



STAFF REPORT ACTION REQUIRED

Toronto's Greenhouse Gases and Air Quality Emissions Inventory

Date:	June 12, 2007
To:	Executive Committee
From:	Richard Butts, Deputy City Manager
Wards:	All Wards
Reference Number:	P:\2007\ClusterB\TEO\EX07005

SUMMARY

The attached report "Greenhouse Gases and Air Pollutants in the City of Toronto – Toward a Harmonized Strategy for Reducing Emissions" (see Appendix A) is submitted in keeping with commitments made at the Special Meeting of the Parks & Environment Committee of February 20, 2007. The project was initiated in 2005 and has been jointly undertaken by the Toronto Atmospheric Fund, and the Toronto Environment Office with technical advice from Ralph Torrie, Vice-President of ICF International.

The report identifies the combustion of natural gas for space and water heating, the production of electricity for lighting and appliances, and the combustion of gasoline and diesel for transportation currently account for 35%, 26% and 35% respectively, or 96% in total, of all greenhouse gas emissions in Toronto.

The Climate Change, Clean Air and Sustainable Energy Action Plan, also listed on the Executive Committee's agenda, recommends reduction targets for greenhouse gas emissions for the Toronto urban area, as from the 1990 baseline of levels, of: 6% by 2012 (the "Kyoto target"); 30% by 2020; and 80% by 2050.

Progress toward these targets needs to be monitored annually. Actions to meet these targets needs to be guided by improved data and improved understanding of natural gas, electricity and transportation related emissions.

RECOMMENDATION

The Deputy City Manager, Richard Butts, recommends that:

1. the Toronto Environment Office continue to develop and report annually on the findings of the Integrated Greenhouse Gas and Air Quality Emissions Inventory and provide annual assessments of progress toward targets and established air quality concentration standards.

Financial Impact

There are sufficient resources in the approved 2007 Operating Budget to implement the recommendation contained in this report.

The Deputy City Manager and Chief Financial Officer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

The project to create and analyse an Integrated Greenhouse Gas and Air Quality Inventory for the City of Toronto (the “Inventory”) – both for the community and for the corporation -- was jointly proposed by the Toronto Atmospheric Fund (“TAF”) and the Toronto Environment Office (“TEO”) in early 2005. This report describes the study methodology and the findings that follow from the Inventory, which is attached to this report (Appendix A) under the title “Greenhouse Gases and Air Pollutants in the City of Toronto – Toward a Harmonized Strategy for Reducing Emissions”. An Executive Summary accompanies the document.

The Inventory has been prepared by the TEO in partnership with TAF, with the assistance of ICF International. Generous financial assistance for the project was obtained from TAF and the Federation of Canadian Municipalities.

COMMENTS

The Inventory provides the basic emissions data needed to address climate change and air quality issues in Toronto. The inventory provides a “snap shot” in time as to how well the City is addressing its emissions and provides a vehicle by which future progress can be monitored – but more importantly it can identify the major emitters in Toronto and suggest what actions are most needed to reach future targets.

The concept of an integrated inventory that includes both greenhouse gases and air quality parameters is new, not only for a municipality, but for all inventory builders. The

concept builds on the commonality and greater efficiency of obtaining the same shared basic source of emissions data, as for example for building heating, lighting and vehicle use, and addresses the difficult and discordant issues of analysing very different impacts.

Greenhouse gas emissions have global climate changing direct impacts wherever and whenever they are released. Analysing the impacts of greenhouse gas releases is all about the emissions – and is relatively simpler. Conversely, air quality related emissions have local indirect impacts that vary with the height and location of the release of those emissions and the prevailing air and weather conditions they enter, and the exposure and sensitivity of people to the resultant ambient concentrations. Analysing the impacts of air quality (or Criteria Air Contaminants) releases is all about the resultant concentrations and about the health impact – and these are relatively much more complicated.

The Inventory has identified that the combustion of natural gas for space and water heating, the production of electricity for lighting and appliances, and the combustion of gasoline and diesel for transportation currently account for 35%, 26% and 35% respectively, or 96% in total, of all greenhouse emissions in Toronto.

The Climate Change, Clean Air and Sustainable Energy Action Plan provides the recommended reduction targets for greenhouse gas emissions for the Toronto urban area, as from the 1990 baseline of levels, of: 6% by 2012 (the “Kyoto target”); 30% by 2020; and 80% by 2050. Progress toward these targets needs to be monitored annually. Actions to meet these targets needs to be guided by improved data and improved understanding of natural gas, electricity and transportation related emissions.

The Inventory provides the quantitative platform to both project where business-as-usual takes the City, and the tool by which reductions can be both seen to be needed and also tracked to monitor success over time. It can also be used on its own to analyse greenhouse gas reduction needs.

The Inventory has to be used in conjunction with air quality modelling, to compare resultant ambient air quality concentration maps against established ambient air quality standards, to best identify the air quality improvements most desired and to help, by testing improvement scenarios, how they might best be achieved.

Inventory Improvements

The Inventory (as based on 2004 data) can and should be updated annually but it should also be improved to the fullest extent possible, both in the immediate near term and in the longer term, to better enable refined and comparable decisions concerning necessary air quality improvement and greenhouse gas emission reduction actions towards the City’s targets. The next iteration of the inventory will quantify the corporate and the community emissions for 2005 and 2006.

The attached report includes “Lessons and Strategic Implications of the Harmonized Emissions Analysis and Conclusions” (Section 6, pp. 36 – 44). The Executive Summary also includes a synopsis of these implications, conclusions and suggested improvements. The “lessons and strategic implications” have been taken into account in the preparation of the recommended Climate Change, Clean Air and Sustainable Energy Action Plan.

The TEO will undertake City-wide air quality modelling based on each annual inventory set, and report annually on the analytical findings as an adjunct to the annual inventory report. At this time the TEO is planning to undertake this work utilizing the Office’s staff complement. If external resources are required a follow-up staff report will be submitted.

Increased spatially and temporally detailed data sets are essential, and are currently being sought, in respect to the input detail of the consumption of natural gas from Enbridge, and of electricity from Toronto Hydro. This is being attempted in order to improve the certainty of the estimated data and to improve the identification of potential improvement actions by both sector type and location, as for example, by residential type and density and by neighbourhood.

Improvements in estimating vehicle related emissions are also required. Traffic volumes will continue to be based on amalgamated traffic volume data (i.e. current road count data) provided by Transportation Services, and need to be pro-rated based on sample comparisons between years. Vehicle emissions estimates also need to be augmented by sampled “vehicle type” data, which is currently not collected. Discussions have been initiated with Transportation Services to facilitate this objective and will be the subject of a subsequent staff report, if additional resources in addition to the approved 2007 Operating Budget are required.

CONTACTS

Lawson Oates
Director, Toronto Environment Office
21st Floor, East Tower, City Hall
Tel: 416-392-9744
Email: loates@toronto.ca

Christopher Morgan
Senior Air Quality Specialist
Toronto Environment Office
21st Floor, East Tower, City Hall
Tel: 416-392-6903
Email: cmorgan1@toronto.ca

Richard Butts
Deputy City Manager

ATTACHMENTS

Appendix A:

“Greenhouse Gases and Air Pollutants in the City of Toronto – Toward a Harmonized Strategy for Reducing Emissions”, TAF/TEO June 2007