

**THE ENVIRONMENT & ENERGY
DIVISION**

**FIVE YEAR
BUSINESS PLAN
(2014-18)**

**City of Toronto
October 2013**

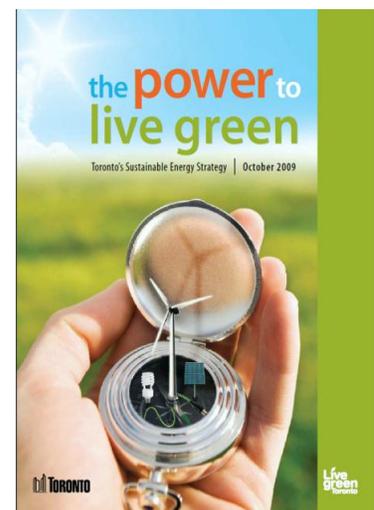
INTRODUCTION

The City of Toronto has a long history of leadership on environmental issues and urban energy solutions. In recent years, City Council has adopted a number of visionary long-term strategies established to guide Toronto in becoming an environmentally sustainable city. These include:

- The Climate Change, Clean Air and Sustainable Energy Plan (Climate Change Action Plan);
- The Power to Live Green: Toronto's Sustainable Energy Strategy; and
- The Climate Change Adaptation Strategy: Ahead of the Storm¹.

These and other key strategies provide direction to the City's divisions, agencies and corporations. Their implementation has resulted in Toronto:

- Surpassing the City's 2012 greenhouse gas reduction target of 6% by achieving in 2011 a 15% reduction against 1990 levels;
- Exceeding the 89 Megawatt electricity conservation target for the 2007-2010 conservation and demand management program (CDM);
- Achieving annual energy cost savings for City facilities of over \$5 Million through the Energy Retrofit Program;
- Developing and implementing award-winning programs such as the Better Buildings Partnership and Live Green Toronto; and
- Demonstrating leadership through ground breaking work in the areas of:
 - municipal climate change adaptation;
 - community energy planning; and,
 - distributed urban energy solutions.



¹<http://www.toronto.ca/legdocs/mmis/2007/cc/decisions/2007-07-16-cc11-dd.pdf>.
<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2009.EX36.9>
<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2008.EX22.4>

ESTABLISHMENT OF THE ENVIRONMENT & ENERGY DIVISION

The Environment and Energy Division was created in 2012 through the consolidation of the Toronto Environment Office and the Energy and Strategic Initiatives group in Facilities Management. Its creation was the result of a recommendation by the City Manager following the 2011 Core Service Review and a more detailed review of the City's environmental and energy functions. The Environment and Energy Division is under the purview of the Chief Corporate Officer².

The Canadian Association of Municipal Administrators (CAMA) presented its 2013 Environment Award to the City of Toronto for the Live Green Toronto Initiative. The Environment Award recognizes the commitment of a municipality to environmentally sustainable governance, to protecting the environment and to combating climate change.

The mandate of the new Environment & Energy Division, as defined by the City Manager, is to provide and be accountable for cross-corporate leadership, coordination, and environment and energy sustainability outcomes. In addition, Council directed that the Environment and Energy Division serve the city by:

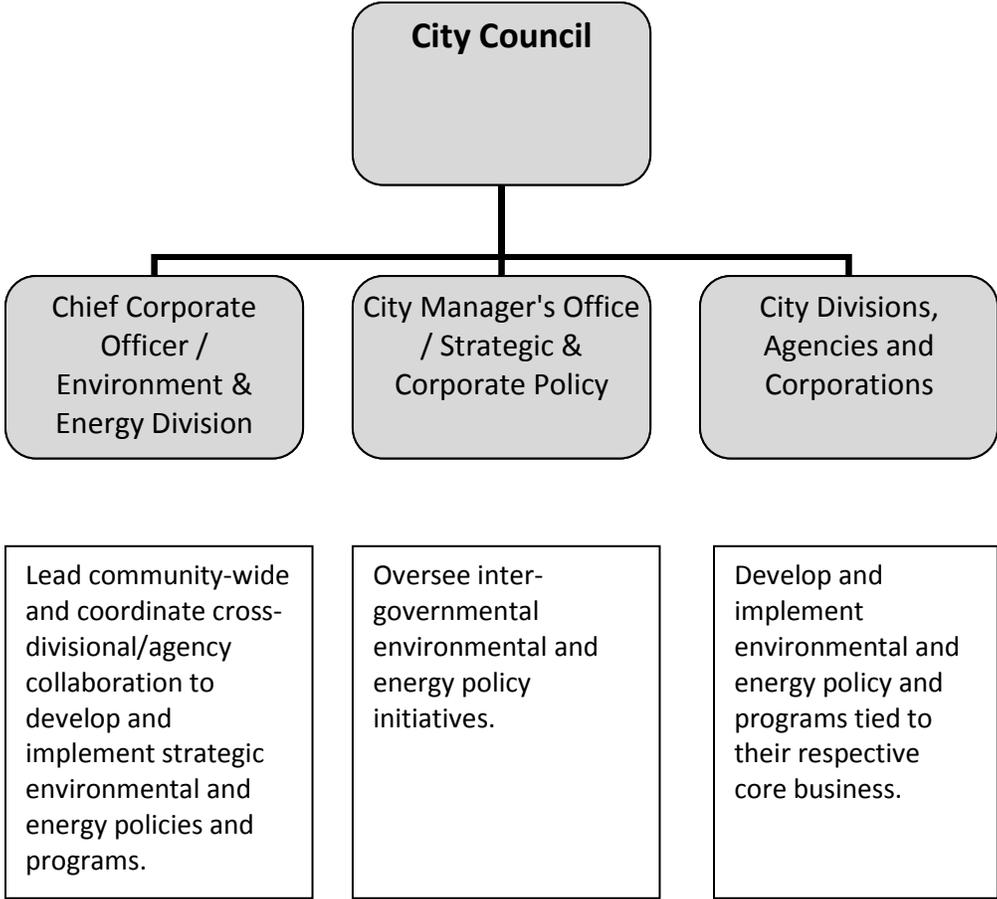
- promoting environmental sustainability, energy efficiency and conservation within the City's internal operations;
- developing and implementing environmental policies and programs that promote sustainable development and the growth of the green economy;
- providing research and policy expertise;
- establishing and leveraging policy and program partnerships with internal and external stakeholders; and
- delivering tools and resources to engage Toronto residents and businesses in adopting sustainable lifestyles and business practices.

In 2013, Corporate Knights magazine ranked Toronto as the 5th most sustainable city in North America.

² <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2012.EX25.1>

The City Manager further identified that environment and energy functions are integral components of the core mandate of other City Divisions and Agencies. These include, for example, Public Health's responsibility for environmental health programs; City Planning's development of environmental policies for the Official Plan; water efficiency and conservation within Toronto Water; and the blue bin, green bin and other environmental programs offered by Solid Waste Management. Where City services and expertise are inherently integrated with City operations, environment and energy functions will continue to be decentralized and be the responsibility of an operating program. In recognition of this, the Environment and Energy Division will focus on facilitating the development and implementation of strategic community/corporate-wide policies, programs and initiatives and support where appropriate, the actions of other City Divisions, Agencies and Corporations to enhance participation and outcomes.

Figure 1: Environmental and Energy Policy and Program Management, City of Toronto



The purpose of this Business Plan is to guide the new Division in delivery of its functions and services over the next five years (2014 to 2018). The plan outlines how the Environment and Energy Division will support and partner with City Council, residents, businesses, and other City operations to help Toronto become an environmentally sustainable city, and facilitate other key strategic objectives of the City including City Building, Economic Vitality and Fiscal Sustainability.

VISION

The Environment and Energy Division leads the development and implementation of innovative environmental and energy policies and programs, and inspires citizens, businesses, organizations and other stakeholders to work with City staff to make Toronto North America's most environmentally sustainable city.

To realize this vision, the Division will focus on three key pillars: Economic Benefit, Energy Resiliency and Environmental Benefit.

Figure 2: The 3 Pillars - A Balanced Approach

<p>Economic Benefit</p>	<ul style="list-style-type: none"> ➤ attract and retain businesses; retain energy dollars in local economy ➤ create "green" jobs ➤ generate cost savings/revenue from existing City assets ➤ improve resilience to extreme weather events
<p>Energy Resiliency</p>	<ul style="list-style-type: none"> ➤ increase energy adequacy and security ➤ promote electricity conservation and peak demand reduction ➤ promote small scale local distributed energy generation
<p>Environmental Benefit</p>	<ul style="list-style-type: none"> ➤ reduce green house gas emissions ➤ improve air quality ➤ reduce the release of harmful emissions into the natural environment

MISSION

Our *mission* is to provide corporate leadership, coordination and accountability for environment and energy sustainability outcomes.

GUIDING PRINCIPLES

Staff of the Environment and Energy Division will:

Deliver Results

Our initiatives will deliver tangible, measurable results.

Innovate

We will recognize opportunities and challenges and embrace change.

Add value

Our initiatives will contribute to achieving the long term vision for Toronto.

Be Professional

We will provide knowledgeable, unbiased advice to senior management and Council.

Be Rigorous

Our recommendations will be based on detailed business cases and extensive measurement, verification, research and analysis.

Engage the community

Our activities will be informed by dialogue with the citizens and businesses of Toronto.

CORE OBJECTIVES

1) Reduce Emissions to the Environment

To initiate and support activities that help achieve City Council's approved goals and targets for reducing harmful emissions to the environment, in particular greenhouse gases and smog-causing emissions.

Toronto has exceeded its greenhouse gas reduction targets for 2012, as adopted by City Council in 2007.

The 2012 goal was to see a 6% reduction against 1990 levels. In 2011, emissions were an estimated 15% lower than 1990 levels, as identified in a June, 2013 report (item #PE21.5) to the Parks and Environment Committee. When only the City's direct operations are considered, the emission levels in 2011 were an estimated 37% lower than 1990 levels.

TORONTO'S GREENHOUSE GAS REDUCTION TARGETS

- 30% reduction by 2020 (based on 1990 levels)
- 80% reduction by 2050 (based on 1990 levels)

Source: *The Climate Change, Clean Air and Sustainable Energy Action Plan* adopted by City Council in July 2007.

2) Energy Conservation and Demand Management

To initiate, design, deliver and support activities that achieve City Council's approved energy efficiency goals and targets, and generate financial and economic benefits through the City's own operations, and for Toronto's residents and businesses.

TORONTO'S ENERGY CONSERVATION TARGETS*

Source	By 2020	By 2050
Electricity	Reduce by 550 Megawatts	Reduce by 1050 Megawatts
Natural Gas	Reduce by 730 million cubic metres	Reduce by 1560 million cubic metres

* Cumulative targets based on 2007 levels.

Source: *The Power to Live Green: Toronto's Sustainable Energy Strategy* adopted by City Council in November 2009.

3) Energy Security and Supply

To work with energy providers and suppliers to ensure Toronto has a clean, reliable and affordable energy supply that will support Toronto’s environmental, economic, social and consumer needs today and into the future.

TORONTO'S RENEWABLE ENERGY GENERATION TARGETS*		
Source	By 2020	By 2050
Electricity	Increase by 550 Megawatts	Increase by 1000 Megawatts
Natural Gas	Displace 90 million cubic metres of natural gas	Displace 200 million cubic metres of natural gas

* Cumulative targets based on 2007 levels.

Source: *The Power to Live Green: Toronto's Sustainable Energy Strategy* adopted by City Council in November 2009.

4) A Resilient City

To support the increased resilience of Toronto’s neighbourhoods, businesses, natural systems and physical infrastructure to high impact extreme weather events, thereby mitigating potential damage, replacement and repair costs, loss of services and business disruption.

On July 8, 2013 an extreme storm produced record rainfall, resulting in power outages and major disruptions to transportation, wastewater and water systems. Direct operating costs to the City were estimated at \$10.1 million and capital costs at about \$55.5 million, as identified in the City Manager's report to City Council (item #EX34.4) The Insurance Bureau of Canada has reported on over \$850 million in insurance claims across the GTA as a result of this storm, making this event the most costly storm event in Ontario's history.

"Building resilience is about making people, communities and systems better prepared to withstand catastrophic events – both natural and manmade – and able to bounce back more quickly and emerge stronger from these shocks and stresses."

Source: Rockefeller Foundation: 100 Resilient Cities Initiative.

KEY INITIATIVES

A) Engaging Residents and Businesses

The Environment and Energy Division will work with City Divisions, Agencies and Corporations and other stakeholders to develop, establish and implement programs and activities that directly support residents and businesses in taking action. Existing programs that engage residents and businesses (as described in Appendix B of this report), include:

- The Better Buildings Partnership;
- Conservation and Demand Management Programs;
- Distributed District Energy Program;
- Smart Commute Program;
- EcoRoof Financial Incentive;
- Live Green Toronto Community Grants;
- Live Green Toronto Volunteers; and
- Live Green Toronto Membership Card.

New and emerging initiatives include:

- Residential Energy Efficiency Program: Phase One to launch November 2013;
- Sustainable Neighbourhood & Local Air Quality Improvement Initiative; and,
- Creation of an external panel to advise the CCO on key issues related to the environment and energy.

THE LIVE GREEN TORONTO VOLUNTEERS

Volunteers are engaged to educate and inform their fellow residents about the City's environmental programs and the benefits of living green, while providing valuable training and experience that increases their job skills and employment opportunities.

3,711: the estimated number of volunteer hours provided to the City in 2012 at more than 150 community events.

RESIDENTIAL ENERGY EFFICIENCY PROGRAM: PHASE ONE

The City will launch an innovative program to provide financial support for property owners wishing to make deep, substantive energy efficiency retrofits to their property, taking advantage of a regulatory change made by the Province of Ontario to the City of Toronto Act in 2012. To launch by the end of 2013, the phase one target is to support the retrofit of 1,000 single family homes, and 1,000 multi-residential units in 10 buildings.

B) Leading by Example

The City of Toronto as a corporation has a significant energy and environmental impact associated with its own operations. The Environment and Energy Division will ensure the City is identifying, implementing and reporting on opportunities that reduce the City's direct environmental footprint, reduce current or future operating costs, and generate revenue.

Existing initiatives include:

- Installing renewable energy systems, in particular, solar PV and geothermal, on City facilities;
- Energy efficiency retrofits in more than 1,500 City facilities;
- Implementing new Building Automation Systems that connect City buildings to a central network;
- Implementing the Demand Response Program, where actions to reduce energy consumption and generate clean energy utilizing local back-up power sources are taken during periods of peak electricity demand;
- Business cases leading to the development of district energy systems at Exhibition Place, Etobicoke Centre (Westwood Theatre Lands), and Scarborough Civic Centre;
- Ensuring that the City's 70 per cent waste diversion target is met and exceeded in all major City owned facilities;
- Chairing and supporting the Resilient City Working Group that is identifying and addressing operational risks emerging as a result of a changing climate and increased extreme weather events;
- Installing and operating deep lake water cooling systems in City facilities, in particular City Hall, Old City Hall, Metro Hall, the Police Headquarters and Union Station;
- Developing the City's Environmental Risk Assessment Tool and approach; and,
- Managing energy costs by purchasing/hedging electricity, natural gas and vehicle fuel directly in the wholesale markets from a pool of pre-qualified suppliers/counterparties.

New and emerging initiatives include:

- Developing a framework for the use of Recoverable Debt, whereby operating savings and revenue generation are used to repay an initial investment from the Division's capital programs;
- Evaluating the viability of installing combined heat and power systems in City facilities; and,
- Establishing resources to support City operations staff in identifying, evaluating and addressing environmental risks and liabilities, and establishing management systems to maintain these activities into the future.

C) Outreach and Education

In support of this, the Environment and Energy Division will undertake initiatives that build awareness and more importantly provide residents and businesses access to information. Existing program activities include:

The comprehensive Live Green Toronto website and monthly e-newsletter;

- The annual Live Green Toronto Festival;
- The annual Live Green Toronto Awards;
- Participation in about 150 events each year, from Environment Days to major shows such as the National Home Show;
- Active participation in professional and industry organizations and forums, such as the Ontario Association of Professional Engineers and the GTA Environmental Coordinators;
- Preparation of community energy plans; and,
- Engaging City Staff in workplace environmental, energy efficiency and waste diversion activities.

New and emerging initiatives include:

- A Resilient City information campaign for residents, to launch in 2014, that will educate them on actions they can take to manage extreme weather events with minimal disruption and cost ; and,
- Real time web access to performance of City solar photovoltaic installations to demonstrate their environmental, economic and energy production impact.

DID YOU KNOW?

The City of Toronto has reduced its greenhouse gas emissions by 37% against 1990 levels in its direct operations.

The City has reduced its annual operating costs by over \$5 million by investing in energy efficiency improvements in City owned facilities.

D) Policy Development and Implementation

As the City's centre of expertise on a range of energy and environment issues, the Division will lead and support, in consultation with stakeholders, the development and implementation of policies, and advocate for legislative or regulatory change by the Federal and Provincial governments. Current initiatives where the Division is either the lead or engaged include:

- Implementing the Local Food Procurement Policy;
- Recommending changes to the Provincial Feed-in Tariff program;
- Implementing the Carbon Credit Policy;
- Providing input to the Province's Long Term Energy Plan;
- Recommending options to encourage increase low emission vehicles in the City's taxi fleet;
- Developing transportation demand management policy and program options;
- Small engine equipment use and associated environmental impact;
- Identifying the implications and policy and regulatory issues that may need to be addressed by the City as the number of electric vehicles increases; and
- Supporting City Planning in a cost benefit analysis of the application of Tier 2 of the Toronto Green Standard to all City capital projects.

New and emerging initiatives include:

- Establishing a Renewable Energy policy for new City buildings;
- Engaging in the Urban Agriculture strategy for the City being led by the Deputy City Manager for Cluster A;
- Developing key performance indicators for community resilience and environmental sustainability; and
- Working with City Planning on potential modifications to design guidelines to improve street level ventilation and ground level air quality.

E) Coordination and Strategic Planning

The City Manager has mandated the Chief Corporate Officer to ensure coordination and collaboration across all City operations, and with residents and businesses, in addressing City Council's environmental and energy priorities. To support this mandate the Environment and Energy Division will establish appropriate forums and vehicles to facilitate collaboration and coordinated planning and will lead the City's engagement in key multi-party forums.

Current initiatives include:

- The City's Executive Environment Team, chaired by the Chief Corporate Officer;
- Working with City Planning to integrate energy options into the secondary plan development process to help support the City's growth and development through Community Energy Planning;
- Support and engagement in the WeatherWise Partnership;
- Chairing and supporting the GTA Clean Air Council;
- Participating in international forums, such as the Urban Sustainability Directors Network;
- Leading the City's engagement with the Ontario Power Authority, Toronto Hydro and other entities in the development of a Regional Electricity Plan for Toronto; and,
- Coordinating intergovernmental funding transfers, e.g. FCM Green Municipal Funds.

New and emerging initiatives include:

- Creating a Community Advisory Group to provide advice to the Chief Corporate Officer on emerging environment and energy issues and trends, in early 2014.

F) Reporting and Evaluation

High quality research and information are key inputs into the decisions and actions of City Council, residents and businesses, the Division and all City operations. The Environment and Energy Division will lead the research and provide the best possible information on potential environmental implications and concerns, with a focus on emission levels and sources, energy usage, and possible future extreme weather scenarios that may occur as a result of climate change.

Current initiatives include:

- Preparing the bi-annual community wide greenhouse gas and air emissions inventory;
- Reporting annually on corporate energy use, renewable energy generation and greenhouse gas (GHG) emissions, under Ontario Regulation 397/11;
- Completing a local air quality study for South Etobicoke;
- Ongoing mapping of energy usage and identification of opportunities for alternative energy systems and/or energy conservation programs;
- Coordination every year of the City's mandatory emission level reporting submissions in compliance with Federal and Provincial regulations and City bylaws;
- Supporting investigations into potential air quality impacts associated with the proposed expansion of the Billy Bishop Island Airport;
- Working with other City Divisions to identify the energy and electricity needs associated with the City's Economic Growth Plan and the City's Official Plan; and,
- Measuring and verifying the performance of projects that participate in the City's recoverable debt and financial incentive program.

New and emerging initiatives include:

- Developing a five-year corporate energy conservation and demand management plan beginning in 2014, under Ontario Regulation 397/11;
- Preparation in 2014 of an annual environment and energy report for Toronto, which will include a discussion and evaluation of program activities and outcomes against existing Council adopted strategies and targets;
- Implementation of six additional local air quality studies in 2014 covering 12 to 15 City Wards;
- Maintain a watching brief and assessment of extreme weather events and probabilities for City operations and public well-being; and
- Investigating the significance of traffic emissions on local air quality, and the key sources of traffic emissions.

G) Service Delivery and People Management

The Environment and Energy Division will ensure that in the delivery of all services, programs and activities it meets and exceeds corporate standards and community expectations.

Initiatives to be taken as the merger of the Division is finalized include:

- Establishing customer service standards, complaint protocols and reporting and monitoring approaches;
- Presenting business cases for programs and projects in order to optimize the use of financial resources;
- Ensuring research, policy and program activities of the Division follow industry standards and best practices; and,
- Ensuring Division activities are in compliance with regulatory requirements, whether Federal, Provincial or City.

We will develop a Divisional People Plan that will include:

- Ensuring established operating procedures and business practices are observed to protect the health and safety of employees and clients of the Division;
- Implementing initiatives and actions that meaningfully engage all employees of the Division to ensure that each team member is making the best and highest contribution towards Divisional goals;
- Ensuring all employees have a career development plan, if requested;
- Creating opportunities for staff to engage in a variety of activities across the Division and City organization, in order to develop their knowledge and skills; and,
- Attracting and retaining the best possible workforce that will ensure the Division succeeds in meeting its mission and objectives.

MEASURING OUR SUCCESS

The Environment and Energy Division will build upon existing program monitoring and key performance indicators to present an annual report on the Division's outcomes. Results will be summarized in broad categories: environmental; energy; economic and financial; community; and operational performance. Potential measures that will be used to evaluate outcomes include:

Environmental Performance:

- quantifiable emission reductions associated with the Division's programs and activities;
- number of trees and size of natural heritage protected or enhanced through programs, such as the Live Green Toronto initiative;
- volume of storm water diverted through programs, such as the Eco-Roof Program; and,
- waste diversion rates at City facilities and compliance with provincial regulations.

Energy Performance:

- kilowatt hours of energy consumed per square foot of building space;
- kilowatt hours of energy generated by renewable energy installations;
- peak energy demand reductions/generation;
- energy cost savings/revenue generated by energy conservation and renewable energy installations; and,
- metrics to track energy cost and reliability (to be developed).

Economic and Financial Performance:

- quantity of funds leveraged from third parties such as the Ontario Power Authority;
- operating and capital cost reductions and savings;
- job creation associated with the Division's programs and activities;
- avoided risks and liabilities, where identifiable; and,
- reduced service interruptions of critical City services during and after extreme weather events.

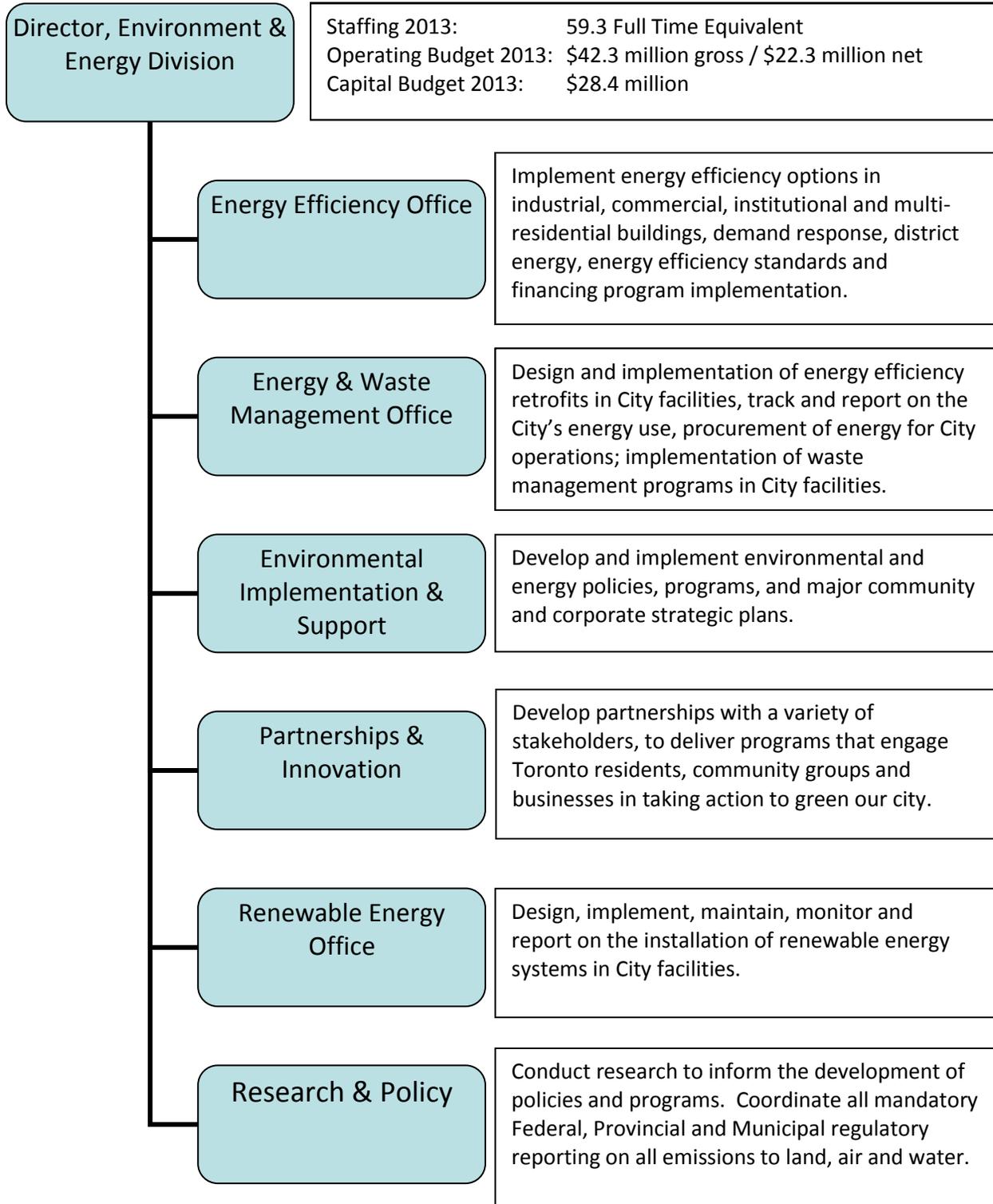
Community Engagement Performance:

- level of community participation in program offerings;
- customer service comments, surveys and complaints; and,
- number of volunteers and volunteer hours.

Operational Performance:

- regulatory submissions prepared on time and in compliance;
- timely input from the City into proposed regulatory changes/approvals, recognized as credible by those to whom it is presented;
- number of health and safety related incidents;
- waste diversion rates compiled and audited in compliance with provincial regulations.
- reports provided according to schedule and terms of reference; and,
- reports highly rated by readers/stakeholders.

APPENDIX A: ORGANIZATIONAL STRUCTURE & SUMMARY



APPENDIX B: DETAILED DESCRIPTION OF ENVIRONMENT AND ENERGY DIVISION INITIATIVES

A. ENGAGING RESIDENTS AND BUSINESSES		
Objective	Outcomes 2011/12	Outcomes 2013 (forecast) & Outlook 2014
<p>Better Buildings Partnership – Existing Buildings: Implementation of energy efficiency options in industrial, commercial, institutional and multi-residential buildings and financing options.</p> <p>Better Buildings Partnership – New Construction: Design assistance and implementation of higher energy efficiency standards above the Ontario Building Code to meet Toronto Green Standard Tiers 1 and 2 requirements.</p>	<p>360 million square feet of industrial, commercial, institutional and multi-residential buildings retrofitted.</p> <p>Developed, with City Planning, options for the amended Toronto Green Standard Tiers 1 and 2 requirements based on the amended Ontario Building Code for 2012.</p>	<p>Complete 400 million square feet of industrial, commercial, institutional and multi-residential buildings retrofits.</p> <p>In July 2013, City Council adopted the amended Toronto Green Standard Tiers 1 and 2 requirements. Implementation has started and will continue through 2014.</p>
<p>The Conservation Demand Management Program: Achieve the Ontario Power Authority and Toronto Hydro directive/agreement for energy conservation and demand management.</p>	<p>Achieved 97 megawatts of energy conservation and demand management.</p>	<p>In 2014, achieve 120 cumulative megawatts of energy conservation and demand management.</p>
<p>The Smart Commute Program: Reduce the number of single occupant vehicle commuter trips by implementing transportation demand programs in partnership with local businesses.</p>	<p>By December 2012 there were 70 participating partners, representing over 250,000 commuters.</p> <p>Partners participating in the Toronto Central Smart Commute program purchase just over \$11 million annually in corporate discount TTC Metropasses.</p> <p>Metrolinx estimates the impact of all the GTA Smart Commute programs as helping avoid an estimated 16 million kilometres of vehicle commuter trips annually.</p>	<p>Official launch and expansion of the program into Scarborough and South Etobicoke, bringing the program to all areas of the city. In 2013, the number of participating businesses is forecast to increase to at least 80.</p> <p>Annual targets for the program are set in partnership with Metrolinx who provides about 40% of the funding for the program. Program targets for the March 2014 to April 2015 time period (Metrolinx's fiscal year) will be set in early 2014 as part of the renewal of the funding agreement.</p>

A. ENGAGING RESIDENTS AND BUSINESSES

Objective	Outcomes 2011/12	Outcomes 2013 (forecast) & Outlook 2014
<p>The EcoRoof Financial Incentive: Utilizing funds collected as cash-in-lieu through the Green Roof Bylaw support the retrofit of existing buildings with green or cool roof technologies.</p>	<p>By May 2013, implemented roofs were estimated to: help divert 10 million litres of storm water annually from the sewers; generate 600,000 kilowatt hours of energy savings annually; reduce greenhouse gases by 110 tonnes annually; generate 65 person years of employment; and retrofit 240,000 square metres of roof space (about 44 football fields).</p>	<p>In July 2013 City Council adopted a revised terms and conditions for the program (see item PG25.17). By the end of 2013, it is forecast that an additional 10 to 15 existing roofs will be retrofitted with either a green or cool roof. In 2014, it is forecast that 15 to 20 existing roofs will be retrofitted with either a green or cool roof.</p>
<p>The Live Green Toronto Community Investment and Capital Funds: Support neighbourhood and community groups in implementing local environmental improvement initiatives.</p>	<p>Two funds were established in May 2008 and by December 2012 these funds have supported 95 projects, which leveraged on average \$4 for every \$1 in provided funding.</p> <p>The Capital Investment Fund that provided funds of up to \$250,000 ended December 2012.</p>	<p>For 2013, the Community Investment Fund that provides funds of up to \$25,000 will fund 12 to 20 community projects and again in 2014.</p>
<p>Live Green Toronto Volunteers: Support the City of Toronto's environment and energy initiatives by utilizing volunteers to outreach and educate their fellow residents while providing the volunteers with valuable job training and experience.</p>	<p>In 2011 and 2012 it was estimated the volunteers provided just over 3,700 hours of service annually, enabling the division to participate in over 150 community events.</p>	<p>Over 250 new volunteers have joined the program in 2013. 2014 goal is to recruit over 250 new volunteers, contributing over 4,000 hours of service.</p>
<p>Live Green Toronto Membership Card: Support local businesses in their efforts to provide green services and products by connecting them with residents interested in green products.</p>	<p>As of December 2012 there were 25,294 residents with a Membership Card and 403 participating businesses.</p>	<p>By December 2013, it is forecast that the program will have 30,000 residents with a Membership Card and over 500 participating businesses. 2014 programming will be informed by business member and cardholder surveys to be completed by end of 2013.</p>
<p>Live Green Toronto Animators: Increase the ability of community and neighbourhood groups to identify and undertake local</p>	<p>This initiative formally ended in December 2012. In place for 4 years, the program directly supported over 180 community projects.</p>	<p>Program ended December 2012.</p>

A. ENGAGING RESIDENTS AND BUSINESSES

Objective	Outcomes 2011/12	Outcomes 2013 (forecast) & Outlook 2014
environmental action.		
<p>Cut-It Out Toronto: Reduce emissions associated with the use of small engine lawn and garden equipment.</p>	<p>Delivered in partnership with Canadian Tire, this program between 2009 and 2011 resulted in the retirement of almost 1,700 pieces of older higher polluting small engine equipment.</p>	<p>Program ended December 2011.</p>
<p>The Residential Energy Efficiency Program: Phase one will see 2,000 residential properties in both the single family and multi-residential sectors reduce their energy consumption by 20% to 50%.</p>	<p>New program.</p>	<p>Phase One of the program is forecast to launch in November 2013 and will be in place until 2016.</p> <p>Phase One goals are: 1,000 single-family homes; 1,000 units in multi-residential buildings; and energy savings on average of at least 25%.</p>
<p>The Sustainable Neighbourhood & Local Air Quality Improvement Initiative: Working with the results of a local air quality study, support residents and industries in developing and implementing actions to improve their local air quality and other environmental concerns.</p>	<p>New program.</p>	<p>Program will be initiated in early 2014. By the end of 2014, the program will be providing support to six geographic areas, representing 12 to 15 City Wards.</p> <p>While the neighbourhoods and communities will identify and implement their local initiatives, it is forecast that there will three to five local grassroots initiatives established per geographic area. Projects will likely include community tree plantings, collective energy efficiency education and implementation campaigns, development of community gardens, and collective procurement of renewable energy systems.</p>

B. ENERGY AND ENVIRONMENTAL LEADERSHIP BY EXAMPLE

Objective	Outcomes 2011/12	Outcomes 2013 (forecast) & Outlook 2014				
<p>Renewable Energy Systems on City Facilities: Implement where feasible renewable energy systems, such as solar PV and geothermal on City owned facilities and property.</p>	<p>Establishment of the program.</p>	<p>It is expected that this program will result in the following: 10 large solar PV installations in 2013; 5 small and 15 large solar PV installations in 2014-15; and one geothermal installation in 2014.</p>				
<p>Energy Retrofit Program for City Operations: Reduce energy consumption and operating costs in City operations by implementing energy efficiency measures.</p>	<p>Over 500 City facilities have been retrofitted to reduce energy use through the Energy Retrofit Program resulting in emission reductions and financial savings of over \$5 million.</p>	<p>Over 100 retrofit projects will be completed in Parks facilities and other City corporate facilities.</p>				
<p>Building Automation Systems in City Facilities: Installation of systems that will improve comfort, reduce maintenance and reduce energy costs.</p>	<p>Installation of the system in several corporate facilities, including City Hall and Metro Hall.</p>	<p>Systems being installed in the Archives and 277 Victoria Ave. and work will start in 2014 at the North York Civic Centre. Energy savings of 10% are expected.</p>				
<p>Demand Response Program: During periods of peak demand for electricity implement actions to reduce energy consumption in City Facilities and if necessary generate additional local energy by utilizing local back-up power sources.</p>	<p>Four projects were enrolled in the Demand Response-3 Program. Results for 2011/12 - 1.9 MW</p>	<p>Enrol and additional 24 projects, for a total of 28 Demand Response-3 projects. Cumulative expected results are:</p> <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding-right: 20px;">2013</td> <td>5.4 MW</td> </tr> <tr> <td>2014</td> <td>10.0 MW</td> </tr> </table>	2013	5.4 MW	2014	10.0 MW
2013	5.4 MW					
2014	10.0 MW					
<p>District Energy Systems: Identify opportunities and develop the business case for the design and construction of district energy systems.</p>	<p>City Council approved the business case and project plan for implementation of a district energy system at Exhibition Place.</p> <p>Development was initiated on the preparation of business cases for three additional district energy systems, and an opportunity scan identified 27 opportunities city wide for new systems.</p>	<p>Commence design and construction of the Exhibition Place district energy system.</p> <p>Complete the three additional district energy system business cases and if appropriate, present to City Council.</p> <p>Refine the district energy opportunity scan and continue to engage with stakeholders.</p>				

B. ENERGY AND ENVIRONMENTAL LEADERSHIP BY EXAMPLE

Objective	Outcomes 2011/12	Outcomes 2013 (forecast) & Outlook 2014
<p>Waste Reduction and Diversion in City Facilities: Ensure City Operations are meeting and exceeding the City's 70% waste diversion targets.</p>	<p>Informal tracking of waste generated at corporate buildings was established in 2011 and found a combined waste diversion rate of 84%. In 2012 it was 85%.</p>	<p>Third party waste audits will be carried out in 2013 and 2014 to determine the waste diversion rates at eight of the City's largest corporate buildings.</p>
<p>Deep Lake Water Cooling Systems in City Facilities: Install and operate deep water-cooling systems in major City owned facilities.</p>	<p>By December 2012, the following facilities were connected: City Hall, Old City Hall, Metro Hall and the Police Headquarters resulting in operating cost savings in energy and maintenance.</p>	<p>Union Station has been connected and will start utilizing deep lake water cooling in 2013 and increase its usage in 2014/15. Connecting to DLWC instead of conventional cooling saved approx. \$8M in capital costs.</p>
<p>Energy Procurement / Hedging: Purchase of electricity, natural gas and vehicle fuel to meet the energy needs of City operations.</p>	<p>The energy procurement program is a corporate wide program for City divisions and participating agencies. In 2011 and 2012, the City elected to stay on spot price for electricity, purchased 28 natural gas fixed price contracts and 9 hedging transactions for diesel fuel.</p>	<p>Continued procurement of energy from a roster of pre-qualified suppliers according to the procurement strategies put in place for each energy type to meet the approved budgets.</p>
<p>Resilient City Working Group: Support 17 key City operations in identifying and evaluating risks to their services and infrastructure associated with increased extreme weather events occurring as a result of climate change.</p>	<p>A risk assessment tool and process has been developed and pilot tested with two City operations.</p>	<p>Established in mid-2013, the Working Group will present by December 2013 to City Council a high level preliminary evaluation of potential risks and the steps that may be needed to mitigate and manage these new risks. Future activities for 2014 and beyond will be identified in the staff report.</p>
<p>Recoverable Debt Operational Model: Future energy projects on City facilities and operations will be funded through a model whereby reduced operating costs and financial savings will be utilized to repay the initial investment plus an interest charge.</p>	<p>Developed a rationale and framework for the Recoverable Debt program, which was approved by City Council as part of the 2013 budget process. Exhibition Place district energy system was the first project approved under this program.</p>	<p>The Division's 2014 Capital Budget submission includes requests for project financing through Recoverable Debt totalling \$13 Million.</p>

B. ENERGY AND ENVIRONMENTAL LEADERSHIP BY EXAMPLE

Objective	Outcomes 2011/12	Outcomes 2013 (forecast) & Outlook 2014
<p>Combined Heat and Power Systems in City Facilities: Assess potential and implement combined heat and power systems based on favourable business cases.</p>	<p>New program</p>	<p>Conduct business case and implement combined heat and power at a least one City Facility.</p> <p>Assess potential for combined heat and power at City Facilities with all year round heating loads (i.e. indoor pools) and include in capital plan.</p>
<p>Measurement and Verification Program: Measurement and verification protocols will be researched and a preferred approach will be selected for this program.</p>	<p>The International Performance Measurement and Verification Protocol was selected as the preferred methodology for the program. Initial measurement and verification of projects funded through the Sustainable Energy Funds and the Better Buildings Partnership.</p>	<p>Establish a database for all measurement and verification projects completed during 2012 to 2014.</p>

C. OUTREACH AND EDUCATION

Objective	Outcomes 2011/12	Outcomes 2013 (forecast) & Outlook 2014
<p>Live Green Toronto Community Outreach: Education and information provided at community events and festivals and trade shows, such as the Home Show.</p>	<p>Attended over 150 events annually, reaching over 210,000 residents.</p>	<p>Over 150 annual events attended and new events being added for 2014 including International Home & Garden Show and Canada Running Series events.</p>
<p>The Live Green Toronto Website & E-Newsletter: Provide an one-stop portal for residents to access information about the programs, services and financial resources available to them from the City, Provincial and Federal Governments, Utilities and Community Foundations and Not for Profits to live green.</p>	<p>Over 8,000 monthly views and 23,000 subscribers to the E-Newsletter.</p>	<p>8,000 monthly views of the website and 30,000 subscribers to the newsletter projected by end of 2013.</p> <p>In 2013, established various social media forum, such as a Twitter account. Currently over 9,440 followers on social media with 10,000 projected by end of 2013.</p>
<p>Live Green Toronto Annual Awards:</p>	<p>228 residents, community groups & businesses recognized at end of 2012. 2,500 attendees of awards ceremony. \$350,000 in sponsorship invested in community projects.</p>	<p>In 2013 the awards were revamped to feature online video submissions and voting. Over 245,000 video views and over 11,000 voters registered.</p>
<p>Live Green Toronto Annual Festival:</p>	<p>Over 100 exhibitors attend annually, 35,000 attendees.</p>	<p>2013 Festival attended by over 40,000 people. Over 100 exhibitors.</p>
<p>City Staff Engagement in Workplace Environment and Energy Activities:</p>	<p>Green Teams have been set up in each major civic centre to give staff a voice in greening their workplaces.</p>	<p>Staff are encouraged to contact their Green Team with ideas on how to save energy and water and reduce waste in their buildings.</p>
<p>Resilient City Information Campaign for Residents: Implementation of an information and educational activities and materials that inform residents of the things they can do to improve their personal and community's resilience to extreme weather events.</p>	<p>N/A – New program.</p>	<p>To be initiated in early 2014.</p>

C. OUTREACH AND EDUCATION

Objective	Outcomes 2011/12	Outcomes 2013 (forecast) & Outlook 2014
Real-Time Web Access to Information on the Performance of the City's Solar PV Installations:	N/A – New program	The program is projected to result in the following: 10 sites accessible in 2013 and 15 new sites accessible in 2014-15.
Community Energy Plans: Identify opportunities to improve energy efficiency of existing buildings and local energy solutions integrated into new buildings	Prepared and presented plans for Lawrence Allen and Mimico 20/20 secondary plans.	In 2013, prepare and present plan for Scarborough Centre and commence plan for Lower Yonge Precinct In 2014, prepare and present plan for Lower Yonge Precinct and commence two other plans.

D. POLICY DEVELOPMENT AND IMPLEMENTATION

Objective	Outcomes 2011/12	Outcomes 2013 (forecast) & Outlook 2014
<p>Carbon Credit Policy: Develop and implement a policy governing the documenting of the City's carbon credits and governing the sale of any surplus credits.</p>	<p>Completed research into policy options and implications and prepared a report for City Council.</p>	<p>In 2013, the recommended Carbon Credit policy was adopted by City Council.</p> <p>In early 2014, initiate a competitive process to sell, as per the adopted policy, surplus carbon credits and generate funds for additional greenhouse gas emission reducing projects. It is expected that the sale of surplus carbon credits can generate \$1 to \$3 million in additional funds.</p>
<p>Local Food Procurement Policy: Support City Operations in implementing the policy direction that food utilized in City operations should be, whenever feasible, be sourced from Ontario producers.</p>	<p>In 2011, City Council adopted the recommended Local Food Procurement Policy for City Operations.</p> <p>Worked in partnership with Children's Services on implementing the policy in City operated childcare centres.</p>	<p>Official launch in 2013 of the revised menu for City operated childcare centres that incorporates on average 50% locally produced foods in 13 'kid approved' recipes. This included the delivery of information workshops to the estimated 900 operators of private and not-for-profit childcare facilities in Toronto.</p>
<p>Low Emission Taxis: Identify policy and regulatory options available to the City to encourage the adoption of low or zero emission vehicles by taxi owner/operators in Toronto.</p>	<p>Completed an options paper for consideration by the Municipal Licensing and Standards division that outlined mechanisms available to the City to encourage the adoption of low or zero emission vehicles by taxi owners/operators.</p>	<p>Ongoing support and discussion of these options with MLS staff as they work to complete their comprehensive review of the taxi industry.</p>
<p>Electric Vehicles: Monitor the introduction and growth of electric vehicles and identify policy and regulatory issues of concern, when appropriate.</p>	<p>Established the inter-divisional/agency working group mandated to monitor and evaluate policy and regulatory issues of concern to the City that may emerge with the greater use of electric powered vehicles.</p> <p>Supported Transportation Services in securing external funds to support</p>	<p>Ongoing support for the working group and, if appropriate, preparation and presentation of a report to City Council.</p>

D. POLICY DEVELOPMENT AND IMPLEMENTATION

Objective	Outcomes 2011/12	Outcomes 2013 (forecast) & Outlook 2014
	a pilot program involving the installation of up to five electric vehicle charging stations in the public right-of-way.	
<p>Small Engine Lawn and Garden Equipment: Assess the need from an air quality perspective and viability of establishing regulations governing the use of small engine lawn and garden equipment.</p>	<p>Completed, in partnership with the Ontario Association of Landscapers the development of a training module for their members on the proper use and maintenance of small engine equipment.</p> <p>Initiated and implemented in partnership with Canadian Tire the Cut-It Out program, discussed earlier in this report.</p>	No activities planned.
<p>Transportation Demand Management: Identify policy and program options available to the City to encourage reduced use of single occupancy vehicle trips.</p>	<p>Linked to the Smart Commute Program, this effort is focused on identifying other opportunities available to the City to support residents in reducing single occupancy vehicle trips. In 2012, an inter-divisional/agency work group was established to explore options, such as residential neighbourhood transportation demand management.</p>	Ongoing research and development of options for potential presentation to City Council in 2014.
<p>Toronto Green Standard: Assist City Planning in the implementation of the TGS through technical support in the development of the energy based components of the TGS and undertake evaluations of applicants' submissions for compliance with the energy performance requirements of the TGS.</p>	<p>Cumulative electricity and natural gas savings:</p> <p>593,200 MWh (equivalent)</p>	<p>Cumulative electricity and natural gas savings:</p> <p>2013 forecast: 634,200 eMWh 2014 outlook: 835,600 eMWh</p>
<p>Provincial and Federal Legislative and Regulatory Proposed Changes: Identify and evaluate potential implications for the City of proposed legislative and regulatory</p>	<p>Prepared in partnership with the City Manager's Office and other City Divisions and Agencies, submissions to the Provincial and Federal Governments on:</p>	<p>Currently engaged in preparing or supporting the preparation of materials for:</p> <ul style="list-style-type: none"> ○ Provincial Renewable Energy

D. POLICY DEVELOPMENT AND IMPLEMENTATION

Objective	Outcomes 2011/12	Outcomes 2013 (forecast) & Outlook 2014
changes by other orders of government.	<ul style="list-style-type: none"> ○ Enbridge Line 9 Proposal; ○ Enbridge Gas Expansion proposals; ○ Local Improvement Charge regulatory change; ○ Provincial Energy Strategy; ○ Submission to Ontario's Environmental Commissioner; ○ Feed-in Tariff Program 	<ul style="list-style-type: none"> ○ Procurement (> 500 kW) ○ Continued monitoring of OEB submissions; ○ Tracking of potential legislative changes related to Carbon Cap and Trade or Carbon Tax programs; ○ Development of a Regional Air Quality Zones program; ○ Tracking of reports by Ontario's Environmental Commissioner
<p>Renewable Energy Policy for City Buildings: A policy that requires all new City buildings to include renewable energy installations that generate the equivalent of at least 5% of the building's energy consumption.</p>	N/A – new program.	City Council adopted this policy on July 16, 2013 as part of the amendments to the Toronto Green Standard. It is expected that this policy will result in one new renewable energy installation in 2014.
<p>Urban Agriculture Strategy: Support the development and implementation of a City strategy to support growth in urban agriculture in Toronto.</p>	Participation in number of external and internal forums, investigating options available to the City to encourage urban agriculture.	Participation in the City Staff Working Group mandated with responding to the City Council directives regarding an urban agriculture strategy. Strategy to provide direction for future work in this area will be presented to City Council before the end of 2013.
<p>Indicators of Community Resilience and Sustainability: Establishment of a set of key measures or indicators that can be used to track and monitor Toronto's overall sustainability and resilience.</p>	N/A – new program	To be initiated in 2014.
<p>Urban Design for Air Quality: Engaging with City Planning in identifying urban design options to move out street level air pollution more readily through air movement, instead of being trapped as a result of the overall urban design.</p>	Preliminary research carried out.	Complete research into options and review of existing urban and building design guidelines utilized in other cities in 2013. In 2014, support City Planning, if appropriate, in development of revised or new design guidelines.

E. COORDINATION AND STRATEGIC PLANNING

Objective	Outcomes 2011/12	Outcomes 2013 (forecast) & Outlook 2014
<p>Executive Environment Team: Facilitate and support the Chief Corporate Officer in maintaining a senior management forum of City Divisions, Agencies and Corporations responsible for ensuring there is collaboration and coordination in environmental and energy policy and programs.</p>	<p>In 2011 and 2012 at least 8 meetings were held annually.</p>	<p>In 2013, with the change to the Chief Corporate Officer as the chair of the Executive Environment Team, focus shifted to reviewing and updating the terms of reference for the group. In 2014, the group will hold at least 6 meetings.</p>
<p>GTA Clean Air Council: Chair and support this inter-municipal forum established to share and coordinate air quality and climate change initiatives across the GTA and Hamilton.</p>	<p>In 2012, the Environment & Energy Division took on responsibility for chairing this group from the City Manager's Office. The group meets at least 10 times a year, plus organizes a number of topic specific working groups.</p>	<p>In 2013, the Environment and Energy Division took on responsibility from the Toronto Atmospheric Fund for providing the City's financial contribution to the GTA Clean Air Council. The Division continues as the chair of the Council.</p>
<p>Regional Electricity Plan: Lead and coordinate the City's involvement in the development by the Ontario Power Authority and Toronto Hydro of long-range regional electricity plan for Toronto.</p>	<p>Liaised with the Ontario Power Authority and Toronto Hydro on the objectives, key elements and progress of the plan.</p>	<p>In 2013, expect to receive an advance draft of the plan for input. In 2014, successful advocacy to the provincial government for City of Toronto standing in finalizing plan outcomes and objectives.</p>
<p>WeatherWise Partnership: Support and lead the City's engagement in this multi-stakeholder forum, established to businesses, utilities, not-for-profits and other organizations in ensuring Toronto is able to respond to extreme weather events that will increasingly occur as a result of climate change.</p>	<p>The Partnership was established in 2011 and has held two major forums. A Working Group focused on the electrical sector was established and has been working since early 2012.</p>	<p>The Electrical Working Group recently received funding from Natural Resources Canada to assist in continued work evaluating the vulnerabilities of the City's electrical systems to extreme weather.</p>
<p>External Forums: Maintain where appropriate the City's engagement in key national and international forums, such as the Urban Sustainability Directors Network.</p>	<p>The Division is engaged in the Urban Sustainability Directors Network in the issue areas of climate change adaptation and indicators. The Division prepared information about the City's sustainable environment</p>	<p>Ongoing.</p>

D. POLICY DEVELOPMENT AND IMPLEMENTATION

Objective	Outcomes 2011/12	Outcomes 2013 (forecast) & Outlook 2014
	efforts for various city benchmarking exercises, such as the Economist Magazine and the Corporate Knights' ranking.	
<p>Environment & Energy Advisory Group: Facilitate and support the Chief Corporate Officer in seeking advice on key environmental and energy issues from a community leader's advisory group as outlined in the City's Corporate Strategic Plan.</p>	N/A – New Program	To be established in early 2014.

F. REPORTING AND EVALUATION

Objective	Outcomes 2011/12	Outcomes 2013 (forecast) & Outlook 2014
<p>Regulatory Reporting: Ensure that where the Division is the lead, the City complies with all mandatory Federal, Provincial and Municipal regulatory reporting requirements. These include: Ontario Regulation 397/11; NPRI; ChemTrac.</p>	<p>All submissions were prepared and submitted on time according to requirements.</p>	<p>All submissions for 2013 have been prepared and submitted on time.</p>
<p>Greenhouse Gas and Air Quality Inventory: Provide every two years and comprehensive summary of the community's emission levels, key sources and discussion of emerging challenges and key successes in achieving the City's emissions reduction targets.</p>	<p>Negotiation of data collection from Toronto Hydro and Enbridge Gas and analysis of the information for estimated estimate emission levels for 2011.</p>	<p>Preliminary report, based on 2011 data was presented to City Council in July 2013. A full report is targeted for presentation at the December 6, 2013 Parks and Environment Committee meeting.</p>
<p>Local Air Quality Studies: Prepare a detailed assessment of air quality impact of emissions from all sources of air pollution for geographic areas consisting of 2 or 3 City Wards.</p>	<p>Completed study of Wards 30 & 32.</p>	<p>Completed research for Wards 5 & 6 with results to be presented in the 1st quarter of 2014.</p> <p>Six additional studies representing 12 to 15 City Wards will be completed in 2014.</p> <p>Supporting City Planning – Waterfront Secretariat in evaluating air quality impacts associated with proposed expansion of Billy Bishop Airport.</p>
<p>Energy Needs in Support of Growth and Economic Development</p>	<p>City Council on November 1, 2012 requested the City Manager to report to the Executive Committee on the energy and electricity needs associated with the Economic Growth Plan and the City's Official Plan.</p>	<p>IN 2013, commence development of the report</p> <p>In 2014, finalize report and present</p>