



## STAFF REPORT ACTION REQUIRED

### Green Initiatives and Activities - Presentations and Accompanying Data

<b>Date:</b>	September 29, 2009
<b>To:</b>	Parks and Environment Committee
<b>From:</b>	Lawson Oates, Director, Toronto Environment Office
<b>Wards:</b>	All
<b>Reference Number:</b>	P:\2009\Cluster B\TEO\PE09004

#### SUMMARY

---

In response to a request by the Parks and Environment Committee, all City of Toronto Agencies, Boards, Commissions, Corporations and Divisions (ABCCDs) engaged in environmental activities gave a presentation on their ‘green initiatives and activities’ (programs, policies and actions which resulted in benefits to the environment) to the Parks and Environment Committee between October 2007 and April 2009. These presentations have been compiled and are available on the City’s website at: [http://www.toronto.ca/environment/initiatives/presentations\\_pe\\_committee.htm](http://www.toronto.ca/environment/initiatives/presentations_pe_committee.htm)

The ABCCDs giving presentations were also requested to report via the Toronto Environment Office on the quantifiable environmental benefits, specifically the air emissions reductions, as a result of their green initiatives and activities to which they presented. Highlights from the presentations as well as the quantifiable environmental benefits and emission reduction/emission savings data they submitted to the Toronto Environment Office are included in this report.

The quantifiable environmental benefits provided in this report are based only on the green initiatives and activities that the ABCCDs presented on and is not a reflection of the total environmentally beneficial activities being conducted across the corporation. That information will be presented through an update of the Greenhouse Gas Inventory previously published in June 2007 (<http://www.toronto.ca/teo/pdf/ghg-aq-inventory-june2007.pdf>).

This report makes recommendations to build on the information received by the Parks and Environment Committee to develop a more comprehensive protocol for the monitoring and reporting of green initiatives and activities throughout the corporation.

## **RECOMMENDATIONS**

### **The Director of the Toronto Environment Office recommends that:**

1. City Council direct all corporate agencies, boards, commissions, corporations and divisions to track their green initiatives, activities, programs, policies and actions which result in environmental benefits and specifically reductions in air emissions, including greenhouse gases and air pollutants, according to standards and protocols established by the Toronto Environment Office; and
2. City Council direct the Director of the Toronto Environment Office to report bi-annually on both the quantifiable and other environmental benefits of the Corporation's green initiatives and activities from all City of Toronto agencies, boards, commissions, corporations and divisions.

## **FINANCIAL IMPACT**

There are no financial impacts as a result of these recommendations. The Deputy City Manager and Chief Financial Officer has reviewed this report and agrees with the financial impact information.

## **DECISION HISTORY**

At its meeting of June 6, 2007 the Parks and Environment Committee requested that all relevant City of Toronto Agencies, Boards, Commissions, Corporations and Divisions (ABCCDs) report on their recent environmental activities to the Committee and provide information on the quantifiable environmental benefits and specifically the air emissions reductions as a result of their initiatives.

## **ISSUE BACKGROUND**

At its meeting on July 16-19 2007, City Council unanimously adopted the recommendations of the Climate Change, Clean Air and Sustainable Energy Action Plan (<http://www.toronto.ca/legdocs/mmis/2007/cc/decisions/2007-07-16-cc11-dd.pdf>). This Action Plan built on earlier environmental policies, such as the Environment Plan adopted in 2000 ([http://www.toronto.ca/council/environtf\\_htm.htm](http://www.toronto.ca/council/environtf_htm.htm)).

The Action Plan has triggered numerous green policies, programs and other initiatives. In 2007 the Parks and Environment Committee requested that ABCCDs undertaking green initiatives and activities give presentations to the Committee to highlight their work.

This report presents the highlights of these presentations along with accompanying quantifiable environmental benefits, specifically the air emissions reductions, as a result of the ABCCDs green initiatives and activities.

## **COMMENTS**

### **Presentations**

Highlights from the presentations and a summary of the emissions data and other environmental data submitted by ABCCDs are included in Appendix A of this report. The complete individual presentations can be viewed at [http://www.toronto.ca/environment/initiatives/presentations\\_pe\\_committee.htm](http://www.toronto.ca/environment/initiatives/presentations_pe_committee.htm). This website also includes the emissions and other environmental information included as handouts with the presentations.

It is important to note that the presentations were given over the span of 18 months and some new activities have been initiated after the reporting dates. The information presented in this report reflects the information given at the time of the presentations to Parks and Environment Committee. A list of all the ABCCDs who presented and the dates they presented are detailed in Table 1 (page 4).

**Table 1: List of Presenters and Dates They Presented**

<b>Presentation Date</b>	<b>Agency, Board, Commission, Corporation or Division</b>
October 10, 2007	Toronto Economic Development Corporation
	Toronto Association Business Improvement Areas
	Exhibition Place
	Toronto Zoo
November 6, 2007	Economic Development, Culture and Tourism
	Toronto Atmospheric Fund
	Toronto Community Housing Corporation
	Toronto Library Board
November 28, 2008	Toronto Police Services
	Emergency Medical Services
	Fire Services
	Municipal Licencing and Standards
January 16, 2008	Solid Waste Management Services
February 19, 2008	Toronto Hydro
	Enwave
May 13, 2008	Facilities and Real Estate
	Technical Services
	Fleet Services
June 11, 2008	Parks, Forestry and Recreation
	Toronto Water
	Toronto Region Conservation Authority
July 4, 2008	Toronto Transit Commission
	Toronto Parking Authority
September 15, 2008	Waterfront Secretariat
	City Planning
November 19, 2008	Toronto Building
	Transportation Services
April 20, 2009	Public Health

## **Green Initiative Reporting Templates**

ABCCD's presenting to Parks and Environment Committee on the quantifiable environmental benefits as a result of their green initiatives and activities were requested to submit a "Green Initiative Reporting Template" to the Toronto Environment Office for the purposes of generating a consolidated summary report. Not all ABCCDs submitted the complete information since some initiatives presented (including future actions) could not be readily quantified. Initiatives were categorized as either Electricity Focused Projects or Other Projects with sub-sets, as follows:

### Electricity Focused Projects:

- Energy Conservation including "Efficiency in Buildings" and "Energy Efficiency in Operations"
- Alternative Energy Generation including Renewables
- Electricity Load Capacity Reduction

### Other Projects

- Transportation Systems/Vehicles
- Waste Management (Reduction and Diversion)
- Green Development including Trees/Greenspace/Naturalization
- Water Conservation, Filtration and Treatment
- Community Engagement including Outreach and Education

The Green Initiative Reporting Template asked ABCCDs to fill in the following information for each initiative:

- Name of Project;
- Description;
- Environmental Benefit;
- Socio/Economic Implications;
- Financial Savings and Other Implications;
- Savings in Resources (kWh or m3) – where applicable;
- Savings in Pollution Releases (tonnes) – where applicable;
- Evaluation Model (Monitoring);
- What Worked / What Didn't Work;
- FCM GMF Funding;
- Other Funding;
- Current Status; and
- Potential Future Growth/Expansion of Application.

A full listing of all the green initiatives and activities and the associated environment benefits is included at Appendix B. In future monitoring of green initiatives and activities the Toronto Environment Office will ensure that all actions be summarized and quantified in a more consistent manner to allow for better monitoring and easier reporting.

A summary of the information provided in the Green Initiative Reporting Template is detailed below:

**Table 2: Summary of Presentation Information and Templates by ABCCDs for 2007-09**

Number of ABCCD Presentations	28
Number of ABCCD with data to Complete Templates	23
Number of Templates Received	23

A relatively large percentage of the green initiatives involve electricity efficiency-conservation or alternate electricity generation projects. These projects accrue many monetary benefits for the City in addition to reducing greenhouse gas emissions. The relative numbers of project types are shown in Table 3 below.

**Table 3: Number of Green Initiatives and Activities by Category (2001-2011)**

<b>Category</b>	<b>Reported Number of Projects</b>
Energy Conservation including “Efficiency in Buildings” and “Energy Efficiency in Operations”	55
Alternative Energy Generation including Renewables	14
Electricity Load Capacity Reduction	18
<b>Total Electricity Focussed Projects</b>	<b>87</b>
Transportation Systems/Vehicles	23
Waste Management (Reduction and Diversion)	10
Green Development including Trees/Greenspace/Naturalization	30
Water Conservation, Filtration and Treatment	5
Community Engagement including Outreach and Education	27
<b>Total Other Projects</b>	<b>95</b>
<b>Total Number of Green Initiatives and Activities</b>	<b>182</b>

Table 4 provides details on the emissions reductions and other environmental benefits associated with green initiatives and activities undertaken by ABCCDs with highlights of activities quantified for the year 2007. These projects are based on the information that ABCCDs provided in their presentations to the Parks and Environment Committee. Although ABCCD presentations covered a time period ranging between 2001 and 2011, ABCCDs were requested to focus on the year 2007 which will become the baseline year for future reporting. Appendix B contains the environmental benefits reported to the Toronto Environment Office, some which contain benefits over the entire 10 year period. The values in Appendix B will not match the values provided in Table 4.

Table 4 provides a point-in-time picture of the Corporation's green initiatives and activities with quantifiable benefits for 2007. Historical initiatives that have already reduced the Corporation's greenhouse gas releases by 700,000 tonnes as well as future initiatives such as the expansion of the Deep Lake Water Cooling (approximately 79,000 tonnes of reduced greenhouse gases expected) are not reflected in Table 4. Other projects not included in Table 4 are Toronto Hydro's Cogeneration projects at Ashbridges Bay and Green Lane Landfill (as they are not yet operational) and on-going water conservation efforts throughout the City (an annual 14,000 tonnes of greenhouse gas reductions).

In order to calculate greenhouse gas emission reductions consistently and accurately across the entire corporation, the Toronto Environment Office adjusted the greenhouse gas emissions (shown in Table 4 as carbon dioxide equivalent, eCO<sub>2</sub>) claimed by an electricity conservation activity, to reflect the electricity mix (i.e., hydro, nuclear, fossil fuels, and renewables) used in Ontario in 2004. The 2004 electricity mix used in this report was the latest data available at the time of this report.

**Table 4: Summary of Environmental Benefits and Greenhouse Gas Reductions in 2007**

Category	Total No. of Projects Claimed (2001-2011)	Total No. of Projects Quantified (2007)	Environmental Benefit (2007)	ABCCD Claimed eCO <sub>2</sub> <sup>A</sup> Reductions for 2007 (tonnes)	TEO Adjusted 2007 eCO <sub>2</sub> <sup>A</sup> Reduction (tonnes)
Energy Conservation	55	23	265,473 MWh reduced; 6,474, 278 m <sup>3</sup> natural gas reduced	85,126	77,373
Alternative Energy Generation	14	8	2,223 MWh generated	109	1,039,275 <sup>D</sup>
Electricity Load Capacity Reduction	18	12	115 MW reduced (NB. not MWh)		
Transportation	23	7		4,949	4949
Waste Management (Reduction and Diversion)	10	5	250,378 tonnes reduced or diverted	854 <sup>B</sup>	854
			250,000 tonnes of waste from construction waste which is inert and therefore has no implication on eCO <sub>2</sub> reduction		
Green Development	30	1	14,280 trees planted; brownfield remediation	60	--
Water Conservation, Filtration and Treatment	5	4	3,436,059 m <sup>3</sup> reduced; 4123 MWh reduced		998 <sup>C</sup>
Community Engagement	27	0	Environmental awareness and incentives to 'go green'	Not quantifiable	--
Air Quality Improvements	3	1	14 tonnes PM <sub>10</sub> removal; VOC and CFC reductions	Not quantified	--
<b>Total Estimated eCO<sub>2</sub></b>					<b>1,123,449</b>



<sup>A</sup> eCO<sub>2</sub> refers to equivalent carbon dioxide (CO<sub>2</sub>); a common unit of measure for greenhouse gases releases or reductions

<sup>B</sup> This category did not have complete information from ABCCDs to accurately calculate methane commitment and therefore only one ABCCD's eCO<sub>2</sub> number is included here

<sup>C</sup> This number was calculated by TEO using a conversion factor of 1.2 kWh electricity used for every 1 m<sup>3</sup> of raw water; this conversion factor has been provided by Toronto Water

<sup>D</sup> This value includes the GHG reductions from generating electricity from landfill gas (therefore offsetting conventional types of electricity production) which was not included in the reductions claimed by the ABCCDs

*Further Notes:*

1. All "TEO Adjusted" are numbers adjusted by the Toronto Environment Office (TEO) to take into account a full electricity source mix for 2004 as standardized in the City's Inventory process.

2. The summary of eCO<sub>2</sub> benefits that were derived through Green Development improvements, by planting 14,280 trees in Toronto, have not been included in Table 4 as work to understand carbon sequestration (and related continuation protocols) is ongoing. TEO will report on sequestration benefits plus avoided energy consumption benefits due to shade and wind protection of single trees and woodlots in a future report.

### **Approaches for Future Data Collection**

This first attempt at collecting the quantifiable environmental benefits and air emissions reductions, as a result of the ABCCD's green initiatives and activities, was useful but needs to be improved for future data monitoring and reporting. There are different levels of technical understanding of the data being requested and a large variety of methods used by the ABCCD's to collect this data. After the data was collected, Toronto Environment Office adjusted the numbers to reflect a more consistent reporting method.

From this data collection exercise, it has been determined that for future reports, a greater liaison role is needed by the Toronto Environment Office with individual ABCCD's to capture the breadth of activities currently being undertaken and to understand the relationships between programs, projects, and activities and how best to quantify them.

On a go forward basis, the Toronto Environment Office will design and implement a revised 'Green Initiatives Reporting Template' and liaison process that will provide the following:

- future reporting templates will include project start date, project end date, and, if the project is multi-year, a request for expected environmental benefits broken down on an annual basis;

- the template will distinguish between “approved” projects and their projected environmental benefits over time and “planned” projects and their potential environmental benefits;
- regarding community programs, a distinction will be made regarding the confidence in the number of participants being reported or a ‘weighted’ system will be created;
- templates will include more specific guides for the data required, such as: waste (tonnes); recycling (tonnes); composition of waste -- % recyclable materials, % non-recyclable, % organics etc. to match data that ABCCDs are collecting; and
- cross-referencing will take place to ensure double accounting does not take place.

The Toronto Environment Office will also identify key data sources – for instance Facilities and Real Estate, Fleet Services, and Toronto Water - who may already be collecting City-wide program data to ensure that individual ABCCD programs are being captured in the reported data and also to make sure that double counting does not occur.

In addition, the Toronto Environment Office will facilitate a series of information sessions for ABCCD’s to facilitate the accurate and consistent data collection methods and to communicate how this data fits into the Climate Change Action Plan Reporting work being undertaken by Toronto Environment Office and to demonstrate how data is converted into greenhouse gas emissions.

## CONCLUSION

It was a valuable exercise to have all the ABCCDs report on their environmental activities to the Parks and Environment Committee. The groups received an opportunity to inform Councillors of their programs and areas that could be improved, while the Councillors gained a better understanding of the environmental benefits from the ABCCD's programs and activities.

Furthermore, the exercise of filling out the Green Initiative Reporting Templates was a good foundation for future monitoring and reporting on environmental benefits and emissions reductions achieved as a result of implementing environmental policies and programs across the Corporation. The changes suggested in this report will serve to strengthen future reporting on greenhouse gas emissions.

## CONTACTS

Ciara De Jong, Manager, Research and Policy Development,  
Toronto Environment Office  
Ph: 416- 397-5784  
Fax: 416-338-0808  
Email: [cdejong@toronto.ca](mailto:cdejong@toronto.ca)

Christopher Morgan, Project Manager,  
Toronto Environment Office  
Ph: 416-392-6903  
Fax: 416-338-0808  
Email: [cmorgan1@toronto.ca](mailto:cmorgan1@toronto.ca)

---

Lawson Oates,  
Director, Toronto Environment Office

## ATTACHMENTS

Appendix A: Highlights of the Presentations to the Parks and Environment Committee by the City of Toronto Agencies, Boards, Commissions, Corporations and Divisions and Associated Green Initiatives Reporting Templates

Appendix B: Detailed Listing of Green Initiatives and their Environmental Benefits for GHG Reduction Claims during the period of 2001-2011