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TO:	CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON OCTOBER 28, 2013
FROM:	JAY STANFORD, M.A., M.P.A. DIRECTOR, ENVIRONMENT, FLEET & SOLID WASTE
SUBJECT:	2012 COMMUNITY ENERGY AND GREENHOUSE GAS INVENTORY: CHALLENGES AND OPPORTUNITIES

RECOMMENDATION

That, on the recommendation of the Director, Environment, Fleet & Solid Waste, the 2012 Community Energy & Greenhouse Gas Inventory: Challenges and Opportunities 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:

- Update on Corporate Energy Management & Reporting Requirements (October 7, 2013 meeting of the Civic Works Committee, Agenda Item #6)
- 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)
- Update – Key Energy Stakeholder Engagement – Community Energy Action Plan (July 22, 2013 meeting of the Civic Works Committee, Agenda Item #16)
- 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)

BACKGROUND

PURPOSE:

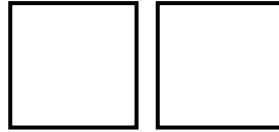
The purpose of this report is to provide the Civic Works Committee and Council with:

- An overview of the information contained within the document, 2012 Community Energy & Greenhouse Gas Inventory: Challenges & Opportunities, and
- An overview of the associated economic development and business opportunities in energy conservation and sustainable energy.

CONTEXT:

This report addresses energy used in the community as a whole, representing all major energy-using sectors in London, namely road transportation, residential, industrial, commercial, and institutional sectors.

The City of London is fortunate to have information on community energy use and greenhouse gas emissions that goes back as far as 1990. The City of London Air Emissions Study, prepared by SENES Consultants in association with Proctor and Redfern Limited and Torrie Smith Associates for the City of London’s Vision ’96, was completed in September 1995. This information was then updated in 2000 in the report Air Emissions and Energy Use in the City of London, prepared for the London Energy/Air Emissions Reduction Strategy Task Force. Since



2004, City of London staff have maintained an annual inventory of community energy use and associated greenhouse gas emissions based upon this work.

The analysis that goes into the annual inventory of community energy use and associated greenhouse gas emissions provides important input for these major undertakings and related implementation projects:

- City of London Strategic Plan 2011 – 2014,
- Smart Moves, London's 2030 Transportation Master Plan,
- ReThink London,
- Rethink Energy London
- Community Energy Action Plan, and
- City of London Corporate Energy Conservation and Demand Management (CDM) Plan (as required under the *Green Energy Act*)

DISCUSSION

Whereas the information recently provided to Civic Works Committee on October 7, 2013 dealt with the Corporation of the City of London's corporate energy use, this report deals with energy use across all of London. The 2012 Community Energy & Greenhouse Gas Inventory: Challenges & Opportunities report provides an overview of the energy used in the London community as a whole.

This report covers all significant energy sources used in London: natural gas, gasoline, electricity, diesel, fuel oil, and propane. Sectors covered by the inventory include road transportation, residential, industrial, commercial, and institutional.

It also includes an estimate of the total cost associated with these energy needs and the greenhouse gas emissions associated with these energy sources. In addition, this report also includes the greenhouse gas emissions associated with the City of London's W12A landfill and closed landfill sites.



Former church on Grosvenor Avenue converted to affordable housing (London, Ontario)

CITY OF LONDON 2012 Community Energy & Greenhouse Gas Inventory: Challenges & Opportunities

October 2013



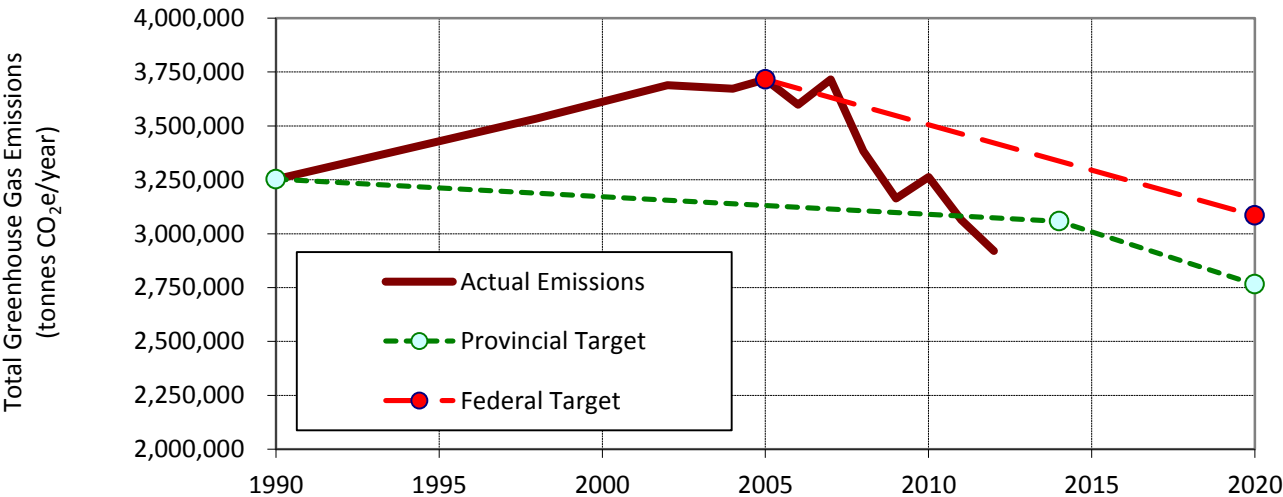
Overall, the results as demonstrated in the 2012 Inventory Report tell a very positive story for the community with significant progress being made over the last five years alone on energy conservation, reduction of greenhouse gas emissions and an economy that is creating both jobs in the broad of field of sustainable energy and creating the potential for increased economic opportunities in this sector. Specific overview highlights of recent progress include:

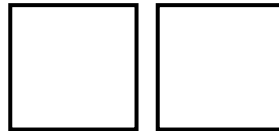
- **Improved energy efficiency** – on a per person basis, Londoners and London businesses used 12 percent less energy overall in 2012 than they five years ago in 2007.
- **Energy savings** - given that each percentage improvement represents around \$10 million in avoided energy costs, this means that over \$100 million was available for other uses compared to “business as usual” if we’d stayed at 2007 levels of efficiency.
- **Reduced environmental footprint** – on a per person basis, Londoners and London businesses released 24 percent fewer greenhouse gas emissions in 2012 than they did in 2007, along with reductions in air pollution emissions.

Other report highlights include:

- London as a whole consumed approximately 52,800 terajoules of energy in 2012, 6 percent above 1990 levels, but nine percent below the peak in energy use in 2007.
- Energy use by sector in London in 2012 was as follows:
 - 44 percent from industrial, commercial, and institutional buildings and facilities;
 - 31 percent from cars and trucks on London’s roads, most of which is associated with personal vehicle use; and
 - 25 percent from single-family residential homes.
- Energy use per person in London in 2012 was 12 percent below 1990 levels, where:
 - The biggest decrease is in transportation energy use per person, which was 17 percent lower than in 1990;
 - Residential energy use per person was also 17 percent below 1990 levels; and
 - Industrial, commercial, and institutional energy use per person in 2012 was 5 percent below 1990 levels.
- Natural gas is the largest source of energy used in London, accounting for 42 percent of all energy used;
 - Gasoline was the second largest source of energy, accounting for 24 percent of London’s energy use; and
 - Electricity accounted for 23 percent of all of the energy used in London.
- London (Londoners, London businesses and institutions) as a whole spent approximately \$1.3 billion on energy in 2012, an increase of one percent from 2011.
 - Electricity and gasoline each represents approximately 34 percent of community energy costs.
 - Natural gas only accounts for 18 perfect of community energy costs, due to low commodity prices.
 - Only about 13 percent of this money spent on or at operations and businesses in London, with the rest going to operations in other parts of Ontario, western Canada, and the federal and provincial governments.
- London as a whole released approximately 2.9 million tonnes of greenhouse gas emissions in 2012, ten percent below 1990 levels, and 22 percent below London’s total GHG emissions in 2007 (see Figure 1).
 - Energy use accounts for 95 percent of community greenhouse gas emissions; and
 - Landfill gas accounts for the remaining 5 percent.
- Greenhouse gas emissions per person in London in 2012 were 25 percent below 1990 levels, and 24 percent below 2007 levels.
 - In addition to the energy reductions noted above, greenhouse gas emissions from Ontario’s electricity grid were significantly lower in 2012 than they were ten years ago.

Figure 1 – London’s Greenhouse Gas Emission Trend versus Federal and Provincial Reduction Targets





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

As noted, Londoners, London businesses and institutions spent approximately \$1.3 billion on energy in 2011. London would be better off keeping more of its money in the local economy. Every percentage that Londoners and London businesses reduce energy use keeps about \$10 million from leaving our economy.

Money saved through energy efficiency and conservation can be used for other purposes, whether that's paying down debts faster or purchasing other goods and services. Investing in energy saving retrofits, local sustainable energy projects and local energy production creates local jobs. Examples of the above include:

- Energy retrofits of buildings are primarily carried out by London area service providers, and can also generate demand for London area suppliers of energy saving products.
- Green building projects, such as Leadership in Energy and Environmental Design (LEED) Certified buildings (e.g., Sisters of St. Joseph, Stoney Creek Community Centre, Western University's Richard Ivey School of Business, Auburn Developments' Upper Richmond Village) and Energy Star New Homes, provide opportunities for London area businesses to increase their capacity to deliver these products and services to other London area builders, businesses and institutions.
- The CleanTech Sector, which includes energy conservation and sustainable energy product and service providers, is a key focus area for the London Economic Development Corporation (LEDC). The LEDC has a CleanTech Sector overview that it makes available to interested companies with respect to energy conservation and sustainable energy opportunities. http://www.ledc.com/_pdf/Manufacturing/Cleantech.pdf.
- Purchasing new fuel efficient vehicles, hybrid vehicles, and electric vehicles helps to reduce emissions and support the local and regional economy. Many smaller vehicles built today have been designed to provide greater capacity for carrying bulky items, making these vehicles ideal replacements for minivans and SUVs.
- Replacing older appliances with new, energy efficient (Energy Star) appliances also helps to reduce energy use and supports the local and regional economy.
- Numerous energy conservation and sustainable energy projects are underway at the City of London, Western University and Fanshawe College; and local 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.
- Concepts, technology and business strategies developed and/or tested in London represent export opportunities in North America, Mexico and South America.
- Increasing the local capacity for electricity generation helps keep electricity related expenditures in London, as well as builds local capacity to develop these projects:
 - Between 2008 and 2012, locally produced embedded electricity generation purchases increased from 0.2 percent to 1.4 percent of London's electricity needs.
 - London has over 50 megawatts of local electricity generation capacity installed to date. Most of this capacity is associated with combined heat and power cogeneration plants at London District Energy, Ingredion, London Health Sciences Centre, and Labatt Brewery.
 - As of September 2013, there was over 4 megawatt of solar photovoltaic (PV) in operation, and Harvest Power's 2.85 megawatt biogas facility is being commissioned. Fanshawe Dam also provides 0.675 megawatts of hydro-electric power. An additional 4.5 megawatts of solar PV projects in London has been approved by the Ontario Power Authority under the last round of Feed-In Tariff procurements (summer 2013).

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Next Steps

As has been mentioned for many years, London Municipal Council only has direct control over changing how energy is consumed by the Corporation of the City of London in delivering services to Londoners. However, with respect to businesses and the citizens of London, it is through leadership and collaboration that Municipal Council can influence and encourage significant gains in energy conservation, energy efficiency and use of renewable energy.

City of London staff will be reviewing and incorporating the feedback received from London’s business community, London’s major institutions, and other key community stakeholders through the recently issued Community Energy Action Plan Discussion Primers. This information will be used to “fill in the blanks” with the actions that these local stakeholders would be willing to undertake for inclusion in the draft Community Energy Action Plan.

The draft Community Energy Action Plan is currently scheduled to be released in December 2013 along with other key supporting documents – Understanding the Data and Learning from People – to allow a broader audience one final opportunity to provide input into the proposed action plan.

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

2012 Community Energy & Greenhouse Gas Inventory: Challenges & Opportunities