporting requirements of Regulation 397/11 under the *Green Energy Act, 2009*.

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City of London Corporate Energy CDM Plan

Regulation 397/11 under the *Green Energy Act, 2009* requires public agencies to develop five year CDM plans starting in 2014 that include:

- Reporting of annual energy consumption;
- The public agency's goals and objectives for conserving energy by reducing its energy consumption and managing its demand for energy;
- Proposed energy saving and demand management measures, the cost and saving estimates associated with these measures and the estimated length of time that these measures will be in place;
- Descriptions of any renewable energy generation facilities owned by the agency and the amount of renewable energy produced on an annual basis; and
- Evidence of senior management approval of the CDM Plan.

The value of any organization’s conservation and demand management plan and the success of its implementation depends principally on the plan’s endorsement by the organization’s executive and the active participation in the process by its management staff. A relevant corporate CDM plan and implementation program in an organization such as the City of London - which uses energy in a wide variety of ways - requires representative involvement of staff with a broad cross section of expertise and responsibility. The cross-divisional Energy Management and Conservation Team (EMCT) which was formed in 2012 is actively working with all Service Areas to plan, develop and implement the mandatory, corporate energy conservation and demand management plan for the City of London.

ACKNOWLEDGEMENTS:

This report was prepared with the assistance of Jamie Skimming, P.Eng, Air Quality Manager, Steven MacDonald, P.Eng, Corporate Energy Management Engineer, Mike Bushby, Division Manager, Fleet & Operational Services.

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c Members of the City of London Energy Management and Conservation Team (EMCT)

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

- Past and Current Energy Management Activities
- Culture of Conservation – The Next Steps
- 2011 Corporate Energy Consumption Report
- 2011 Energy Consumption and Greenhouse Gas Emissions (Ministry of Energy)
- 2012 Corporate Energy Consumption Report