



**People, Planet & Profit:
Catalyzing Economic Growth &
Environmental Quality
in the City of Toronto**

**Green Economic Sector Development
Strategy**



Gartner Lee



Delphi

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Executive Summary

The current wave of sustainability that is the rage in both business and municipal worlds is to many a means to economic prosperity. If successful, this will foster new activity that is socially responsible, environmentally benign, and economically rewarding all at the same time. The city of Toronto recognizes this and has engaged the Delphi Group and Gartner Lee to work with them to prepare a “green” economic sector development strategy that encourages the retention, growth and attraction of companies or organizations which offer products and/or services that directly or indirectly reduce the impact on the environment.

The evolving “green market” in Toronto is driven by a number of forces including: emerging environmental issues like climate change and deteriorating air quality; resource adequacy and security, policy and regulations at all levels of governments, increasing interest from the financial community, and changing economics and an emerging social desire for action.

Other major cities around the world have embarked on programs to redesign their communities so not only are they better places to live from an environmental and social perspective, but they also offer enhanced opportunities for business. Cities around the world are proving that environmental sustainability, quality of life, and economic growth are intertwined. Toronto has inherent strengths that can be leveraged to make it a global leader in this emerging green market. Moreover, some simple actions initiated by the city can lay the groundwork and catalyze the establishment of a prosperous industry sector that includes green products and services.

This document accomplishes many things. It defines a green economic sector development strategy that is both meaningful and actionable. It lays out an action plan for the Economic Development group that will enhance job creation while still supporting the ideas within Toronto’s environmental strategy. The intent is to stimulate and focus dialogue on issues and actions that can make a difference in retaining and attracting business that is socially, environmentally and economically rewarding for all.

The go-forward action plan should lead to: coordinated and unified goals and targets linked to other city departments; implementation of specific actions that will achieve the desired goals of this green economic sector development plan; and measurement of successes that can be communicated to all stakeholders. The core actions centre around: stimulating a green market demand; enhancing and leveraging partnerships with existing networks; marketing the “Toronto Advantage”, leading by example, educating and expanding the workforce, and supporting existing business.

Various ideas and recommendations are offered as a starting point for dialogue. A sample of these include:

Catalyzing Economic Growth & Environmental Quality in the City of Toronto

- Create a one window utility conservation program undertaken jointly with the City, Toronto, Hydro, Enbridge, and targeted at the existing business community to support best environmental practices and make our companies industry leaders;
- Support the development and growth of the district energy project in the Toronto Discovery District. This project supports the sustainable use of energy, provides stability with respect to supply costs and stimulates new development in the area;
- Formalize a Toronto Environmental Research and Commercialization Initiative to strengthen research partnerships in the fields of sustainable energy and environment; to seek avenues for commercialization of these technologies, and to link local and international environmental research to business opportunities;
- Develop a Sustainable Employment District Pilot project to stimulate industrial ecology, and economic competitiveness as a means of creating competitive advantage for companies in the area;
- Develop a Green Home Innovation Centre to showcase and provide education on environmental products and services to Toronto residents that leverages partnerships and current initiatives;
- Develop a training program with the business, academic and labour communities to assist office operations and manufacturing companies to establish in house expertise with respect running and maintaining environmental systems;
- Investigate opportunities to expand the City's green procurement initiatives. As a first step, organize municipal workshops on Green Procurement and methods for stimulating environmental innovation within the City's operations including a trade fair to demonstrate new and emerging environmental products and services for municipalities and the business community;
- Develop a training program with the business, academic and labour communities to improve the skill sets of architects, engineers, construction and building professionals on how to effectively incorporate integrated environmental design into building projects;
- Support the creation of an environmental industry capabilities database and Toronto consumer market prospectus in cooperation with environmental industry association(s) and other levels of government to profile and market Toronto's green industry expertise; and
- Organize Workshops with TABIA (Toronto Association of Business Improvements Areas) and the Chambers of Commerce to engage the participation of the small business community in adopting sustainability practices and green procurement policies.

There are many more possibilities. The challenge is to build upon the ideas and recommendations offered in this report.

I. Toronto: “One of The Greatest and Greenest World Cities”

Imagine the headline... “Toronto: Voted again the Greenest World City”. Visionaries in the world of clean energy and environmental technology innovation will flock to the city to be among the best and the brightest; Government leaders would use Toronto’s policies as a benchmark for their own sustainability initiatives; and thousands of new jobs will be created that are sustainable economically as well as ecologically.

Perhaps we are closer to achieving this green greatness than we think. Toronto has all the tools, networks, and people to make this green dream possible. The public and private sectors within the city of Toronto have a number of innovative initiatives underway that are: catalyzing sustainability in the City; providing the foundation for a successful green industry sector; and contributing to Toronto’s effort to becoming recognized globally as a green urban centre.

A number of the initiatives specific to the environment are covered under the City of Toronto’s Green Guide. For example, in the Air Quality and Climate Change Plan, a number of initiatives and actions were outlined that could assist the City in achieving greenhouse gas reduction targets. A summary of this initiative and other environmental initiatives are provided in Appendix A.

However, a green economic sector development strategy, including a strong vision and actions, is needed to attract new green business and to retain and grow the existing companies in a manner that will make the City of Toronto one of the “greatest and greenest world Cities”. This strategy must incorporate actions that::

- Support the growth of existing environmental businesses;
- Enhance and leverage partnerships with academia, associations, government and labour;
- Market the “Toronto Advantage”;
- Stimulate the growth of the green market;
- Educate and expand the workforce to support the green economy;
- Allow Toronto to lead by example.

These actions must be then linked with a larger plan that includes targets, timelines and responsibilities to ensure that the ideas are implemented and a thriving green business community is created.

What is Green Economic Development?

Those programs or initiatives that encourage retention, growth and attraction of companies or organizations which offer products or services that directly or indirectly reduce the impact on the environment.

Toronto's Green Economic Development Vision and Objectives

In light of this growing market opportunity, Toronto must embrace the global green movement and build on its existing core strengths in order to develop a strong green industry. The Green Vision for the City can be:

Toronto's Green Economic Sector Development Vision:

To become a globally recognized green industry hub that generates social, environmental, and economic value to the City, local industry and its residences while stimulating the continued growth and sustainability of established businesses.

To achieve this vision, the City of Toronto must take a number of strategic actions. The key objectives behind each of these actions are to:

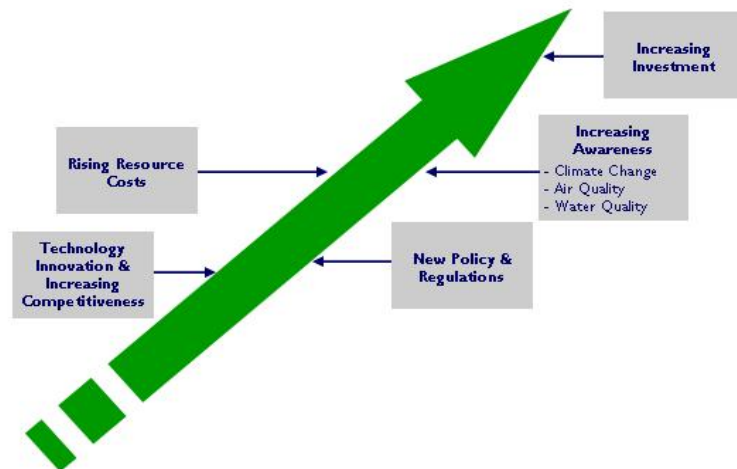
- Catalyze innovation and foster environment and clean energy sector development, firm formation, expansion and recruitment;
- Boost green business practices to ensure that the demand for sustainable solutions is strong;
- Enhance business competitiveness and stimulate job creation.

A critical success factor for the Green Economic Sector Development strategy is ensuring that the strategy works in harmony with the other initiatives within the City of Toronto including those initiatives that respond to the economic, social and environmental needs of its citizens.

2. The Green Movement has Arrived and It is Sustainable

The growing demand for environmental goods and services represents a tremendous business development opportunity for Toronto companies. Annual global environmental markets have surpassed the \$US 1 trillion level, as a multitude of drivers converge (see Figure 1 and Section 5), driving demand for innovative clean solutions to new heights. In Canada, the market has surpassed \$35 billion annually. Over 6000 Canadian firms, employing over 250,000 people provide innovative ‘green’ solutions that generate both financial and environmental benefits to buyers around the world.

Figure 1: Rising Global Demand for Environmental Solutions



Growth in the traditional environment industry – e.g. air pollution control, waste management, water and wastewater treatment, etc. is steady. Much of this demand is being driven by export markets that are being fueled by the increase in public awareness of issues related to the environment such as air quality, water quality and land protection.

Domestic demand is being driven by the need to protect the environment around new large resource development projects and the necessity to improve decaying infrastructure and upgrade older systems. Complex environmental challenges such as climate change, and the increasing demand to reduce costs and increase productivity is significantly escalating the emerging green industry or “cleantech” sector, which includes a broad range of high-tech products and services in areas such as pollution prevention, intelligent transportation systems, advanced materials, demand side management, renewable energy, etc.

There is also an immediate need for products and services that promote efficiency and conservation of the existing resources. The growth and demand for green building design and retrofitting, energy use monitoring technology, and energy auditing services have been spurred by the rising costs of energy and the desire to reduce and control energy operating costs as much as possible.

This tremendous growth for green technologies, products and services is being further catalyzed by rapid innovation and the emergence of interested capital. In 2005, venture capital investment in “clean tech” grew by 43% over 2004 to US\$1.6 billion. US\$200 million of this was invested in Canada while the remaining was in the United States. Figure 2 (next page) illustrates the growth in the Canadian and US amounts invested in clean tech since 2001.

“Cleantech” includes products that:

Optimize the use of natural resources, offering a cleaner or less wasteful alternative to traditional products and services;

Have their **genesis in an innovative or novel** technology or application;

Add economic value compared to traditional alternatives.

Clean Tech Venture Network, 2006

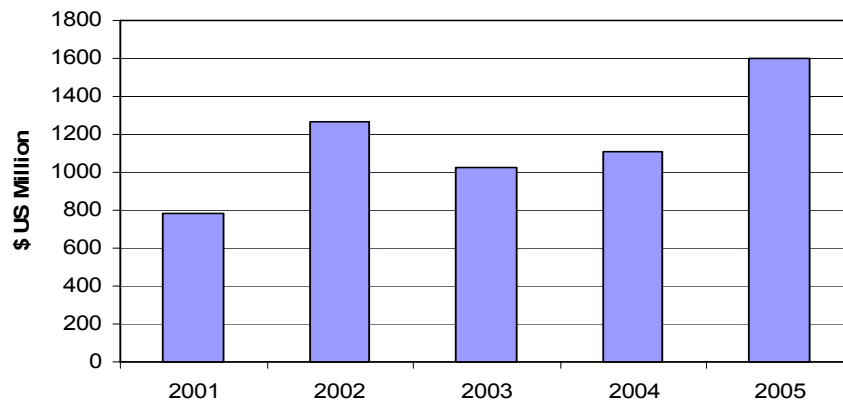


Figure 2:
Amount Invested in Clean Tech in Canada and the US since 2001

(Source: Cleantech Venture Network)

3. A Profile of Toronto's Green Industry

Toronto has a significant concentration of firms in the environmental sector that will form the basis for future growth and support environmental innovation across all sectors of the economy. There is a strong history of environmental business within the city core and the surrounding area including a strong presence of more traditional environmental companies in the areas of engineering consulting, law, waste management, and remediation. However, the landscape continues to evolve.

Many policy initiatives and market forces in the city (and province) such as the green buildings partnership has encouraged the growth of companies in areas such as energy efficiency, demand side management, green building architecture/design and high end consulting firms. Other more innovative technology solution providers (e.g. clean energy) and high-value service firms (e.g. green financial investment) have also emerged and are expanding in number and size within Toronto.

At present, it is estimated that there are over 1,000 organizations residing in the City of Toronto whose primary business is in the environment and clean energy sectors or they are offering a 'green' element to their main product or service line. These activities are likely generating over 20,000 jobs and \$2 billion of revenue annually for the local economy. More specifically:

- Approximately 2/3 of these are service firms and 1/3 technology or product companies
- Over 90% of these companies are considered small with fewer than 100 employees;
- An estimated 15% of these companies are exporting with more than 3/4 of export sales going to the U.S.

Toronto's green industry can be divided into seven main categories which can then be subdivided into a number of sub-sectors, each described below. These include:

- | | |
|---------------------------------|--------------------------|
| ▪ Professional Support Services | ▪ Not for profit funding |
| ▪ Corporate Energy | ▪ Associations |
| ▪ Finance and Venture Capital | ▪ Technology companies |

Professional Services

The largest portion of Toronto's green industry sector is professional services firms such as environmental consulting companies, energy consulting firms, environmental lawyers. Traditional professional services firms such as environmental consulting firms are well established within the city and have been offering solutions to a range of issues such as air quality, water and wastewater, waste management and soil contamination for a number of years. We have seen a recent growth in non-traditional green professional services such as green architecture and design and green marketing. This area will continue to grow as Toronto moves forward with policy initiatives to stimulate green building design for city buildings.

Ameresco Canada serves institutional, commercial and industrial energy users nationwide. As a provider of integrated solutions in Canada for over 25 years, Ameresco Canada has completed more than 150 projects and achieved over \$450 million (CAN) in energy and operating cost savings for over 3,000 buildings across the country.



Corporate Energy

Corporate energy companies include those companies that offer products and services specific to the energy sector. The traditional companies such as Enbridge, Toronto Hydro, Union Gas, and others are well established in the city and are now offering many green alternatives. In addition to the established companies we are seeing a growth in energy service companies that offer alternatives to the mainstream. One of Toronto's success stories for energy alternative services is Bullfrog Power. Bullfrog provides customers with a way to support renewable energy by buying green power which in turns funds the development of alternative energy sources throughout Ontario.

Bullfrog Power is Ontario's first 100% green electricity retailer. They provide clean, reliable electricity from 100% EcoLogoM-certified energy sources. They are a new way for Ontarians to support renewable electricity rather than coal and nuclear and are 100% Canadian company dedicated to increasing the supply of renewable electricity in Ontario.



Associations and Non-profit organizations

Given Toronto's size, there are a number of environment and energy associations and not for profit organizations that have their primary location in the city. These associations include those groups that speak on behalf of a particular industry, such as the Canadian renewable fuels association as well as those that represent a particular environmental movement, such as Pollution Probe or the Clean Air Foundation. Their presence in the city of Toronto represents an important component of the Green industry since they provide a collection of viewpoints and expertise, and can also support initiatives increase demand for green products.



Green Enterprise Toronto (GET) helps local independent businesses to thrive while building an economy that values people, planet, and profit. They encourage consumers and businesses to buy goods and services from their members based on their shared commitment to these values. GET is supported by the volunteer efforts of a group of local entrepreneurs.

The Cleantech Venture Network® founded cleantech as a viable investment category in 2002 and is proud to have played an influential role in the development of an investment category experiencing an annual growth rate in excess of 50%. In the network, Cleantech bring capital and innovation together through Cleantech Forums™ and membership services.

Finance and Venture Capital

Given Toronto's place as Canada's financial capital and a key global financial market, it is not surprising that we have seen an emergence of finance and venture capital firms who now specialize in green technology financing and development. These firms search for new technologies and ideas and assist companies in bringing their products to market through financing and management assistance.

Investeco Capital Corp. is a private equity investment firm. They invest in private companies specializing in alternative power, water technologies, organic and natural foods, and environmental technologies. Investeco's objective is to produce superior financial returns by invest-

Technology companies

The traditional technology companies that have been sustainable in the City of Toronto have addressed primarily treatment of environmental issues or measurement of existing environmental aspects. However, there is a growth in technologies that address prevention of environmental impacts through pollution prevention and energy alternatives.

Greenfield Ethanol

GreenField Ethanol is committed to being a leader in the development of world-class ethanol production facilities. GreenField has experience in building several successful ethanol plants in Canada and is committed to remaining at the forefront of biofuels production technology in the future through its strategic investments in cellulose ethanol technology.

Conserval Engineering

Conserval Engineering, Inc. was formed in 1977 by a group of senior engineers with a broad range of expertise in the consulting and contracting fields. Their total systems approach allowed them to develop many efficient, reliable products including the SolarWall transpired collector.

Retail and Wholesale Businesses

Concerns about the environment are becoming mainstream and consumers are demanding products and services that account for these concerns in their offerings. As a result of this demand, there is a growth in stores that offer strictly green products. These stores may include organic or local produce markets or retail stores such as Grass roots that provide environmental alternatives to mainstream consumer products.

Grassroots offers environmentally-friendly products that allow people to make positive choices for themselves, their communities and the planet. Until Grassroots opened its doors in Toronto in 1994, there were very few options for environmentally-friendly product choices. For more than a decade, Grassroots has pioneered to bring sustainable, low impact products to the marketplace, guiding people towards awareness and environmentally-responsible lifestyles.

grassroots

Other Core Businesses

In addition to businesses dedicated to environmental products and services, many businesses, including those that are the backbone of Toronto's economy, have developed a green practice to their traditional service offerings. For example, many bank and financial institutions are greening their operations and offering new financial products to their customers that are benefiting the environment. These include socially responsible investment funds, green mortgages and preferred lending.

Given the potential insurance risks associated with climate change many insurance companies are looking to green preferred premiums to benefit businesses that address environmental risks. The food service industry is another sector that is well established in the city. Many of the mainstream markets are offering green products to their customers including organic food offerings and/or "conflict-free" produce.

Other small and medium sized businesses such as dry cleaners or retail stores are recognizing the green movement and offering products that are more sustainable.

As Canada's largest condominium developer, Tridel and the Tridel Group of Companies are committed to being environmental leaders. Tridel helped move the condo market to become more sustainable with initiatives including linking [Element](#) to the lake water cooling network, developing a green building financing mechanism, and the promotion of environmental stewardship with condo purchasers.

Tridel are determined to develop condominium residences that meet the needs of today's homeowners while safeguarding the well-being of future generations by focusing on environmentally sustainable building design and performance in construction, property management and corporate stewardship.

TRIDEL[®]
BUILT FOR LIFE

4. The Race is on... How Other Cities are Going Green

Leading municipalities are making significant efforts to improve their competitive edge by making the growth of the green industry and sustainable business sector a major goal of their administrations.

Summary Templates of what leading cities around the world are doing to green their cities and encourage green business/clean technology investment development are included in Appendix B.

Achieving sustainable economic growth, while promoting environmental improvement, wealth creation, and social development, is on the radar screen of many municipalities around the world. Building better cities through environmental innovation and green economic strategies is paramount for the benefit of both the health of the community's residents and the economy. This is a concept that requires innovation, a change in mindset, and a commitment to performance, dialog and partnerships.

Recognizing the market opportunity and the vital role for business in improving the quality of life and the healthy growth of cities in which they are located and operate, municipalities around the world (e.g. Chicago, London, San Francisco to name a few) have chosen to lead by example. This way, cities are making great strides by boosting aggressively 'green' industries and emerging technologies through dynamic sustainable economic development strategies and public-policy initiatives.

According to the Time magazine, Mayor Richard Daley of Chicago is working to transform the city into the most environmentally friendly city in the U.S. — as well as the nation's center for environmental design and the manufacturing of components for the production of alternative energy. If it works — and the Mayor is betting that it will, with promises to buy millions in solar panels, for example — the green movement here is expected to yield the city perhaps billions in saved energy costs and new business.

Environmental sustainability, enhanced quality of life, and economic growth depend on each other. Although strategies and issues may vary, many cities are formally adopting the triple bottom line principals: economic growth and prosperity, environmental improvement and prudent use of natural resources and social progress. On the other hand, many cities have a different approach to green business/clean technology investment and have development in accordance with its priorities, local resources and market needs. A number of cities' approaches are listed in Figure 3.

Chicago's goal to use renewable energy for a quarter of its operations (i.e., Chicago is now among the largest users of green energy in the United States) has already attracted a couple of solar panel manufacturers to the area.

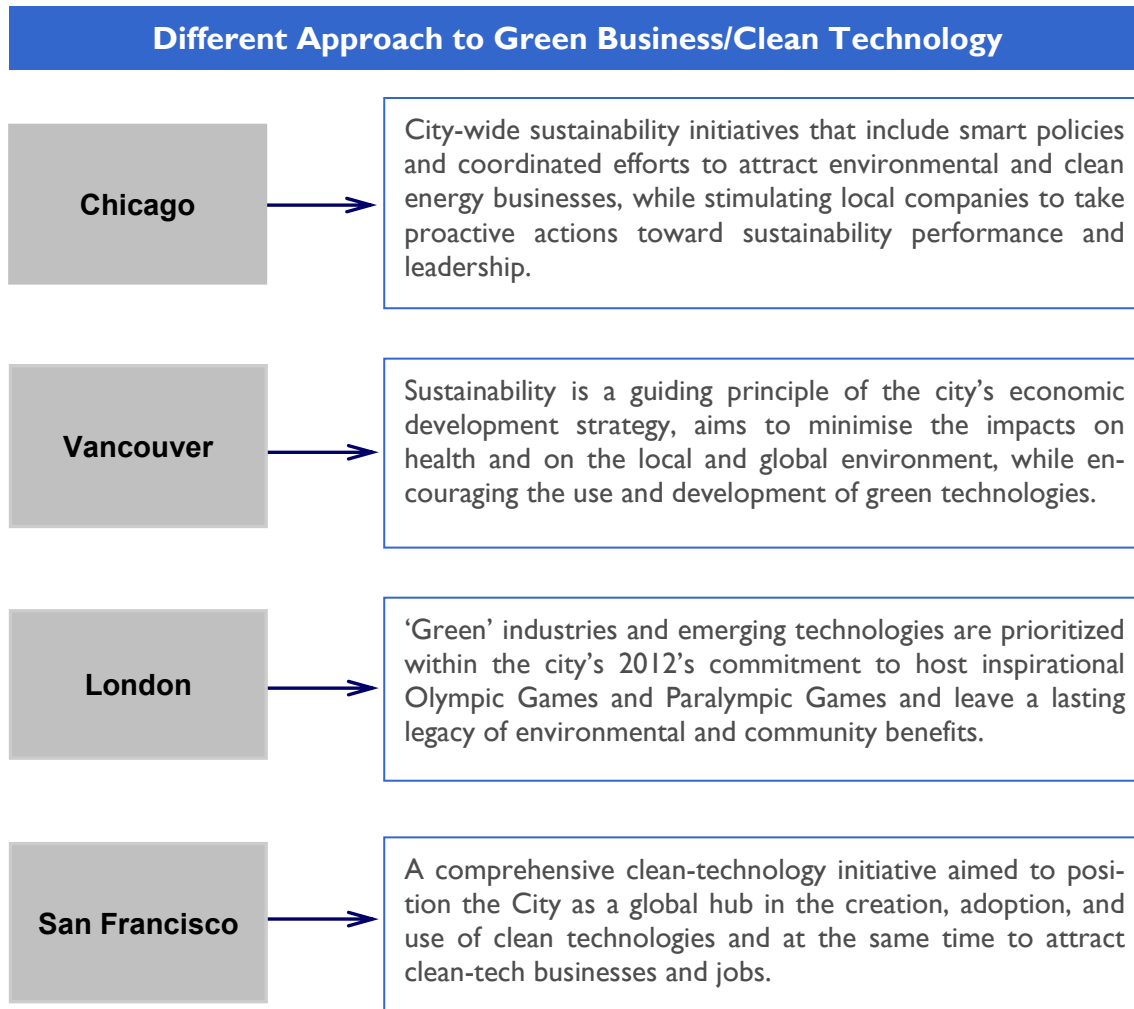


Figure 3: Cities' Approaches to Green Business/Clean Technology

Critical Success Factors

The most common drivers for successful strategies/initiatives designed to green the cities and at the same time to enhance and promote economic development through clean technology investment and development are:

- **Leadership and long-term commitment:** Successful initiatives require political leadership from the Mayor and active business engagement if they are to succeed in achieving a sustainable future;

- **Focus on main objectives:** Those cities that have been most successful in achieving their wider objectives have had a clearly defined vision of what they are trying to achieve in terms of the specifics and the wider outcomes;
- **Business orientation:** Initiatives based on business needs – recognizing the different needs of different types of business – have been most effective;
- **Strong coordination and partnership:** A trans-disciplinary and multi-stakeholder collaboration (businesses, industry and professional associations, academic institutions and governments) is paramount condition to increase the competitiveness and profile of the industry;
- **Harnessing volunteering:** Volunteering programs that facilitate business engagement and involvement have delivered successful longer-term economic, social and environmental benefits;
- **Leading by example:** Demonstrating leadership through the support of major project/initiative sets an excellent example for the demonstration and adoption of green technologies.

5. Defining the Forces that Shape The Green Market

There are number of significant external forces that are driving the demand for green products and services in Toronto and globally. These forces will provide the drivers for the rapid emergence and expansion of certain segments of the green industry and are critical to consider in the green economic sector development strategy. The external forces that are affecting the environment industry can be categorized into five main segments: **Environmental Issues**; **Resource adequacy and security**; **Policy and Regulations**; **Finance and Economics**; and **Social and Culture**.

Environmental Issues

As public awareness and concern for human health grow, so too do the importance and relevance of environmental issues. These issues are increasingly more evident in large cities where resources and infrastructure are often strained. Specific issues that are driving demand for sustainable or green solutions include the following:

- **Deteriorating Air quality, as the number of smog-day alerts per year rises.** Although Toronto is part of a major air shed covering most of southern Ontario and many parts of the US, there are opportunities to influence the degree and severity of air quality issues through local emission reduction activities. Some of these opportunities relate to increased use of public/mass transit and use of low-emission vehicles in addition to reducing our reliance on electricity consumption, which an increasing portion is derived from fossil fuels. The City of Toronto is addressing these issues through several targeted actions presented in the Climate Change Strategy.
- **Brownfield Redevelopment** - More and more people are resisting urban sprawl movement and recognizing the vitality and quality of life within the downtown core of large cities. This is generating a new market for revitalizing the urban core by reinventing “old” properties and redeveloping old industrial sites or Brownfields. This movement is reinforced with the recent passage of Bill 51, which attempts to enhance Brownfield development and urban intensification by removing barriers to it.
- **Waste management has always been a sensitive issue in Toronto.** Despite current solutions for landfill capacity, there remains an ongoing need to enhance waste diversion through waste reduction and reuse. This means that many of the waste reducing technologies and processes that are more common in Europe, can be developed for this market.

Resource Adequacy and Security

The demand for resources is escalating at an ever-increasing rate as emerging economies such as India and China continue their rapid development. This is placing significant pressure on price and in some instances security of supply. Canadians, as large consumers of resources and manufactured goods could be significantly impacted by this trend in the near future. The sustained growth of large resource users in the United States and emerging resource users in China also represents a tremendous opportunity since export markets can supplement the business case for the domestic market.

“The whole economy is shifting. Consumer demand far outstrips the availability of options in the marketplace, but that gap is closing fast. Well informed and concerned, Torontonians want to support businesses that care about people and planet as well as profits. Entrepreneurs are emerging, and existing businesses are thinking about how to respond to the green imperative.”

This timely Green Economic Development Strategy can accelerate the regional marketplace and industry transformation that is essential for Toronto’s future economic health.”

**Chris Lowry,
Network Director,
Green Enterprise
Toronto**

This issue is not only a global one, as the supply and security of energy in Ontario is a major concern to everyone in this province. All levels of government have a role to play over the coming years to boost supply and slow demand through a combination of actions including:

- Energy conservation;
- New energy development from a combination of renewable and non-renewable sources, and
- Purchase of energy supplies from Quebec, Manitoba, and the U.S.

The market for energy conserving technologies and alternative sources of “green” power in large urban centers is emerging in response to positive market choice signals and policy directions from government.

Policy and Regulations

There is a noticeable shift in political will over the last year prompted by a number of concurrent events including the release of the Stern Report, the changing political atmosphere in the United States (change in senate representation, the untraditional environmental stand of Republican Governor Arnold Schwarzenegger and vocal disagreement at the state level), and a similar defiance in Canadian politics. This shift has also been fueled by international pressure and cross border and international agreements. A number of these initiatives are fueling demand in the green market. Several examples are provided below:

- **Ontario’s Standing Offer program:** In Ontario, the commitment on the part of the government to close coal generation plants has initiated a number of regulatory activities and prompted a growing market for clean technology. The Ontario Standing offer contract introduced in the Spring of 2006 promotes the adoption of 1000 MW of renewable power and offers fixed price contracts over 20 years for systems under 10 MW at attractive prices. The first round of contracts for renewable energy under this program was recently announced. The federal government has also recently re-launched a number of funding schemes to encourage the development of alternative generation.
- **Concern over Toxics:** Policies and regulations around health and the environment is also a driver for the green market. Concerns over pollutants and toxics have allowed for an increasing demand for organic and green products that individual consumers can choose over traditional sources.
- **Emissions Trading regulations:** Other regulations such as the potential for emissions trading in Canada and the United States allows for an additional business case to be made for businesses looking to reduce their environmental footprint.

Finance and Economics

The recent positive response of financial markets has created a tremendous driver for the clean technology market. A number of venture capital firms are specializing in clean technology investment and are actively looking for projects that have a demonstrated growth potential. Financial institutions have also responded to the demands of their customers by introducing responsible investment products in addition to clean technology funds. Large institutional investors including many pension funds are recognizing the risks of long term investment in corporations that are exposed to climate change risk and are demanding that companies quantify and disclose these risks.

Beyond private sector financing through banks and other private sector financial institutions, numerous federal and provincial government programs also exist for technology financing including Sustainable Technology Development Canada (SDTC) and Ontario Centres of Excellence (OCE). These funding agencies exist to provide business and financial support to new and growing technology businesses.

Social and Culture

Global awareness about our effect on the environment has increased, creating an emergence of a green culture domestically and globally. This global awareness has fostered the development of green retail and organic markets. Mainstream retail providers such as the Home Depot and Loblaws are offering green alternatives in many consumer product categories.

This growing awareness and concern about the environment is also causing politicians to take notice. We are starting to see that concerns and solutions for the environment are of interest to all political parties.

Although there is an emergence of a green culture, Canadians and Torontonians still live a consumptive lifestyle. Therefore there are existing waste management issues that require creative and innovative solutions. This represents a significant opportunity in Toronto for those businesses that have green solutions to solve these problems.

The table on next page outlines the five forces shaping the market for green products and services.

In Fall 2006, Environics Poll, Concerns about the Environment ranked second only to Health Care as the most important issue to Canadians.

Five Forces Shaping the Market for Green Products and Services	
I. Environmental Issues	
<ul style="list-style-type: none"> ▪ Air quality: increasing Smog and Green-house gases ▪ Waste management issues ▪ Climate Change ▪ Limited options for nuclear and hazardous waste ▪ Accelerated growth and urban sprawl 	<ul style="list-style-type: none"> ▪ Brownfields and demand for urban redevelopment ▪ Largest truck route through Montreal/ Detroit ▪ Water quality and watershed protection ▪ Increasing public awareness
II. Resource Supply	
<ul style="list-style-type: none"> ▪ Planned phase out of coal generation ▪ Electricity supply and reliability ▪ Rising costs of gas and electricity 	<ul style="list-style-type: none"> ▪ Extensive supply of ethanol source ▪ China and India demanding more resources ▪ Concerns over peak oil
III. Policy and Regulations	
<ul style="list-style-type: none"> ▪ Political will ▪ Commitment to long term sustainable vision and solutions by all levels of government ▪ International pressure ▪ Ontario's Standard Offer contract 	<ul style="list-style-type: none"> ▪ Alternative energy funding ▪ Tightening Environmental regulations ▪ Emissions trading schemes ▪ International agreements ▪ Toxics and Health ▪ Green incentives/disincentives
IV. Finance and Economics	
<ul style="list-style-type: none"> ▪ Advances in manufacturing and materials improve costs of production for renewable ▪ Availability of capital to fund new technologies ▪ Inability of municipalities to fund urban infrastructure renewal 	<ul style="list-style-type: none"> ▪ Citing and financing new facilities ▪ Increasing demands of large institutional investors ▪ Risks on insurance and savings ▪ Rising health costs
V. Social and Culture	
<ul style="list-style-type: none"> ▪ Global awareness: emergence of a green culture ▪ Public awareness and engagement 	<ul style="list-style-type: none"> ▪ Health concern ▪ Consumptive lifestyle creating waste management issues and continued suburban growth

6. Toronto Can Lead the Race

Toronto has all of the elements necessary to undertake and sustain a green economic development movement. Now that the business case for a green economic development strategy has been clearly established, the next step is to define the opportunity for the City of Toronto. A successful strategy starts with a clear definition of what currently exists so the city can effectively capitalize on the core strengths and build on the existing businesses that have successfully found a market.

The City's Critical Strengths

The City of Toronto has a number of strengths that are particularly relevant to the Green Economic Development Strategy. These are illustrated in Figure 4.

Figure 4: Toronto's Critical Strengths for Successful Green Economic Development



Existing Business Base

One of the critical elements that will facilitate the growth and development of the green industry sector is the strong existing green business base in Toronto. There is a strong network of environmental businesses such as environmental consulting firms, energy efficiency service providers and green industry and non-profit organizations. This strength demonstrates the strength of demand for green products and services in Toronto.

University and College Network

The strong network of universities and colleges provide a backbone for the innovation network within the city. York University, The University of Toronto, and Ryerson Polytechnical Institute have strong science, engineering and policy based environmental programs.

The college network also provides a skilled service and technology based workforce to feed into existing and emerging businesses. Two of the leading business schools in the country, the Rotman School of Business and the Schulich School of Business can also provide management training and offer a sustainability focus as part of their curriculum.

Beyond the training aspect that universities and colleges provide, they also provide hubs of experts and researchers in various fields. These people are at the forefront of environmental and technology research and can be the source of innovation for a green technology network. Existing technology research hubs including MaRS use the University of Toronto as their basis for development.

The opportunity and challenge is to enhance the process of commercialization for new and innovative technologies and processes developed in the labs of Toronto universities and colleges so that green technologies can be more effectively moved to market.

Global Reputation and Presence

The strong reputation and recognition that the City of Toronto has globally is a critical strength in developing a Green Industry sector. Canada at large is known for its natural environment including lakes, rivers, and forests. Within Canada, Toronto is recognized for being a clean city with expansive green space and natural beauty from its position on Lake Ontario. This is natural first step in attracting those individuals that have a concern for the environment and are committed to growing businesses that address these concerns.

Beyond the esthetics, Toronto is a recognized financial center holding the Toronto Stock Exchange and many of the headquarters for Canadian Financial Institutions.

Quality of Life

The City of Toronto offers an outstanding quality of life compared to other large comparable cities. The city has among other things, a low crime rate, abundant access to recreational activities and events, natural environments for hiking and site seeing, advanced health care facilities, and a multicultural environment.

Business Support and Financial Services

Given the reputation as a financial hub, there is no question that the business support and financial services are available locally to new and existing business. Also, there is an emerging cleantech financing sector including clean technology focused venture capital firms that are looking to invest in new clean energy technologies.

Proximity to US market

Toronto's location on Lake Ontario and the center of the Great Lakes Region allow for easy access to the largest potential market for green technologies and services in the US.

Toronto's Ongoing Leadership

There is no question that Toronto has already demonstrated significant leadership and forward thinking with respect to the environment. Toronto has been one of the early leaders in adopting waste diversion programs such as blue box recycling and the green bin for organic waste.

Toronto's leadership was recognized from the beginning as the City was chosen to host one of the first meetings of Climate scientists in 1988 called "The World Conference on the Changing Atmosphere: Implications for Global Security". This conference represented the first time a group of scientists asked governments to set strict specific targets for reducing greenhouse gases.

This early leadership has continued with a strong commitment to public transit as well as further reducing the city's footprint through the targets and actions described in the new City of Toronto Climate Change Plan.

7. An Action Plan to Catalyze Green Business Development in Toronto

Ultimately, the green economic sector development strategy is about creating new high value jobs in a growing industry and stimulating environmental innovation across all businesses. As we have illustrated throughout this plan, the opportunities for growth in the green industry sector are tremendous and Toronto possesses the fundamental building blocks to become a globally recognized green industry hub.

In order to fully attain this vision and capitalize on the proven benefits of green economic development, the City needs an action plan that:

1. Articulates where Toronto wants be,
2. Describes the specific actions that must be implemented to get there,
3. Measures performance, and
4. Rewards and celebrates success.

Benefits of the GED:

- Enhanced competitiveness
- Strong Economic Growth
- Improved Local environment
- Increased prosperity
- Better quality of life for Torontonians

Throughout the entire process, the City must continuously communicate the vision and objectives of the approach to ensure that a clear direction is maintained. It is essential that the City of Toronto endorse the green economic development vision and within a short timeframe address the following critical elements of the communication strategy:

- **Integrate the vision** and its intent into City Council's lexicon

- **Communicate the City's commitment to these objectives** to internal and external stakeholders
- **Further engage business and investors** to partner with the City to implement the proposed actions and attain the objectives

Each phase of the GED Action plan is illustrated in Figure 5 (below) and further described in the sections that follow:

Figure 5: Phase of the GED Action Plan



Establishing Coordinated & Unified Goals and Targets

By defining specific goals and targets, the City can prioritize and focus actions and measure progress towards achieving the GED vision. The GED targets that are developed must also be measurable, consistent with the original vision and goals set out by this document and other applicable city initiatives, and acceptable to other divisions within the City of Toronto directly impacted by Green Economic Development.

There are a number of concurrent initiatives being pursued by the City of Toronto. Some examples of these initiatives include the Climate Change and Air Quality Plan, the Better Buildings Partnership, and the Energy Efficiency Action Plan. Each of these strategies will have individual targets and goals which have been considered in developing the GED plan. For example, in the Air Quality and Climate Change Plan released in March 2007 there are 26 actions that are identified to achieve the GHG reduction targets proposed by the city. One of these actions is to make the Green building standard a requirement for new residential and commercial buildings by 2012. In order to achieve this goal, it will be important to ensure that the businesses exist to support the demand for green buildings including green building products and design services.

As a starting point three targets for the City of Toronto are provided in Table 2. Additional and more refined targets should be developed over time.

Table 2: Targets for Green Economic Development

Green Economic Development Goals
<ul style="list-style-type: none"> ▪ Increase new green businesses, research activities, thought-leadership and other services (as per the definition) by 25% by 2010 ▪ Increase “greening” of existing businesses by 25%. Measured by a variety of indicators including for example: <ul style="list-style-type: none"> ▪ Investment dollars in energy/water reducing technologies ▪ Change in energy/water consumption per unit of product output ▪ Raise profile of Toronto as a “Green Urban Centre”: Can be measured by the number of times it is referred to in media and conferences or through surveys of business leaders from around the world about how they view Toronto.

GHG Reduction Targets for the City of Toronto:

6% by 2012

30% by 2020; and

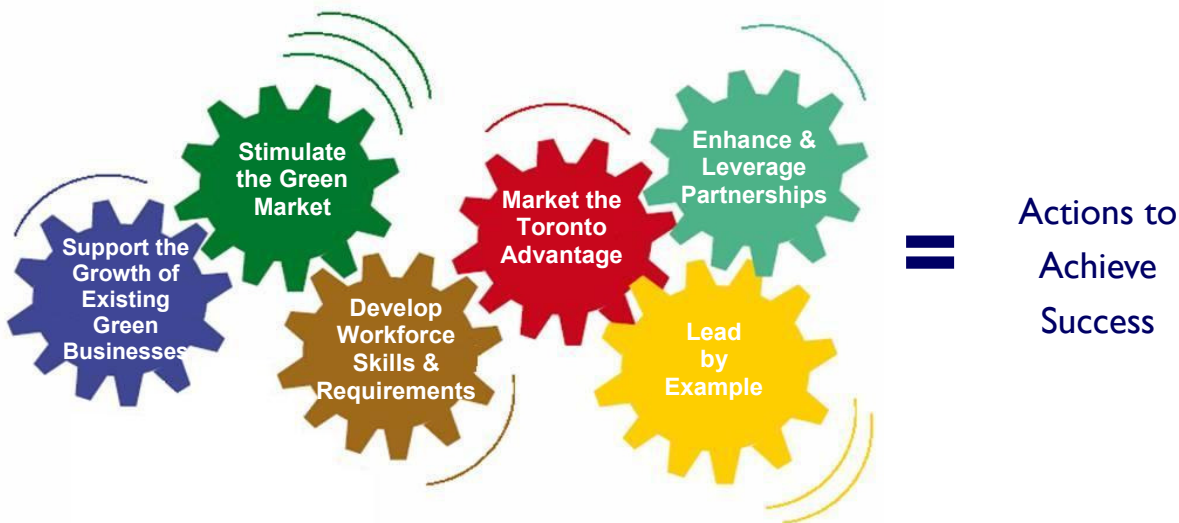
80% by 2050

City of Toronto, Air Quality and Climate Change Plan, March 2007

Moving towards the Target: Implement Actions to Achieve Success

With well-established goals and targets in hand, the task of developing specific actions can begin. Actions require commitment and resources. The scope and nature of these strategic directions can be grouped into six gears as illustrated in Figure 6 and described in the following sections.

Figure 6: Strategic Directions



Lead by example

To obtain buy in, the City of Toronto must become a leader in managing its operations in a sustainable manner. The city administration must be committed to 'green thinking' for its own policies and operations which will demonstrate the value attached to sustainability. Fostering integration of innovative sustainability approaches into the city's own processes, structure and operations will be viewed as a lens for business opportunity and a strong signal for companies to locate in Toronto.

City operations account for a significant expenditure (estimated at over \$1 billion per year) in the local economy. Through an aggressive green procurement program, for example, the City can become a key market driver for companies seeking to meet these new purchase guidelines. Another example, might be the city taking leadership in the retrofit of its existing facilities and encouraging external partners to meet new LEED-certified standards for energy conservation.

Key Ideas:

- Drive the market through the City's purchasing power by implementing progressive initiatives that incorporate sustainability when procuring products; Two immediate steps are to create a website and organize municipal workshops on Green Procurement and methods for stimulating environmental innovation within the City's operations including a trade fair to demonstrate new and emerging environmental products and services to municipalities and the business community;
- Make the city's waste stream available for companies to develop and test innovative technologies and processes. Explore the opportunity to establish commercial scale test facilities near City transfer stations and other waste operations;
- Make City Hall and facilities showcases for green building technology including energy efficiency retrofits and innovative uses of green technology that can be used to educate the public;
- Demonstrate the use of clean technologies through City buildings and fleets;
- Develop specific 'green project targets' (e.g., # of green roof projects, # of low-emission cars, the use of renewable energy for all city operations);
- Require the inclusion of energy efficient and renewable energy technology and design for public sector buildings wherever feasible;

Enhance and Leverage Partnerships

In order to succeed in developing the environment and clean energy sectors, firm formation, expansion and recruitment, a coordinated approach among diverse stakeholders is required. By developing effective and inclusive partnerships, the municipality can gain significant benefits by identifying shared priorities and coordinating activities including the delivery of innovative green projects which will provide maximum effect for the City.

Toronto has significant strengths within the financial community and the university and college network that it must leverage to fully develop the potential for green economic development.

An important element of leveraging partnerships is to develop the idea of green industry cluster. A cluster will bring together all aspects of green industry into one location so that each company can experience the combined knowledge and expertise of the other businesses. The City of Toronto and the Government of Ontario have had tremendous success with the MARS discovery district which brings together like minded groups to create a hub of scientific innovation. Creating a cluster is no simple task, however, there are seven key aspects which are critical for cluster development. These include:

- Technology innovation and expertise (from public and private research)
- Entrepreneurial culture
- Management talent
- Access to capital and other financing
- Large local markets for products and services
- Proactive public policy
- Consumer/customer acceptance

As we have identified in Toronto's strengths, many of these elements already exist in the city therefore developing a central hub or business park will be a way to enhance existing resources and develop partnerships.

Key Ideas:

- Work with the province to broaden its conceptualization of innovation and commercialization to include applied research by new and existing companies to develop and design environmental products and services
- Formalize a green innovation network through one central hub or business park;
- Support the Mayor's call to action for other Cities Mayor's to sign onto a "zerofootprint" initiative;
- Benchmark the city's progress in green developments and establish an international rewards program in this regard;
- Sponsor a research Chair(s) at York University, Ryerson, University of Toronto, and/or trades schools;
- Partner with leading architects to promote consideration of elements such as dematerialization, product stewardship and Design for Environment;
- Establish and coordinate a consortium of local government, business organizations, non-profit organizations and other key stakeholders (e.g., University of Toronto, the GTMA on promotion, various divisions within Toronto, etc). The group - Green Thinking Partnership: hearing it from the peers - promotes a collaborative approach dialog to identify and realize opportunities for cost savings and innovation;

- Partner with Ontario food terminal or other existing large hub to create a network of bio-diesel fueling stations to support City Green Fleet transition plan;
- Support the development and growth of the district energy project in the Toronto Discovery District. This project supports the sustainable use of energy, provides stability with respect to supply costs and stimulates new development in the area.

Market the Toronto Advantage

To establish a globally recognized green industry sector, the city must develop a plan and mechanisms to actively profile and showcase Toronto as a ‘happening’ place around the development of new and emerging green businesses as well as the continued growth and sustainability of established businesses. This marketing needs to happen domestically as well as internationally. Public recognition of achievements in green business is also important in encouraging other businesses to participate in the activities as well as provide additional marketing and promotion for the green initiative. It creates a “buzz” around the Green Toronto idea and as more people hear about it, the more that they will become believers and advocates for the cause.

Key Ideas:

- Develop Toronto consumer market prospectus to show opportunity to attract new companies;
- Prepare marketing materials to profile the sector and build international awareness;
- Communicate the existing incentive programs to business through a green marketing package specific for new or existing businesses;
- Have one web portal that contains all information related to the Green City campaign including promotional material and business success stories;
- Organize informal discussions with external organizations and businesses across the city representing various economic, social and environmental interests to ensure that they are acting as a coordinated marketing engine;
- Attract a Flagship event that highlights the city such as a Clean tech venture forum or large “green” conference;
- Develop a coordinated marketing plan with other regions within the GTA to leverage the advantages of all regions without cannibalizing potential opportunities;
- Seek speaking engagements to highlight city initiatives, leading companies and star researchers.

Stimulate the Growth of the Green Market

To position the city as a global hub for green technology innovation and growing market opportunity, the City needs to deploy a comprehensive range of incentives and regulatory changes to make it easier for companies to locate and stay in Toronto. These incentives must be on the demand side to increase the demand for green products as well as the supply side to encourage new businesses to locate in the city. It is important to recognize that any business activity must be profitable if it is to succeed in the long-term.

Well-intentioned green businesses are no exception to this. The city can play a role through a variety of financial and business cooperative ventures with the green sector, particularly in its formative years. Tangible policy initiatives focused on reward and recognition for green innovation can also be effective in sustaining green businesses throughout their lifetime rather than in the initial formation.

Key Ideas:

- Implement various demand side policy initiatives including green procurement standards, reduced property taxes for green buildings, tax breaks or rebates for incorporating green technologies, and small and medium sized business loans for retrofitting costs;
- Implement various supply-side policy initiatives such as low interest loans to qualified green businesses, enhanced profile for green businesses through direct weblinks on the city website, and organized networking and communication events for green businesses;
- Introduce an energy performance certification scheme for buildings that are constructed, rented or sold;
- Develop a green home innovation centre to showcase and provide education on environmental products and services to Toronto residents;
- Support the development and implementation of sector specific, aerospace for example, green innovation initiatives.

Develop Workforce Skills and Requirements

A key element of developing a successful environment industry is ensuring that the workforce is trained to implement or maintain new technologies. For example, in the City of Toronto Climate Change plan they indicate that they would like to have mandatory green building standards in place for buildings and residences by 2012. In order to fill this gap, there will be a large demand for skilled labour to install and operate these new systems. Training and development programs must be put in place to ensure that businesses that supply these services can operate with the required labour. Involving the key stakeholders such as business, associations, academia and labour will be key to the success of the following actions.

Key Ideas:

- Complete a labour market skills study to determine where green business skills need to be developed or upgraded;
- Sponsor a research Chair(s) at York University, Ryerson, University of Toronto, and/or trades schools;
- Develop training programs to assist operations and manufacturing companies to establish in house expertise with respect to running and maintaining environmental systems, partner with universities and colleges to develop specialized skills;
- Develop training programs to improve contractor's abilities to successfully install environmental products in homes and businesses;
- Develop a quality assurance certification for contractors that have completed an environmental installation course;
- Develop a training program with the business, academia and labour communities to improve the skill sets of architects, building and design professionals with respect to incorporating integrated environmental design into building design and construction;
- Develop training programs in conjunction with the trade associations and unions to establish expertise with respect to installing and testing environmental systems.

Support the Growth of Existing Green Businesses

As mentioned in the previous section, one of Toronto's greatest strengths is the existing green business network. Although a key element of this strategy is to attract new business, the success of the Green economic sector development strategy will depend on the strength of the support system for existing businesses.

Key Ideas:

- Formalize a Toronto Environmental Research and Commercialization Initiative to strengthen research partnerships in the fields of sustainable energy and environment; to seek avenues for commercialization of these technologies, and to link local and international environmental research to business opportunities;
- Strengthen existing Environment Business Networks to allow companies to identify with a specific sector, create cross learning within the sector, and foster business to business connections;
- Assist companies in exporting and marketing their products and services by developing and marketing a database of the City's environmental sector capabilities to local and international markets;

- Explore within the city's financial services sector, opportunities to create business to business links with Toronto's existing environment firms;
- Undertake a study to demonstrate the environmental costs and benefits of using regionally produced foods;
- Create a one window utility conservation program undertaken jointly with the City, Toronto Hydro, Enbridge, and targeted at the existing business community to support best environmental practices and make our companies industry leaders;
- Develop district energy projects within the city's employment districts as a means of creating competitive advantages for companies in the area.

Measure Performance

With the range of possible actions that are likely to be implemented over the near and long-terms to achieve the goals and targets of the Green Economic Sector Development plan, it is critical that a mechanism be in place to measure the effectiveness of these actions undertaken. Not all actions will yield results. Many others will require adjustments, while others may need new tactics. Yet some actions will perform well.

In order to maintain momentum and support from stakeholders, it is important to demonstrate progress and success. The best way to do this is to employ a performance measurement scorecard that enables the city to achieve desired results in the shortest time period with maximum cost-effectiveness. Once the implementation actions are determined, development of appropriate performance measurement metrics can be achieved and put into action. The methods for such measures are common and fit well on this framework.

It is important to note the primary output from this exercise is a accurate and timely impact measures of your actions in relation to your stated goals and targets. Specifically, you will be able to report if and when your stated goals and targets are being achieved and what benefits are derived for Toronto.

Reward & Celebrate Success

Following on from the preceding actions, it important to communicate and celebrate the city's successes in achieving its green economic development objectives. The early successes of the action plan will quickly find momentum in enhancing further green development and linking well with the city's overall environmental strategic plan.

Key Ideas:

- Establish an international benchmark study for green economic development;
- Linkages with international standards and associations that recognize efforts and achievements in this regard, such as UNEP;

- The Green Innovation Pledge – an initiative that encourages businesses to reduce their environmental footprint through free services aimed improving environmental performance, achieve cost savings and increase competitiveness;
- The Green Business of the Year award to reward and recognize companies that improve the city's environment and reduce their environmental footprint.

Recommendations

The key ideas that have been presented in this section will be part of the plan that the City can use to develop and foster the green sector over the short to medium time frames. As a first step, it is important to develop and implement a set of ideas that can be considered priority actions for the short term. Ten priority actions are identified below as a starting point for the Economic Development group.

1. Create a one window utility conservation program undertaken jointly with the City, Toronto, Hydro, Enbridge, and targeted at the existing business community to support best environmental practices and make our companies industry leaders;
2. Support the development and growth of the district energy project in the Toronto Discovery District. This project supports the sustainable use of energy, provides stability with respect to supply costs and stimulates new development in the area;
3. Formalize a Toronto Environmental Research and Commercialization Initiative to strengthen research partnerships in the fields of sustainable energy and environment; to seek avenues for commercialization of these technologies, and to link local and international environmental research to business opportunities;
4. Develop a Sustainable Employment District Pilot project to stimulate industrial ecology, and economic competitiveness as a means of creating competitive advantage for companies in the area;
5. Develop a Green Home Innovation Centre to showcase and provide education on environmental products and services to Toronto residents that leverages partnerships and current initiatives;
6. Develop a training program with the business, academic and labour communities to assist office operations and manufacturing companies to establish in house expertise with respect running and maintaining environmental systems;
7. Investigate opportunities to expand the City's green procurement initiatives. As a first step, organize municipal workshops on Green Procurement and methods for stimulating environmental innovation within the City's operations including a trade fair to demonstrate new and emerging environmental products and services for municipalities and the business community;

8. Develop a training program with the business, academic and labour communities to improve the skill sets of architects, engineers, construction and building professionals on how to effectively incorporate integrated environmental design into building projects;
9. Support the creation of an environmental industry capabilities database and Toronto consumer market prospectus in cooperation with environmental industry association(s) and other levels of government to profile and market Toronto's green industry expertise; and
10. Organize Workshops with TABIA (Toronto Association of Business Improvements Areas) and the Chambers of Commerce to engage the participation of the small business community in adopting sustainability practices and green procurement policies.

In addition to these 10 action points, it is critical for the City of Toronto to look at larger initiatives such as governance and procurement to ensure that green initiatives are being fully developed and supported. As well, it will be critical to continue to track and study the green industry to ensure that programs and initiatives are current and applicable to the demands of the marketplace.

8. Conclusions

It is clear that the City of Toronto has shown a commitment and desire to become one of the world's greenest cities and has outlined a number of these green goals and commitments in the Environmental plan and Climate Change strategies. In order to achieve these targets, there is a need to develop the business framework to support the demand for green products as well as to provide the existing businesses with the tools to become more sustainable.

There is a tremendous green movement that is happening and with that movement will come exciting opportunities for new business as well as opportunities for existing businesses to reinvent themselves. The City of Toronto has the opportunity to differentiate itself from other great cities by embracing Green Economic Development and putting into action the strategies and plans that have been set out in this document.

The Vision for Toronto to be the Greatest and Greenest of the World's big cities is not far off if a coordinated commitment and action plan is put in place and resources and all working towards a common goal.



Delphi

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Appendix A

**List of City of Toronto
Environmental Programs/Initiatives**

Group	Program Name	Description
Cleaner Air	20/20 The Way to Clean Air	<ul style="list-style-type: none"> • 20/20 The Way to Clean Air provides resources to residents in the Greater Toronto Area to help them reduce home energy use and vehicle use by 20 per cent. • The FREE 20/20 Planner, a practical step-by-step energy reducing guide, can help you save money and energy. • 20/20 is a campaign of health units in Toronto and the regions of York, Durham, Peel and Halton. <p>For more information, and to order your free 20/20 Planner call 416-392-2020.</p>
	Clean Roads to Clean Air Project	<p>Improved Road Sweepers</p> <ul style="list-style-type: none"> • Road dust is a major source of fine particulate matter in the air. The City of Toronto intends to replace worn-out street sweepers with more advanced street sweepers capable of removing and containing more than 90 per cent of the fine road dust from road surfaces. • In addition to benefiting air quality in the vicinity of city streets, the new equipment will reduce the amount of fine road dust washed down catch-basins into the sewer system. <p>More information is available from Transportation Services at 416-392-8345.</p>
	Green Fleet Transition Plan	<p>Moving to Alternative Fuels</p> <ul style="list-style-type: none"> • The City's Green Fleet Transition Plan, adopted in 2004, is a three-year strategy to reduce emissions from the City's fleet of vehicles. The plan calls for the replacement of old vehicles with biodiesel, hybrid electric and natural gas powered cars and trucks - a process that has begun at the City of Toronto. • In 2005, Fleet Services entered into a partnership with a private-sector company and the federal government to develop a hybrid hydraulic garbage packer for Toronto's fleet of packer trucks. <p>More information about the Green Fleet Transition Plan is available from Fleet Services at 416-392-4397.</p>
	Greenhouse Gas Analysis	<ul style="list-style-type: none"> • Toronto has set a goal of reducing greenhouse gas emissions in the city to about 80 per cent of what they were in 1990. Civic leaders also want to improve air quality. • As a result, the City is undertaking a Greenhouse Gas and Air Emissions Project that will analyze an inventory of information about energy consumed - and pollutants emitted - by City government operations and the broader community. With this tool, Toronto will be able to track its progress toward meeting goals for air quality improvement and highlight opportunities for further emission reductions. <p>For more details, contact Environmental Services at 416-392-6903 or staff of the Toronto Atmospheric Fund at 416-392-1217.</p>
	Hybrid Buses	<p>Diesel-Electric</p> <ul style="list-style-type: none"> • The Toronto Transit Commission (TTC) intends to start using hybrid buses as part of its fleet in 2006. The hybrid diesel-electric buses use less fuel and have lower emissions than traditional diesel-fuel buses.

		<ul style="list-style-type: none"> The energy created by the braking process charges batteries that power an electric motor supplementing the bus's diesel engine. <p>More information is available from the TTC at 416-393-3162.</p>
	Bio-Fuel Testing	<ul style="list-style-type: none"> Toronto's Fleet Services Division and the Toronto Transit Commission (TTC) tested 180 TTC buses over a nine-month period in 2004-05. The results showed that the overall ozone-forming potential of a biodiesel bus was about half that of a bus that uses standard diesel fuel. The City and the TTC have begun using biodiesel fuel in their vehicles (through annual tender for a reliable supply), with the intention of increasing the use of biodiesel fuel for their fleets. <p>More information is available from Fleet Services at 416-392-4397 and the TTC at 416-393-3115.</p>
	Corporate Smog Alert Response Plan	<p>Reduce energy use. Reduce smog.</p> <ul style="list-style-type: none"> The City of Toronto Corporate Smog Alert Response Plan directs City divisions, agencies, boards and commissions to develop plans that reduce or suspend activities which contribute to poor air quality on smog alert days. Smog resources are available to help protect your and your family's health on smog days. <p>For more information, visit Toronto Health Connection or call 416-338-7600.</p>
	Online Information about Air Quality	<p>Clean Air Online</p> <ul style="list-style-type: none"> Clean Air Online is a one-stop link to information about air quality and climate change in the Greater Toronto Area, as well as nationally and internationally. The website provides you with solutions that can help address the problems of smog and climate change. It identifies actions taken by all levels of government, and locally in communities across the Greater Toronto Area. Clean Air Online is an initiative of the Greater Toronto Area Clean Air Council and is co-ordinated through the Clean Air Partnership. <p>You can visit Clean Air Online at www.gtacleanaironline.ca.</p>
	Motor Running, Going Nowhere	<p>Idling Control Bylaw</p> <ul style="list-style-type: none"> The City of Toronto's Idling Control Bylaw is intended to discourage the unnecessary idling of cars, trucks and buses in the city in order to help combat air pollution. The bylaw limits idling to no more than three minutes in a 60-minute period (with exceptions during extremely hot or cold weather). The City (with help from the media) continues to provide general education about the effects of unnecessary vehicle idling. Contaminants from vehicle exhaust are major contributors to deteriorating air quality in Toronto. The City is working in collaboration with the Toronto Police Service to enforce the bylaw, though the emphasis is on public awareness and general support for voluntary compliance.

		For more information about the City's anti-idling bylaw , call 416-392-7873.
	Smog Summit	<ul style="list-style-type: none"> • This annual event brings together government leaders, communities and individuals to identify and implement plans to reduce smog in the Greater Toronto Area. • The Smog Summit also raises awareness of air quality issues in the general public through community events such as the Fresh Air Fair. • The Smog Summit is an initiative of the Greater Toronto Area Clean Air Council and is coordinated through the Clean Air Partnership. <p>For more information, visit www.smogsummit.org.</p>
	Toronto Atmospheric Fund	<ul style="list-style-type: none"> • As a non-profit municipal agency, the Toronto Atmospheric Fund provides grants and loans in support of local efforts to reduce energy consumption and promote air quality initiatives. <p>More information about the Toronto Atmospheric Fund is available by e-mailing pjessup@tafund.org.</p>
	Emissions Trading	<p>Carbon Offsets Policy</p> <ul style="list-style-type: none"> • The City of Toronto has the potential to generate a relatively large number of carbon offset credits through activities such as its energy retrofit program, green roofs policy, renewable energy action plan and aggressive tree-planting. Toronto will consider selling its carbon credits only on the condition that the credits be retired immediately and not re-sold to potential polluters. <p>For more information, call Environmental Services at 416-338-7132.</p>
	Great Lakes Climate Change	<p>Policy Co-ordination</p> <ul style="list-style-type: none"> • In partnership with the International Council of Local Governments for Sustainability, the City of Toronto is collaborating with 10 cities in the Great Lakes region to develop an international, city-level policy on climate change. • The Working Group members are focusing on energy and water issues and the issue of pollutants that play a role in climate warming. <p>For further information call Environmental Services at 416-338-7132.</p>
	Renewable Energy	<p>Toronto's Target</p> <ul style="list-style-type: none"> • Renewable energy is energy from inexhaustible sources such as the wind and the sun. Those sources of energy produce significantly fewer pollutants than the use of fossil fuels such as oil and gasoline. • In 2000, the City made a commitment to obtain a quarter of its energy needs from renewable energy by 2005. That target was not met but several initiatives planned or in progress should help to close the gap. They include a photovoltaic installation at Exhibition Place, solar-powered lighting in transit shelters, linking Metro Hall to deep lake water cooling, and the purchase of 330 hybrid buses. • Work is now underway on a renewable energy action plan that is to be implemented across City divisions and in partnership with partners such as Toronto and Region Conservation and Toronto

		<p>Hydro.</p> <p>For further information, contact the Business and Strategic Innovations Unit of the Facilities and Real Estate Division at 416-338-5812 or Environmental Services at 416-338-2857.</p>
	Workshops on Renewable Energy	<ul style="list-style-type: none"> You can discover how to generate electricity using reliable solar and wind energy at hands-on workshops at Toronto and Region Conservation's Kortright Centre. The workshops are held in the Energy Cottage - itself powered by solar and wind energy. <p>More information is available from Toronto and Region Conservation, 416-667-6295.</p>
	Landfill Gas Project	<ul style="list-style-type: none"> The City of Toronto collects and burns landfill gases that are emitted at its three largest landfill sites: Keele Valley, Brock West and Beare. None of those sites is still operational for dumping. Environmentally-harmful methane (a greenhouse gas) would, if not burned, account for about half of the gases produced and emitted by landfill. Other trace gases that are also harmful are also destroyed through collection and incineration. Fans pull the gases through pipe systems in the landfill, providing a constant flow of methane-rich gas that fuels an electrical power plant. The electricity produced at the three sites contributes to the region's energy supply and creates revenue for the City of Toronto. From an environmental perspective, the process of collecting and incinerating landfill gases is crucial to the goal of combating the emission of greenhouse gases into the atmosphere. Greenhouse gases play a part in the depletion of atmospheric ozone and related global warming.
Purer Water	Watershed Planning	<ul style="list-style-type: none"> Planning and implementation of an approach to managing watersheds (source waters) is currently underway in nine Toronto-area watersheds and the Lake Ontario waterfront. They are the Don, Humber and Rouge rivers, and the Etobicoke, Mimico, Highland, Petticoat, Duffins and Carruthers creeks. Initiatives involve the creation of watershed management plans that report on watershed health and the protection and restoration of environmentally significant land and water sources. Community-based outreach and action are promoting watershed health. <p>More information on Toronto and Region Conservation's Watershed Strategies can be found by calling 416-661-6600.</p>
	Source Protection for Drinking Water	<ul style="list-style-type: none"> Toronto and Region Conservation, Central Lake Ontario Conservation Authority and Credit Valley Conservation are working in partnership to co-ordinate the development of plans for the source protection of drinking water. The goal is to ensure there is safe, clean drinking water for all Ontarians. <p>Details about Toronto and Region Conservation's Source Protection strategy can be found by calling 416-661-6600, extension 5369.</p>
	WaterSaver Programs	<p>Incentives for Reducing Water Use</p> <ul style="list-style-type: none"> Toilet replacement - Toilet flushing in Toronto's residential and commercial buildings uses about 260 million litres of water a day. There are almost half a million inefficient toilets across the city. The Toilet

		<p>Replacement Program aims to replace the water guzzlers with models that use no more than six litres of water a flush. Toronto residents and owners of larger buildings can receive rebates to help offset the cost of water-efficient toilets. Replacing toilets is expected to reduce overall water consumption by more than 100 million litres of water a day by 2011.</p> <ul style="list-style-type: none"> • Better washers - Today's water-efficient clothes washers can use 40 per cent less water and 60 per cent less energy than conventional models. Through the Washer Program, homeowners and the owners of apartment buildings can receive rebates for the purchase of a qualified, water-efficient washer. • Incentives for institutions - The City's Water Buy Back Program offers cash incentives for industrial, commercial and institutional buildings that permanently reduce the use of water. The financial incentives can be substantial and help offset the cost of installing water-efficient equipment. • Watering the lawn - The City encourages homeowners to water their lawns at non-peak hours (7 a.m. to 10 a.m.) to reduce pressure on the municipal water system and to reduce overall water use (and related costs). The City of Toronto's outdoor water program offers a limited number of free lawn and garden audits to educate homeowners on ways to reduce outdoor water use. Rain gauges are available to help residents monitor their use of water for lawns. <p>More information about Watersaver programs is available at 416-392-7000.</p>
	<p>Managing Storm Water</p>	<p>Downspouts</p> <ul style="list-style-type: none"> • Disconnecting your roof's downspouts (of the eavestroughs) will reduce the flow of storm water into the city's sewer system - which in turn will reduce the pollution of local streams, rivers and Lake Ontario. During a heavy rainfall, millions of litres of rainwater mixes with sanitary sewage in the sewer system, overloading it. The mixture can flow untreated into natural waterways. The overloading can also flood basements, contaminate lake water and make beaches unsafe for swimming. <p>To find out more about the Downspout Disconnection Program and have your home's downspouts disconnected for free, call 416-392-1807.</p> <p>More information about basement flooding is available at 416-338-8888.</p>
	<p>Wet Weather Flow over the Long Term</p>	<p>A Master Plan</p> <ul style="list-style-type: none"> • Toronto's water pollution solution is presented in a long-term master plan to protect our environment and to help keep Toronto's rivers, streams and other bodies of water healthy. • The 25-year plan also deals with steps needed to reduce the adverse effects of wet weather flow - water runoff from roofs and roads that is generated when it rains or snows. <p>Learn more about the Wet Weather Flow Management Master Plan and what the city is doing to protect our water quality.</p>
	<p>Toronto's Beaches</p>	<p>'Blue Flag' Program</p>

		<ul style="list-style-type: none"> The City of Toronto is the first municipality in Canada to be recognized by the international Blue Flag program for setting high standards in water quality and cleanliness at its beaches. Four of Toronto's beach areas have been awarded the Blue Flag: Cherry Beach, Hanlan's Point, Ward's Island and Woodbine Beaches. The standards pertain to water quality, environmental management, environmental education, and safety/service. Toronto's beach water is tested each weekday from early June to early September. Water quality must not exceed the provincial guidelines for E. Coli bacteria at least 80 per cent of the time throughout the swimming season in order to receive and maintain the Blue Flag designation. <p>For more information on the Blue Flag program, a partnership between the City of Toronto and Environmental Defence Canada, go to Torontobeach.ca. For up-to-date information on beaches water quality go to Toronto beaches water quality reports or call 416-392-7161.</p>
	Wastewater Master Plan	<ul style="list-style-type: none"> The City of Toronto is working on a Biosolids and Residuals Master Plan that will provide direction on the future management of biosolids and other water-borne residual matter generated by the City's eight water and wastewater treatment plants to the year 2025. The plan will ensure that the City's management of its biosolids and water residuals is cost efficient, environmentally sound and sustainable. <p>For more information about biosolids and protecting our water quality call 416-392-4390.</p>
	Sewer Use Bylaw	<ul style="list-style-type: none"> Clean water is everyone's business. The City of Toronto has a Sewer Use Bylaw that requires businesses to plan for pollution prevention when their operations involve discharging wastewater into sewers and watersheds. The bylaw also sets strict limits on waste discharges. <p>For more information about the Sewer Use Bylaw call 416-394-8455.</p>
	Don River Revival	<ul style="list-style-type: none"> The Task Force to Bring Back the Don is a citizens' group sponsored by the City of Toronto. The group works to revive or "bring back" a clean, green and accessible Don River watershed. <p>For more information see the Bring Back the Don website.</p>
Environmental Protection	Ravine Protection	<ul style="list-style-type: none"> The City's ravine bylaw regulates human activities that involve cutting trees, dumping fill in ravines, and changing the grade (slope) within ravine protection boundaries. City-wide harmonized bylaw approved in 2002. If you wish to determine if your property is affected by the Ravine Protection Bylaw, or if you are looking for more information about the bylaw, information is available on Urban Forestry's Ravine website. You may also call 416-338-TREE (8733). <p>More information is available from Urban Forestry at 416-392-1888.</p>
	Natural	<ul style="list-style-type: none"> The City's new Official Plan presents policies to protect Toronto's natural heritage system for the long

	Heritage	<p>term. The natural heritage system is based on a study that was carried out by the City of Toronto and Toronto and Region Conservation in 2001.</p> <ul style="list-style-type: none"> • The natural heritage includes ravines, wetlands, valley and stream corridors, wooded areas, shorelines and other significant physical features. A natural heritage system recognizes the importance of natural features, the functions they provide, and their relationships among one another. • City Planning is co-ordinating studies to further define important natural heritage features and functions, and to identify appropriate levels of protection. <p>For more information or to obtain a copy of the 2001 City of Toronto Natural Heritage Study, call City Planning at 416-392-0191</p>
	Reducing Road Salt	<ul style="list-style-type: none"> • Transportation Services created a Salt Management Plan to manage the use of salt on roads for safety purposes in winter conditions. The result is a significant reduction in the amount of salt used on city roads and sidewalks. • A recent innovation involves the mixing of salt with water to create a salt brine solution that is applied to roads either as a liquid or mixed with granular salt. The City's use of salt brine returns the roadway to normal driving conditions quickly and is better for the environment than solid salt because it uses less salt. • In addition, the City has upgraded its equipment, improved its use of weather forecasting information, and provided more training for staff who manage salt resources. <p>Further information is available from Transportation Services at 416-392-0285.</p>
	Monitoring Watersheds	<ul style="list-style-type: none"> • Toronto and Region Conservation monitors water quality, aquatic habitats, groundwater, precipitation and bio-diversity. The data is incorporated into plans for local watersheds and fish management, development/permit reviews, and other reports. • Among key projects are the Don and Humber watershed plans and report cards, naturalization of the lower Don River, a natural heritage system for the City of Toronto, and efforts involving Port Union Waterfront Park and Tommy Thompson Park. <p>More information is available from Toronto and Region Conservation at 416-661-6600.</p>
	Green Purchasing	<ul style="list-style-type: none"> • The City of Toronto considers the long-term costs and benefits of the products and services it buys. City Council adopted a policy on responsible procurement in 1999. The policy helps to guide decisions on purchasing . • The Purchasing and Materials Management Division revised basic specifications for contracts and tenders to place an emphasis on purchasing products and services that contain the maximum level of post-consumer reusable or recyclable content. For example, the City now uses water-based paint for asphalt markings. <p>The Environmentally responsible procurement policy is available on the City's website.</p> <p>Information is also available by e-mailing purchasing@toronto.ca or by phoning Purchasing and Materials Management at 416-372-7311.</p>

	Toronto Environmental Volunteers	<ul style="list-style-type: none"> The Toronto Environmental Volunteers program, run by the City, enlists volunteers throughout the city, expanding their knowledge in solid waste management issues (recycling, composting, organic waste collection), household hazardous waste, energy and water efficiency, wastewater education and air quality. <p>More information is available at 416-397-4838 and on the Toronto Environmental Volunteers website.</p>
	Experience for Volunteers	<ul style="list-style-type: none"> The Environmental Volunteers Network, a partnership project educates diverse volunteers and gives them hands-on work experience in the field of conservation. It also provides non-profit environmental and municipal agencies with ready, willing and able volunteers. <p>Information is also available from Toronto and Region Conservation at 416-661-6600, extension 5360.</p>
Better Use of Energy	Better Buildings Partnership	<ul style="list-style-type: none"> The Better Buildings Partnership is an innovative private/public sector partnership of the City and energy management firms working with building owners and managers. The purpose is to make buildings more energy efficient and cost effective and reduce carbon dioxide emissions. <p>More information is available by visiting the Better Buildings Partnership or by calling the Energy Efficiency Office at 416-392-1501 or bbp@toronto.ca</p>
	Better Buildings New Construction Program	<ul style="list-style-type: none"> The City's Energy Efficiency Office is promoting improved energy efficiency and building design. Design assistance and financial incentives are provided with the goal of having newly constructed buildings surpass the present Ontario Building Code energy efficiency standards by at least 25 per cent. <p>More information is available about the Better Buildings New Construction Program at 416-392-7003.</p>
	Energy Use at City Facilities	<ul style="list-style-type: none"> The City's Energy Management and Energy Retrofits programs call for a significant reduction in the energy consumed by City-owned facilities and operations. Progress has been made and efforts continue. <p>More information about energy management at Toronto's municipal facilities is available from the Energy and Waste Management Office at 416-392-8954.</p>
	Traffic Signals Changing	<p>Energy-Efficient Lamps</p> <ul style="list-style-type: none"> New lights being installed at the City's traffic signals will result in significant energy savings and a reduction of carbon dioxide emissions. Over the next four years, Transportation Services will convert all traffic and pedestrian signals to the new lighting, dramatically reducing the energy used and potentially saving the City almost \$2 million a year. The new lighting will also reduce carbon dioxide emissions significantly. <p>More details about these new energy efficient traffic lights are available from Transportation Services at 416-392-5314.</p>
	Power from	

	Light	<p>Solar PV Installation at Exhibition Place</p> <ul style="list-style-type: none"> • The Toronto Atmospheric Fund and Better Buildings Partnership study and pilot project that involves generating electricity using an assemblage of photovoltaic (light sensitive) cells similar to batteries. The project is based at the City's Exhibition Place. • Another energy project involves testing fuel cell technology at Exhibition Place's Hydrogen Village. • The City's Energy Efficiency Office and Exhibition Place are collaborating on these projects. <p>More details are available by calling Energy Efficiency Office at 416-392-1110.</p>
	Lighting in Transit Shelters	<p>Solar Power</p> <ul style="list-style-type: none"> • At present, 350 transit shelters along city streets are lit by solar-powered lights. A solar panel on the roof of the metal and glass shelter charges a battery stored under the seat and connected to the overhead lighting. <p>More information is available from Transportation Services at 416-392-1801.</p>
	Municipal Use of Green Energy	<ul style="list-style-type: none"> • The City of Toronto has adopted a target of purchasing 25 per cent of its energy needs in the form of green power. Meeting the target has been challenging but progress had been made and efforts to attain the target continue. <p>More information is available from the Energy and Waste Management Office at 416-392-8954.</p>
	Deep Lake Water Cooling Project	<ul style="list-style-type: none"> • This innovative cooling system was launched by Enwave and Toronto Hydro in 2004. The system works by drawing cold water from the depths of Lake Ontario. • Through a heat transfer process, cold energy from the lake water - but not the actual water - is used to air condition the Metro Toronto Convention Centre and the Air Canada Centre in Toronto's downtown core. Other buildings are gradually being added to the system. <p>More information about the Deep Lake Water Cooling Project is available at www.enwave.com.</p>
	Exhibition Place Wind Turbine	<ul style="list-style-type: none"> • A joint venture of Toronto Hydro Energy Services Inc. and WindShare (a community based co-operative), the 750 kilowatt wind turbine is the first such device erected in the City of Toronto - and the first in an urban setting in North America. • The lakeshore turbine, operational since 2003, generates up to 1,400 megawatt hours of power a year. That is equivalent to the electricity needs of about 250 homes. <p>More information is available at www.torontohydro.com and www.windshare.ca.</p>
	Mayors' Megawatt Challenge	<p>Promoting Energy-Efficient Buildings</p>

		<ul style="list-style-type: none"> The Mayors' Megawatt Challenge is a program created to help mayors in the Greater Golden Horseshoe area around Toronto endorse and promote efforts to support energy-efficient building retrofits. <p>More information is available from Toronto and Region Conservation at 416-661-6600, extension 5326.</p>
	Greening Health Care	<p>Toronto Hospitals</p> <ul style="list-style-type: none"> Greening Health Care is a collaborative program among hospitals in the Toronto area to achieve energy and cost savings while minimizing air pollution. Partners include PowerStream and the Ontario Ministry of Energy. <p>More details are available by calling 416-661-6600, extension 5326.</p>
	Workshops on Renewable Energy	<ul style="list-style-type: none"> You can discover how to generate electricity using reliable solar and wind energy at hands-on workshops held at Toronto and Region Conservation's Kortright Centre. The workshops are held in the Energy Cottage - itself powered by solar and wind energy. <p>More information is available from Toronto and Region Conservation, 416-667-6295.</p>
Parks, Trees and Wildlife	Acquiring Parklands	<p>City's Strategy</p> <ul style="list-style-type: none"> The City's Parklands Acquisition Strategy identifies locations where additional parkland is needed the most, as well as proposing ways of acquiring new parkland for public purposes. <p>More information is available from the Parks, Forestry and Recreation Division at 416-392-0094.</p>
	Parkland Naturalization	<ul style="list-style-type: none"> The City's Parkland Naturalization Program involves the implementation of projects that restore, protect and enhance the natural environment in City of Toronto parks. Types of projects include meadow enhancements, wetland creation, reforestation and river/stream improvements. There are several naturalization projects across the city. Many of them involve thousands of volunteers helping with annual planting and stewardship activities. <p>For more information, call the Natural Environment hotline at 416-392-LEAF (5323).</p>
	Humber Bay Butterfly Habitat	<ul style="list-style-type: none"> The Humber Bay Butterfly Habitat project, which began in 2003, involves the creation of a self-sustaining community of native vegetation that supports a variety of butterfly species. Educating people about urban wildlife habitats is also a component of the project. <p>More information is available by calling the Natural Environment hotline at 416-392-LEAF (5323).</p>
	For the Birds	Toronto Flyways Project

		<ul style="list-style-type: none"> The Toronto Bird Flyways Project involves various efforts to improve bird habitats in Toronto. The project began in 2004. <p>More information is available by calling the Natural Environment hotline at 416-392-LEAF (5323) or visiting Lights Out Toronto.</p>
	Ravine Trail Management	<ul style="list-style-type: none"> The Ravine Trail Management Program for trails in Toronto ravines and parks aims to balance recreational use of trails with natural environment protection and restoration. Local community involvement is an important part of effective trail management. <p>More information is available by calling the Natural Environment hotline, 416-392-LEAF (5323).</p>
	Community Stewardship	<ul style="list-style-type: none"> The Community Stewardship Program involves community volunteers actively protecting and enhancing parkland naturalization projects across the city. This seasonal program began in 2001. <p>More information is available by calling the Natural Environment hotline at 416-392-LEAF (5323).</p>
	Community Gardens	<ul style="list-style-type: none"> The Community Gardens Program supports year-round community gardening and urban agriculture initiatives across the city. Activities include community garden installation, urban agriculture training and demonstration sites, community greenhouse vegetable production, and the Junior Gardener Program. <p>More information is available from the Parks, Forestry and Recreation Division at 416-392-7800.</p>
	Regional Parks	<ul style="list-style-type: none"> Excitement, entertainment and education await guests at Toronto and Region Conservation parks and other attractions across the Greater Toronto Area. Activities range from bird watching and picnics to cross-country skiing and mountain biking. Parks include Petticoat Creek, Albion Hills, Glen Haffy, Heart Lake, Black Creek Pioneer Village, Kortright Centre for Conservation, Indian Line Campground, Bruce's Mill, Boyd Park, Tommy Thompson Park and Rouge Park. <p>More information is available from the Toronto and Region Conservation's Parks and Culture webpage and by calling 416-661-6600.</p>
	Tree Planting Program	<ul style="list-style-type: none"> The City's Tree Advocacy Planting Program is a municipal effort that includes a major role by local residents. The City and the general public have planted about 300,000 trees in recent years. The trees are planted along streets and arterial roads, in ravines and in neighbourhood parks. The City's Parks, Forestry and Recreation Division work to maintain the city's urban forests. <p>More information is available about the Tree Advocacy Planting Program at 416-338-TREE (8733).</p>
	Pest Management	<p>An Integrated Approach</p> <ul style="list-style-type: none"> The City's Integrated Pest Management Program starts with an understanding of how plants grow and

		<p>function in urban areas. This program attempts to balance human needs, general quality of life and the health of plants in the stressful urban environment.</p> <ul style="list-style-type: none"> • Details about how to manage pests in a natural way can be found in Toronto Public Health's Pesticide Free: Natural Lawn Guide, in the Pest Management... the Natural Way section (pdf). <p>More information can be found by visiting the Toronto and Region Conservation's Healthy Yards Program or by calling the Parks, Forestry and Recreation Division at 416-397-4006.</p>
Healthier Lawns and Gardens	Asian Long-horned Beetle	<p>Fighting the Infestation</p> <ul style="list-style-type: none"> • Management of the Asian Long-horned Beetle infestation that has occurred in parts of the city in recent years is important. This effort includes tree-by-tree investigations, mapping of infestation areas, and removing and disposing of infested trees. Public education is also an important part of the effort. <p>More information is available by calling 1-800-442-2342 or by visiting the Asian Long-horned Beetle website.</p>
	City of Toronto Pesticide Bylaw	<p>Natural Approach to Lawn and Garden Care</p> <ul style="list-style-type: none"> • The Pesticide Bylaw is the City of Toronto's response to growing public concern about pesticide use. The bylaw restricts the outdoor use of pesticides on public and private property in Toronto. It came into effect on April 1, 2004, and applies to anyone who uses pesticides outdoors (including homeowners, renters, lawn care companies, golf courses and property managers). • You can replace pesticide use with a natural approach that improves the health of your lawn and garden. A natural approach includes enriching your soil with compost or fertilizer, raising the height of your lawn mower, sowing your lawn with grass seed, hand-weeding and watering properly. These techniques should give you a thick, deep-rooted lawn and healthy garden that crowds out weeds and resists insect damage. <p>For details about the bylaw, questions you can ask your lawn care company and how to buy natural products to fight weeds and pests, visit the Pesticide Free website or call Toronto Health Connection at 416-338-7600.</p>
	Yard Waste	<p>Collection Program</p> <ul style="list-style-type: none"> • You can compost your yard waste or spread fallen leaves as nutrient-rich mulch on gardens. Any eligible yard waste you have left over may be put out for curbside collection and composting by the City. • Compost is a rich soil amendment that improves soil structure, texture, aeration and the ability of the soil to retain moisture - all necessary for healthy plant growth. Managing organic materials in environmentally-friendly ways helps to divert more than 100,000 tonnes of waste from landfill annually. <p>For more information about the Yard Waste Collection Program call Customer Service at 416-338-2010.</p>

	Healthy Yards Program	<ul style="list-style-type: none"> • Healthy Yards is a Toronto and Region Conservation program designed to give homeowners the tools and information they need for chemical-free lawns and gardens. • The goal is to attract desirable wildlife and create a healthy environment for families and neighbours. <p>You can find out more by visiting the Toronto and Region Conservation or by calling 416-661-6600, extension 5338.</p>
Waste and Recycling	Waste Diversion	City Agencies, Boards, Commissions and Divisions <ul style="list-style-type: none"> • The City of Toronto is formally committed to reducing waste and increasing its recycling rates at its facilities and operations (agencies, boards, commissions and divisions). A corporation-wide Waste Diversion Team of representatives from 28 divisions and agencies created a Waste Diversion Plan. • Many ABC & D's have exceeded the initial 30 per cent waste diversion target and some have attained diversion rates of 60 per cent or more.
	Green Bin Organics Collection	<ul style="list-style-type: none"> • Toronto's innovative Green Bin Program offers curbside collection of organic materials such as food waste and soiled paper products from single-family households. It is the largest, most progressive waste diversion program in North America. This program, along with the City's recycling and yard waste composting programs, allows participants to divert more than half of their waste from landfill. • The Green Bin Program is a major contributor to the City achieving its waste diversion goal of 60 per cent from landfill by 2008. Organics make up 30 per cent of household waste. The City expects to divert about 100,000 tonnes of organics from landfill annually, resulting in 2,750 fewer trucks going to Michigan landfill each year. • Organics collection is provided to half a million single-family homes across Toronto. The program began in Etobicoke in 2002. <p>For more information about the Green Bin Organic Collection Program call Customer Service at 416-338-2010</p>
	Blue Box Recycling Program	<ul style="list-style-type: none"> • Toronto's Blue Box Recycling Program services all single-family dwellings that receive curbside collection, as well as all multi-unit dwellings that receive City collection services. In 2004, Toronto recycled about 150,000 tonnes of container and paper recyclables (residential), resulting in 4,392 fewer trucks of waste being sent to landfill in Michigan. • Recycling is mandatory for all City of Toronto residents making each resident responsible for keeping recyclable items out of garbage and out of landfill. • Sorting and separating recyclable materials into container (e.g. bottles and can) and paper categories is no longer required. Recyclable items in your blue/grey box are sorted mechanically at the collection facility. • Residents can now include all plastic food jars, tubs and lids in their blue boxes/carts. Items include plastic peanut butter jars and tubs for margarine, cottage cheese, sour cream and yogurt, as well as

		<p>plastic ice-cream containers and lids.</p> <ul style="list-style-type: none"> You can purchase recycling containers at any Home Hardware store across Toronto, at one of the City's 11 recycling container pick-up centres or at a Community Environment Day event. <p>More information about the Blue Box Recycling Program.</p> <p>More information on purchasing a recycling container.</p>
	<p>Recycling in Apartment Buildings</p>	<p>Multi-Unit Waste Reduction Levy</p> <ul style="list-style-type: none"> Residents living in multi-unit dwellings are being encouraged to recycle at the same rate as residents living in single-family dwellings. Every resident and all property managers, superintendents and owners are responsible for keeping recyclable items out of the garbage. Recycling is mandatory for all City of Toronto residents. Toronto City Council has authorized, subject to budget approval, a levy (fee) on any excessive garbage set out for collection by multi-unit residential dwellings. The levy would apply to apartments, condominiums, townhouses and co-operatives receiving City garbage collection. The purpose of the levy is to provide financial incentive to encourage maximum use of the no-charge recycling service provided by the City. <p>More information about the Multi-Unit Waste Reduction Levy.</p>
	<p>Household Hazardous Waste</p>	<p>Toxics Taxi</p> <ul style="list-style-type: none"> The City's Household Hazardous Waste program helps divert toxic materials from entering landfill sites and sewers. Paints, pesticides, propane tanks, batteries, syringes, used motor oil and many cleaning products are examples of household hazardous wastes. These items contain toxic ingredients and should be used and disposed of with caution. Do not place household hazardous waste material out for regular garbage pick-up. Avoid pouring motor oil, paints or solvents down the drain or into sewers. Used motor oil can be taken to used-oil drop-off centres. The City's Toxics Taxi program provides free pick-up from Toronto residents (minimum of 10 litres and maximum 50 litres). You must be at home for the pick-up (by truck operated by the Solid Waste Management Division). There are household hazardous waste depots in locations across Toronto. A website provides the specific locations. Three of them offer free, used products in good condition that may be reused (such as leftover paint that people have dropped off). <p>For more information about the Household Hazardous Waste program call the hotline at 416-392-4330.</p> <p>Call 416-392-4330 for more information or to make an appointment for the Toxics Taxi.</p>

	Composting	<ul style="list-style-type: none"> • Grass, yard waste and compost are organic substances, and they all factor into the City's waste reduction program. • Examples of organics for composting (to produce rich soil) include the grass on your lawn, tree leaves, plant roots, stems, blooms and leaves from garden flowers, fruit or vegetable plantings, hedge or shrub trimmings, and naturally-occurring compost itself. <p>More information about composting can be found on the composting, yard waste and lawns website.</p> <p>You can also see the Yard Waste item.</p>
	Drop-Off Depots	<p>Unwanted Items</p> <ul style="list-style-type: none"> • The City provides locations where local residents can drop-off unwanted materials that may or may not be eligible for regular collection. The disposal of material at Toronto's Solid Waste Management facilities is subject to conditions - for example, you must have pre-approval for loads dumped under the subsidy program (described below). • With prior approval, all householders in the City of Toronto are eligible for one subsidized load of home improvement materials, bulky items or illegal dumping clean-up per calendar year, to a maximum of one tonne net weight (for principal residence only). <p>For more information about Drop-off Depots or the Residential Waste Subsidy call 416-392-5443.</p>
	Commercial Waste Subsidy	<ul style="list-style-type: none"> • With prior approval, all businesses in the City of Toronto are eligible for one subsidized load of illegal dumping clean-up per calendar year, to a maximum of one tonne net weight. <p>For more information about the Commercial Waste Subsidy call 416-392-5443.</p> <p>For a listing of the solid waste drop-off depots and the acceptable items or to confirm hours of operation, visit the Recycling and Solid Waste Depots website, or call 416-338-2010.</p>
	Community Environment Days	<ul style="list-style-type: none"> • City of Toronto residents can take dozens of recyclable and/or reusable items that are not accepted in their curbside collection program to annual waste diversion events. These community events are hosted by City Councillors. • By participating in a local Environment Day event, residents can reduce the amount of waste going to landfill and ensure that it is properly recycled, safely disposed of or distributed for re-use. • Residents can also purchase waste diversion containers (recycling boxes, green bins/kitchen containers and yard waste bins) and rain barrels, and pick up free leaf compost. Broken waste diversion containers can be replaced at no charge. New residents can pick up a set of waste diversion containers for free with proof of new residency within the past 90 days.

		<ul style="list-style-type: none"> The Environment Days run April through October. During the 2005 season more than 21,000 residents participated, diverting a total of 721,422 kilograms of unwanted items from landfill. Start gathering your items now for next season. <p>Find out more information about Community Environment Days and view the schedule to find an event in your area.</p>
	Adopt-a-Bin Program	<ul style="list-style-type: none"> Adopt-a-Bin is a program that partners with local businesses to clean up Toronto. All public bins are serviced on a regular basis, but sometimes the bins are filled before their regularly scheduled collection. This program provides a way of helping local businesses keep their storefronts clean by asking them to monitor a bin and report an overflowing litter bin to the City. Businesses can also watch for signs of bin damage and illegal dumping. This program is targeted to businesses only but anyone is welcome to call 39-CLEAN (416-392-5326) to report litter or illegal dumping. <p>More information about the Adopt-a-Bin Program.</p>
	Measuring Litter Reduction	<ul style="list-style-type: none"> In 2002, the City of Toronto established a litter reduction goal of 50 per cent for the period of 2002 to 2007 and mandated litter audits on an annual basis. Audits report the composition and occurrence of litter and help to focus litter management efforts. The City achieved a 16 per cent reduction in litter in 2004 and another four per cent in 2005, for a total of 20 per cent. Progress can be attributed to greater public awareness of the issue, supported by improved collection and enforcement over the past few years. <p>More information about litter prevention.</p>
	Organics Collection from Apartments	<p>Pilot for Multi-Unit Dwellings</p> <ul style="list-style-type: none"> The City of Toronto has launched the Green Bin Program to 510,000 single-family dwellings across the City but there is little information available about organics collection from multi-unit dwellings. A pilot project is testing methods of organics collection at 30 multi-unit dwellings across the city. The results of this pilot project will allow the City to assess whether source-separated organics collection is feasible and cost-effective in apartments, condominiums, townhouses and co-operatives that receive City collection services. <p>For more information, e-mail rdello@toronto.ca.</p>
	Recycling at Single-Family Dwellings	<p>Pilot Project</p> <ul style="list-style-type: none"> The City is assessing collection methods by testing alternatives to the Blue Box Recycling Program on three collection routes in the Scarborough community. The purpose of the pilot is to determine whether an alternative method of collection will increase the amount of recyclables collected (and thus diverted

		<p>from landfill).</p> <ul style="list-style-type: none"> One route is using 295-litre (65-gallon) wheeled recycling carts that have four times the capacity of the current blue boxes. The second route is using translucent blue plastic recycling bags. The third route is receiving weekly blue box collection (doubling the collection frequency). <p>For more information about the Recycling Pilot, e-mail rdello@toronto.ca.</p>
	No More Butts	<p>Container Project</p> <ul style="list-style-type: none"> The City is participating in a pilot project with the Downtown Yonge Street and Little Italy Business Improvement Areas (BIAs) involving the provision of wall-mounted cigarette butt receptacles in various downtown locations. The litter caused by cigarette butts on streets, sidewalks and boulevards detracts from the cleanliness and appearance of Toronto. Cleaning up the butts requires considerable resources. In 2005, 22 per cent of small litter picked up consisted of cigarette butts. <p>More information about litter prevention.</p>
People in Motion	Reserved Transit Lanes	<ul style="list-style-type: none"> The City is exploring the merits and viability of reserving a road lane for public transit. Studies and environmental assessments are being carried out for reserved transit lanes on Yonge Street, Finch Avenue to Steeles, and St. Clair Avenue. An environmental assessment was completed in 2005 for existing bus lanes between Downsview Station to York University. Making the public transit system a more attractive transportation option is a high priority for the Toronto Transit Commission. <p>Further information about reserved transit lanes is available from Transportation Services at 416-392-8340. You can also see the item Hybrid Bus Fleet in the Air section of this guide.</p>
	Toronto Bike Plan	<ul style="list-style-type: none"> The Toronto Bike Plan, adopted in 2001, sets out recommendations and goals for cycling-related safety, education and promotional programs, as well as supportive infrastructure including a comprehensive bikeway network across the city. <p>More information is available from the Cycling website and by calling the Toronto Cycling Committee at 416-392-1142.</p>
	Cycling Skills	<p>CAN-BIKE courses</p> <ul style="list-style-type: none"> Cycling is the best example of green, sustainable transportation. Not only is cycling a quick, economical and efficient means of transportation - it's also fun. In Toronto, a growing number of people commute to work and school by bicycle and use their bikes for shopping, work, fitness, recreation and sport.

		<ul style="list-style-type: none"> If you want to improve your cycling skills and confidence riding in traffic, the City offers CAN-BIKE courses for cyclists of all ages (9 years+) and skill levels. <p>For information, see the CAN-BIKE website or call 416-392-1311.</p>
	Bicycle Lanes and Bike Parking	<ul style="list-style-type: none"> The City of Toronto continues to expand the bikeway network and bicycle parking facilities across the city. More bikes on city streets means less vehicular traffic and, as a result, an improvement in air quality. <p>Further information is available from Transportation Services at 416-392-9065.</p>
	New Sidewalks	<p>Program Promotes Walking</p> <ul style="list-style-type: none"> The City encourages residents to get out and walk. The New Sidewalk Installation Program involves constructing sidewalks on both sides of arterial and collector roads where there were no sidewalks in the past. Creating a better sidewalk network will encourage more and safer walking trips. <p>Additional information is available from Transportation Services at 416-392-9065.</p>
	City of Toronto Smart Commute	<ul style="list-style-type: none"> The City of Toronto's Smart Commute provides City staff with resources to help make the switch from driving to work alone by car to taking transit, cycling, walking, or carpooling in order to help reduce automobile-related air pollution. The Smart Commute program is also intended to help City employees reduce commuting stress, save money, learn about travel options, get active and stay fit. <p>For more information about this program, and about creating a similar initiative at your workplace, contact the City of Toronto by e-mail at scommute@toronto.ca or call 416-392-9714. You may also want to visit the Smart Commute website and check out their Carpool Zone, where you can find other commuters in the Greater Toronto and Hamilton area to share a ride. It's free and easy to use.</p>
Leadership and Innovation	Green Toronto Awards	<p>Recognizing Environmental Leadership</p> <ul style="list-style-type: none"> The annual Green Toronto Awards honour and celebrate leading companies, organizations and individuals contributing to the greening of Toronto. Awards are presented in categories such as Leadership, Community Projects, Green Design, Energy Conservation, Water Efficiency, Youth, Environmental Awareness, Health and Market Transformation. <p>For more information about the award categories, criteria and how to apply, visit Green Toronto Awards or call Environmental Services at 416-392-2984.</p>

	Green Economic Development	<ul style="list-style-type: none"> • Green economic development refers to activity that stimulates the economy, creates jobs and cleans up the environment - all at the same time. • The City of Toronto is establishing green economic development goals and a related action plan. Work is also underway to foster development of an industry or business sector such as sustainable design or renewable energy that would help to make Toronto a world leader in sustainable development. <p>For further details about work in this area, contact Economic Development at 416-392-1004.</p>
	Green Development Standards	<ul style="list-style-type: none"> • The City of Toronto is working on green development standards that will guide the City (municipal buildings) and private developers in building more environmentally friendly buildings. The green standards will also help to promote Toronto as a green city. • Green development standards are minimum thresholds or performance measures to meet the City's objectives for reducing energy and water consumption, stormwater runoff and urban heat island effects, and to restore/conservate the natural heritage. <p>More information is available about Green Development Standards from City Planning at 416-392-0191.</p>
	Green Roofs	<ul style="list-style-type: none"> • The City is undertaking demonstration projects and research into potential policies and incentives for growing vegetation and gardens on buildings' roofs. The City Planning Division is also studying the municipal cost savings/benefits of green roofs. • Demonstration projects can be seen at City Hall and Eastview Community Centre. <p>For more information about green roofs is available by visiting the Green Roofs website or from City Planning at 416-392-0191.</p>
	Evaluating Sustainable Technologies	<ul style="list-style-type: none"> • A multi-agency undertaking called the Sustainable Technologies Evaluation Program (STEP) is monitoring and evaluating sustainable technologies for water, land, air and energy. Current evaluation projects include green roofs, permeable pavement, sediment control ponds and air bio-filtration. • Results from the studies are being used to establish guidelines for the use of these technologies. <p>More information is available by calling Toronto and Region Conservation at 416-661-6600.</p>
	Sustainable Homes	<p>Sustainable Homes</p> <p>Demonstration Project</p> <ul style="list-style-type: none"> • Toronto and Region Conservation and PowerStream are working with the Design Exchange and the Green Building Council to organize, implement and judge a Sustainable Home Design Challenge. • The design competition is expected to be finished in June 2006 and the house will be built at Kortright Centre for Conservation in 2006-07. <p>See the Design Exchange for more details, or call 416-661-6600, extension 5343.</p>
	Clean and Beautiful City	<p>Clean and Beautiful City Initiative</p>

	Initiative	<ul style="list-style-type: none"> • Toronto's Clean and Beautiful City Initiative strives to give Torontonians increased pride in their city. By working together - residents, businesses, community organizations, City Council, City employees and the Mayor's Roundtable on a Beautiful City, we can achieve great results. • In 2004, City Council approved a five-point action plan to help us move ahead: sweep it, design it, build it, grow it, and celebrate it. These are simple ideas that include cleaning and maintaining our streets, neighbourhoods and buildings, as well as beautifying them so that we are proud to show off to the world. <p>For more information about how to get involved visit the Clean and Beautiful City website or call 416-39-CLEAN (392-5326).</p>
Learning for Green Communities	Children's Garden Program	<p>Children's Garden Program</p> <p>Ecology and Organic Gardening</p> <ul style="list-style-type: none"> • The Children's Garden and Exploring Toronto Programs provide children, youth and community members with an opportunity to learn about, experience, and enjoy urban ecology and organic gardening in the City of Toronto's parks and ravines. • Through hands-on creative programming, participants are exposed to Toronto's First Nations history, other heritage and natural history, food preparation and nutrition, drama, art, music, storytelling and urban environmental issues. The programs are available at about 20 community centres. <p>More information is available at the Children's Garden Program website or by calling Parks, Forestry and Recreation at 416-392-6643.</p>
	Children's Teaching Conservatory	<p>Children's Teaching Conservatory</p> <ul style="list-style-type: none"> • Located at Allan Gardens, the Children's Teaching Conservatory offers hands-on instruction on the principles of life systems, gardening and the environment. • The conservatory's programs, which support Grades 3 and 4 school curricula, are delivered by Toronto Botanical Garden on behalf of the City. Toronto Botanical Garden is a volunteer-based, charitable organization devoted to gardening, the natural landscape and a healthy environment. <p>More information is available by calling Parks, Forestry and Recreation at 416-392-0724 and 416-395-6003.</p>
	Parkland Signs	<p>Parkland Signs</p> <ul style="list-style-type: none"> • The City is creating interpretive signs for many natural parks and environment features in Toronto. <p>You can call the Natural Environment hotline at 416-392-LEAF (5323) for more details.</p>
	Stewardship	<ul style="list-style-type: none"> • The stewardship forum is an annual event for information sharing and networking by those involved in

	Forum	<p>volunteer groups and the broader environment community.</p> <p>More information is available by calling the Natural Environment hotline at 416-392-LEAF (5323).</p>
	The Franklin Children's Garden	<p>A Landscape for Learning</p> <ul style="list-style-type: none"> • The Franklin Children's Garden is a City initiative on the Toronto Islands. It is inspired by the popular books in the Franklin the Turtle series. • The four-acre garden features a wetland where children can observe turtles, frogs, birds and other creatures. The garden brings environmental learning to young children in a fun, engaging way. <p>More information is available by visiting Franklin Children's Garden or from Parks, Forestry & Recreation at 416-392-1885.</p>
	Cool School Programs	<ul style="list-style-type: none"> • The Cool Schools, Eco Schools and Active & Safe Schools programs are offered by the Clean Air Partnership, Evergreen Foundation, Toronto District School Board and Toronto and Region Conservation. All three programs promote action on clean air, climate change, physical fitness, waste reduction and the greening of school grounds. <p>More information is available from the Clean Air Partnership and by phoning 416-392-6672.</p>
	Children's Health	<ul style="list-style-type: none"> • Two new resources present "childproofing" tips for minimizing and avoiding exposures potentially harmful to children. The Canadian Partnership for Children's Health and Environment, of which Toronto Public Health is a member, produced the book and brochure. • Child Health and the Environment: A Primer and the brochure, Playing it Safe: Childproofing for Environmental Health are available from Toronto Health Connection. <p>More details are available from 416-338-7600, or see the Children's Health website.</p>
	School programs	<p>Toronto and Region Conservation Toronto and Region Conservation offers environmental education for students. More information is also available by calling Customer Service at 416-667-6295.</p> <ul style="list-style-type: none"> • Investigating The Living City Spaces Children can experience outdoor classrooms through day-long field trips and explore some of the most interesting natural spaces in the Toronto area. Seasonal programs are offered at Tommy Thompson Park (Toronto) and Glen Haffy Conservation Area (Caledon). Tour a fish hatchery, try your hand at fishing or experience bird banding. • Watershed On Wheels (WOW) The Watershed on Wheels (WOW) program brings exciting outdoor conservation programs into the classroom. WOW brings all the necessary equipment to engage students in hands-on activities, with a focus on water and ecosystems. • TRCA Education Field Centres With three locations throughout the Greater Toronto Area - Albion Hills, Claremont and Lake St George

		<p>- Toronto and Region Conservation's residential education centres offer two- to five-day programs that include accommodation, food and programming. These education centres offer the most comprehensive environmental programs available in a residential setting.</p> <ul style="list-style-type: none"> • Black Creek Pioneer Village Step back in time at Black Creek Pioneer Village and learn about the past. The life and atmosphere of a 19th-century Victorian village awaits you, with 35 restored heritage buildings in a park-like setting. • Kortright Centre for Conservation The Kortright Centre for Conservation helps children learn about local plant and wildlife populations through observation and hands-on participation. In addition to school programs, various public programs teach people how to make green choices.
	Multicultural Stewardship	<p>New Canadians and Environment</p> <ul style="list-style-type: none"> • The Multicultural Environmental Stewardship Program engages new Canadians in a variety of environmental stewardship and outreach education programs throughout the Greater Toronto Area. <p>Toronto and Region Conservation can provide more details at 416-661-6600, extension 5394.</p>
	Immigrant Mentorship	<p>Environmental Expertise</p> <ul style="list-style-type: none"> • In partnership with the broader Mentoring Partnership of the Toronto Region Immigrant Employment Council, Toronto and Region Conservation matches internationally-trained professionals (who have skills in environment and conservation) with staff mentors. The mentors guide the newcomers as they search for jobs that use their skills. <p>More information is available by calling Toronto and Region Conservation 416-661-6600, extension 5360.</p>
	Toronto Waterfront Naturalization	<ul style="list-style-type: none"> • The Toronto Waterfront Naturalization Initiative maintains and enhances existing waterfront naturalization projects at community parks across the Toronto Waterfront. • The effort is carried out in partnership with the City of Toronto and many community groups and schools. <p>More information is available by calling 416-661-6600, extension 5639.</p>
	Education for Sustainable Development	<p>United Nations' Centre of Expertise in Toronto</p> <ul style="list-style-type: none"> • In May 2005, the United Nations University selected Toronto as the North American Regional Centre to provide expertise in support of education on issues of sustainable development. The program was created in response to a United Nations declaration making 2005-2014 the Decade of Education for Sustainable Development. • The City of Toronto is co-ordinating the initiative with the help of a network of sustainable development

		<p>education partners.</p> <p>For details about the centre call Environmental Services at 416-338-2857.</p>
	Highland Creek	<p>Environmental Stewardship</p> <ul style="list-style-type: none"> • The Highland Creek Community Stewardship Program provides opportunities for residents, businesses and community volunteers to enhance and celebrate the ecological health of the Highland Creek watershed in Toronto. • This initiative is a joint program of the Scarborough Arts Council and Toronto and Region Conservation. <p>More information is available at 416-661-6600, extension 5676.</p>
	Healthy People Healthy Environment	<p>Website</p> <ul style="list-style-type: none"> • There are many ways that the physical environment can affect the health of people. Toronto Public Health's Healthy People Healthy Environment website provides information about environmental health issues - including educational resources, technical reports and policy documents. • Topics include outdoor and indoor air quality, pesticides, toxic chemicals, waste, radiation and children's health. <p>Visit the Healthy People Healthy Environment website.</p>
	Toronto Health Connection	<ul style="list-style-type: none"> • Toronto Health Connection - a Toronto Public Health call centre - offers information about public health programs and services, including environmental health programs. • The call centre may refer you to the City's public health inspectors for specific environmental health concerns such as mould, indoor air quality and water quality. <p>Call Toronto Health Connection at 416-338-7600.</p>



Appendix B

Summary Templates of Leading World Cities

This section presents a snapshot of innovative and successful programs that cities around the world are using to green their cities and at the same time promote economic development through clean technology investment and development.

An initial web based and literature search was carried out to identify comparable municipal initiatives that:

- Make green economic development activities a priority;
- Offer programs to stimulate the development of green industry;
- Provide incentives to businesses and industry to enhance their competitiveness through sustainability practices, and
- Encourage change through education and outreach programs aimed at business community.

Information used included: existing market studies; published government documents; books and journals (international and domestic); information found on websites. A list of reports, documents, websites and other references is provided in Appendix E.

Although sustainable development economic strategies and best practices examples were identified from over 20 cities, three cities (Chicago, San Francisco and London, UK) were chosen for an in-depth look into the history, status, and results of their programs.

The criteria used to select a short list of comparison cities were the following:

- Clear economic and environmental drivers
- Similarities in population and concentration
- Presence of regulatory and voluntarily initiatives aimed promoting green economic development
- There was sufficient information provided in the existing literature and the websites of organization to make any type of qualitative assessments with regards to initiatives aimed to encourage and attract investment, grow the clean energy industry and promote sustainable development practices and policies
- Apparent success in achieving their proposed objectives.

Information Template

City of Chicago, USA

Program Name: 2006 Environmental Action Agenda	Date Founded: 2006
Summary Description: <p>Chicago has become a leader in urban sustainability. Under Mayor Richard M. Daley, the City of Chicago's efforts strongly emphasize sustainable practices. In 2005, the City issued an agenda that outlines specific environmental goals for 2010 and 2020, in addition to describing a wide-ranging program of current sustainability initiatives. It was established as Mayor Daley's comprehensive plan for public and private environmental innovation. The 2006 Agenda updates the City's progress on environmental initiatives since the 2005 Action Agenda and contains near 200 environmental accomplishments, as well as an ambitious set of initiatives and goals for 2006 and beyond.</p> <p>The Agenda is one of the most ambitious and comprehensive plans of any city in the US. Over 40 City Departments are involved in the work of the Environmental Action Agenda.</p> <p>Mission statement Chicago is committed to <i>become the most environmentally friendly city in America</i>. The 2006 Action Agenda commits the City to <i>reduce its use of natural resources, invest in greener buildings, vehicles and materials, save tax payer dollars through wise energy use and resource conserving actions, and improve the quality of life in the City</i>.</p>	
Key Contact Person & Title: Johnston Sadhu acting commissioner DOE - Commissioner's Office	Address (mailing): 30 N. LaSalle Street Suite 2500 Chicago, IL 60602-2575
Email: EN0243@CITYOFCHICAGO.ORG	
Phone: 312-744-7609	
Key Elements <p>Energy and Green Building - The City supports green building through a comprehensive program of energy efficiency and green construction. Chicago's policies address new municipal capital construction and seek to monitor and reduce energy use in all of the City's buildings.</p> <ul style="list-style-type: none">▪ Green Permit Program http://www.aia.org/static/state_local_resources/adv_sustainability/Permitting%20and%20codes/GreenPermitBrochure.pdf▪ Green Roof Program for Residential and Small Commercial Buildings http://egov.cityofchicago.org/webportal/COCWebPortal/COC_EDITORIAL/Green_Roof_Grants_Program_2006_Flyer.pdf▪ The Chicago Industrial Rebuild Program - The City of Chicago Department of Environment (DOE), in partnership with ComEd, the University of Illinois at Chicago's Energy Resources Center and the Illinois Waste Management and Research Center (WMRC), developed a program to help the most energy and waste-intensive industries in Chicago become more energy efficient. DOE developed a loan program that offers low or no interest loans to	

participating companies who implement energy conservation measures resulting from the City-funded assessments. The program is tied to the City's renewable energy goals.

http://egov.cityofchicago.org/webportal/COCWebPortal/COC_ATTACH/IndusRebuildBrochure1.pdf

- The Chicago Standard (2004) - a new set of construction standards for public buildings - was developed to guide the design, construction and renovation of municipal facilities to provide healthier indoor environments, reduces operating costs and conserves energy and resources.

http://egov.cityofchicago.org/webportal/COCWebPortal/COC_ATTACH/ChicagoStandard.pdf

- Chicago Green Buildings Website - a comprehensive inventory of both municipal and private sector green buildings in Chicago, consisting of interactive maps of green roofs and green buildings in the City as well as best practice case studies about these buildings.
 - Green Homes for Chicago was a pilot project to determine if green building technologies and practices could be incorporated affordably into new residential construction.
- http://egov.cityofchicago.org/city/webportal/portalContentItemAction.do?blockName=Environment%2fGreen+Building%2fI+Want+To&deptMainCategoryOID=-536887205&channelId=0&programId=0&entityName=Environment&topChannelName=Dept&contentOID=536910849&Failed_Reason=Invalid+timestamp,+engine+has+been+restart+ed&contenTypeName=COC_EDITORIAL&com.broadvision.session.new=Yes&Failed_Page=%2fwebportal%2fportalContentItemAction.do&context=dept

Mobility (fleets, airports, transit, bike infrastructure)

http://egov.cityofchicago.org/webportal/COCWebPortal/COC_ATTACH/2006_Environmental_Action_Agenda_Mobility_2.pdf

- Alternative fuel and hybrid fleet for the City
- Green Fleet Facilities and Green Procurement
- The City of Chicago is a partner in the National Plug-In Partners Campaign, an effort being led by EESI in partnership with the City of Austin and Austin Energy to demonstrate a market for the mass production of Plug-in Hybrid Vehicles (PHEV)

http://www.iit.edu/departments/pr/mediaroom/article_viewer_db.php?articleID=179

Infrastructure and Resource Management

http://egov.cityofchicago.org/webportal/COCWebPortal/COC_ATTACH/2006_Environmental_Action_Agenda_Infrastructure_and_Resource_Management.pdf

- LED traffic lights at City's intersections.

Water Resources

- Industrial water conservation audits for local industry through the City's Industrial Rebuild.

Outreach and Education

http://egov.cityofchicago.org/webportal/COCWebPortal/COC_ATTACH/2006_Environmental_Action_Agenda_Education_and_Outreach.pdf

- Chicago Center for Green Technology is a "green building" that is home to government environmental agencies and private businesses that provide environmental products and services. The center houses Spire Solar Chicago, a business unit of Spire Corp., the world's leading supplier of the equipment and technology needed to manufacture solar photovoltaic modules. Through collaboration with the city's Department of Environment and Commonwealth Edison, the local energy utility, Spire Solar Chicago has garnered local commitments of about \$8 million in solar photovoltaic systems. Spire also helps solar customers with grant application services, as well as utility interconnect service, to take advantage of this progressive subsidy program).¹

<http://egov.cityofchicago.org/city/webportal/portalEntityHomeAction.do?entityName=Chicago+Center+for+Green+Technology&entityNameEnumValue=161>

¹ http://www.cleantech.com/reports/SF_CleanTech.pdf

Other Interesting Services/Activities/Available Funds:

- LEED Accredited Professionals (APs) training for employees
- Chicago Solar Partnership Initiative - a public-private consortium established, under the organization of the Illinois Solar Energy Association (ISEA) – aims to advance the development of the solar energy industry in the Chicago metropolitan area. <http://www.chicagosolarpartnership.org/index.php?category=About%20Us&link=About&src=gendocs&submenu>About>
- Chicago Waste to Profit Network is a multi-industry collaborative approach developed for the benefit of Chicago-area businesses. The Network facilitates the transformation of one company's waste, or byproduct, into an industrial input for another company. Based on the experiences of other similar networks, the Network aims to be a forum for new business opportunities, such as new product development. http://egov.cityofchicago.org/webportal/COCWebPortal/COC_ATTACH/Chicago_Waste_to_Profit_Network_Borchure.pdf
- Chicago's Green Building Agenda (2005) which outlines public and private strategies to ensure the development of green buildings in the City. http://egov.cityofchicago.org/city/webportal/portalContentItemAction.do?BV_SessionID=@@@@0313069153.1175440726@@@@&BV_EngineID=ccdaddkifkkgghcefecelldffhdfn.0&contentOID=536926961&contentType=COC_EDITORIAL&topChannelName=HomePage
- Chicago has set a goal of having 20% of its energy come from renewable sources by 2010.

Key Results Achieved thus far:

- In 2005, the City's green roof initiative encouraged the development of over 200 public and private green roof projects totalling approximately three million square feet.
- In 2005, the City waived \$335,000 in consultant review fees for green projects. It also held 20 educational sessions for building professionals encouraging them to apply to the program.
- The Chicago Industrial Rebuild Program provided in 2005 the candy industry free energy and waste audits and loans for the implementation of recommended energy conservation and waste reduction strategies.
- 13 new hybrid sedans and 57 new hybrid SUVs were added to the City fleet in 2005, saving 10,112 gallons of fuel; 76 diesel-powered refuse trucks were retrofitted with catalytic converters, reducing emissions by up to 50%.
- 20,000 gallons of Ultra Low Sulfur Diesel (ULSD) fuel were used by O'Hare Modernization Program equipment in place of standard diesel.
- The Chicago Center for Green Technology hosted 12,000 visitors and held 85 free seminars on a wide range of green building topics.

Future Plans: Action Agenda For 2010

- **Private Green Building** - Broaden incentives for sustainable design to include fee waivers.
- **Green Roofs** - Install five million square feet of green roofs on City facilities.
- **Building Code** - Reduce the cost premium to zero for LEED certified buildings;
- Ensure that all projects deemed green by the City are built and operated sustainably.
- **Alternative Fuels and Vehicles** - Operate fleet of 1,000 hybrid and alternative-fuel cars, trucks and buses; Operate the world's first ethanol-to-hydrogen fueling site and utilize Hydrogen Internal Combustion Engine (ICE) vehicles.
- Create Chicago Sustainable Infrastructure Guidelines
- Sustainable Streets Initiative
- Provide green and/or sustainable product specifications, including price and performance data, for all commonly ordered products.

Program Relevance and Applicability to the City of Toronto

- Green Permit Program
- Green Roof Initiatives
- Green Building Standard to guide the design, construction, renovation, operation and maintenance of municipal
- Web-based inventory of both municipal and private sector green buildings
- Energy efficiency retrofits
- City-funded assessments to help the most energy- and waste-intensive industries in become more energy efficient
- Loan program that offers loans to companies who implement energy conservation measures resulting from the City-funded assessments
- Green Building Education for Building Professionals and the Public
- The Center for Green Technology
- Sustainable Infrastructure Guidelines
- Environmentally friendly roof and solar panels for municipality buildings

Information Template

City of San Francisco, USA

Program Name: Clean-technology Initiatives	Date Founded: 2005
Summary Description: <p>In 2005, following a report outlining San Francisco's competitive position as a world leader in clean technology, San Francisco has started the Clean Technology Initiative, which is modeled after the city's Biotechnology Initiative. Clean technology is viewed by Mayor Gavin Newsom as "one of the most significant economic opportunities for San Francisco today"² - a solution to the City's energy and economic-development challenges as well as a model for partnerships that stimulates healthier communities and stronger economies.</p>	
Mission statement: <p>The Mayor, Board of Supervisors, and city agencies have developed a shared vision for clean technology in San Francisco: <i>to create high-skilled, high-wage clean-tech jobs; to promote a cleaner and healthier environment; and to reduce the City's dependence on fossil fuels by investing in clean energy research and development. To achieve these goals, the City is pursuing four broad strategies: 1) investing in the industries of the future, 2) promoting the construction and renovation of high-performance, energy-efficient buildings, 3) improving the environmental aspects of its landscape, and 4) diversifying its energy sources.</i></p>	
Key Contact Person & Title: Jennifer Entine Matz, Deputy Director	Address (mailing): 11 Grove Street, San Francisco, CA 94102
Email: jennifer.entine.matz@sfgov.org	
Phone: (415) 554-6511	Fax: (415) 554-6393
Key Elements: <ul style="list-style-type: none">▪ Clean Technology Advisory Council - The 16-member council is responsible for promoting the City's clean-technology vision and attracting clean-tech businesses to locate within San Francisco. http://www.sfgov.org/site/mayor_page.asp?id=36250▪ A Clean Technology Manager was appointed to work with the Mayor's Office of Economic and Workforce Development, the Department of the Environment, and the San Francisco Public Utility Commission to coordinate citywide clean-tech initiatives, market and execute San Francisco's clean-tech business attraction strategy, and work with the Technology Advisory Council.	

² http://sfgov.org/site/mayor_page.asp?id=35608

- Priority permit review to all new and renovated buildings that qualify for the LEED Gold rating or equivalent - a way for San Francisco to attract economic investment, while promoting socially responsible architecture.
http://www.swinertongreen.com/Headlines/Press_releases/Expedited%20Processing%20For%20Green%20Buildings%20Press%20Release%20-%209-28-06.pdf
- Biodiesel Access Task Force. <http://www.sfenvironment.com/aboutus/innovative/biodiesel/>
- Green Business Program - a partnership of various City agencies that promote, recognize and provide support to local businesses that operate in an environmentally responsible way. <http://www.sfenvironment.com/greenbiz/who.htm>

Key Results Achieved thus far:

The City's Clean Technology Initiative is still in its infancy stages, and reports/studies to outline the progress on the three proposed goals are not available at this time. However, the initiative is viewed as a way to position San Francisco as a global leader in the development, creation and use of clean technology, focusing on attracting clean technology businesses to the city and creating jobs in this emerging sector.

- The \$100 million solar bond measure has stimulated the installation of large solar systems, with about one megawatt now being generated atop its convention center and at a city wastewater plant.
- San Francisco ranking #6 nationwide in green buildings per capita. http://www.sustainlane.us/city_study_2%20San%20Francisco.jsp
- The City has one of largest alternative-fuel municipal vehicle fleets in the nation.

Future Plans

- Exploration of tidal power generation from the ocean and San Francisco Bay
<http://sfgov.org/site/frame.asp?u=http://www.sfenvironment.com>
- Plans to move the entire City fleet to B20 by the end of 2007, making San Francisco the first major American City to make such a commitment.
- Green Business Checklists for various industry sectors.
- Strong support to create a Clean Technology Park.

Other Interesting Services/Activities/Available Funds:

- Clean-energy payroll tax exemption (2005) provides a payroll tax exemption for businesses that engage in clean energy technology and employ a full-time staff of at least ten but not more than one hundred employees.
<http://www.sfenvironment.com/aboutus/energy/CleanEnerTaxExem.pdf>
- \$11.5 Million "Energy Watch" Program to Provide Energy Rebates for Small Businesses and Residents. <http://sfgov.org/site/frame.asp?u=http://www.sfenvironment.com>
- The Zero Emissions 2020 Plan focuses on the purchase of cleaner transit buses including hybrid diesel-electric buses. The plan also discusses the option of purchasing hydrogen fuel cell buses when they become commercially available in the next ten to fifteen years.
http://www.sfenvironment.com/articles_pr/2004/pr/cleanair_plan.pdf

- The first City in U.S. to Certify Greenhouse Gas Emissions
http://www.sfenvironment.com/articles_pr/2006/pr/ClimateAction111006.pdf
- Precautionary Purchasing Ordinance creates a comprehensive system for the city to identify, purchase, and use environmentally preferable products. San Francisco was the first city in the U.S. to adopt an ordinance of this kind.
<http://www.sfenvironment.com/aboutus/innovative/pp/sfpp.htm>
- The Science and Technology Academy - a unique partnership between the City, the School District, the University of California, San Francisco State, City College and the private biotech and commercial life sciences sector.
http://sfgov.org/site/mayor_page.asp?id=35608
- San Francisco as a major venue for clean-tech-related conferences (the Cleantech Venture Forum, the Green Festival)

Program Relevance and Applicability to the City of Toronto:

- Clean Technology Advisory Council
- Green Business Program
- Biodiesel Access Task Force
- Precautionary Purchasing Ordinance

Information Template

City of London, UK

Program Name: <i>Green light to clean power: The Mayor's Energy Strategy</i> http://www.london.gov.uk/mayor/strategies/energy/docs/energy_strategy_04.pdf	Date Founded: February, 2004
<p>Summary Description: This Strategy is one of a series dealing with environmental issues in London. Although not one of the four environmental strategies that the Mayor is required to prepare under the Greater London Authority Act, the Energy Strategy is key to underpin the sustainable development of London and the key strategic goals of the GLA: promoting environmental improvement, economic development and wealth creation, and social development.</p> <p>Mission statement: The Mayor's vision is to develop London as an <i>exemplary sustainable world city</i>, based on the three balanced and interwoven themes of strong long-term and diverse economic growth, social inclusivity, and fundamental improvements to the city's environment and infrastructure (GLA³, 2004)⁴. The main objective of the Mayor's Energy Strategy is to mitigate climate change by reducing carbon dioxide emissions. But the Strategy has wider implications such as: promoting new kinds of fuel for transport, encouraging high performance buildings with less demand for energy and promoting good practice in new developments and. Although one of the principal objectives of the strategy is to reduce our dependence on fossil fuels, it also addresses the vital social issue of energy poverty.</p> <p>The Strategy's specific goals are: reducing London's contribution to climate change by minimising emissions of carbon dioxide from all sectors (commercial, domestic, industrial and transport) through energy efficiency, combined heat and power, renewable energy and hydrogen; helping to eradicate fuel poverty by giving Londoners, particularly the most vulnerable groups, access to affordable warmth; contributing to London's economy by increasing job opportunities and innovation in delivering sustainable energy, while improving London's housing and other building stock. The Energy Strategy is an ambitious and comprehensive set of proposals for action by all sectors in London, and aiming to deal with all forms of energy - fossil fuels, renewable energy, hydrogen, electricity and heat - sourced outside London as well as locally.</p> <p>For a full description of the Energy vision and objectives: http://www.london.gov.uk/mayor/strategies/energy/docs/strategy1.pdf</p>	
Key Contact Person & Title: Ken Livingstone, Mayor of London	Address (mailing): Greater London Authority City Hall The Queen's Walk More London London SE1 2AA
Email: mayor@london.gov.uk .	

³ Greater London Authority (GLA) has been taking proactive measures aiming to develop a sustainable city since it was established in July 2000 as an administrative authority covering the wider area of London

⁴ http://www.london.gov.uk/gla/jobs/info/about_gla.jsp

Phone: 020 7983 4100	Fax: 020 7983 4057
Key Elements <ul style="list-style-type: none"> ▪ The Strategy proposes adopting the principle of an “Energy Hierarchy” to determine how to make the best use of energy. This principle determines a hierarchy for constructing and/or managing buildings; that is, to (1) Use less energy (Be Lean), (2) Use renewable energy (Be Green), and (3) Supply energy efficiently (Be Clean). ▪ To be effective, the Mayor has established the London Energy Partnership – a consortium of businesses, government and public bodies that is being set up to oversee the development and implementation of the London Energy Action Plan. (http://www.lep.org.uk/index.htm). ▪ High targets to reduce CO2 emissions - by 20% from 1990 levels by 2010, and by 60% from 2000 levels by 2050. ▪ Renewable energy target - 2% of the total consumption of the city. Measures for expanding renewable energy include use of the city’s large purchasing power in order to support renewable energy produced in other areas of the UK. ▪ The Mayor’s Energy Strategy requires major developments subject to the city’s approval to generate at least ten per cent of the site’s energy needs (power and heat) from renewable energy, where feasible. Developers are required to demonstrate that they have investigated the feasibility of the range of technologies and measures to meet the target. ▪ The Mayor will work through the London Hydrogen Partnership to establish projects using the establishment of hydrogen and fuel cell technology to boost the renewable energy sector. ▪ Proposed target: up to 40,000 renewable energy schemes by 2010 - 7,000 domestic photovoltaic installations; 250 photovoltaic applications on commercial and public buildings; six large wind turbines; 500 small wind generators associated with public or private sector buildings 25,000 domestic solar water heating schemes, 2,000 solar water heating schemes associated with swimming pools, and more anaerobic digestion plants with energy recovery and biomass-fuelled combined heat and power plants. The goal: to triple these technology capacities by 2020. 	
Key Results Achieved thus far: <p>The Mayor’s Energy Strategy progress report is not available at this time. It is expected to be finalized and publicly available on the City’s website.</p>	
Other Interesting Services/Activities/Available Funds <ul style="list-style-type: none"> ▪ London Hydrogen Partnership was launched in 2002 to work towards a hydrogen future for London. It aims to: Produce and implement the London Hydrogen Action Plan; Establish and maintain dialogue among all sectors/actors relevant to the hydrogen economy; Disseminate relevant materials; Provide a platform for funding bids and initiation of projects. http://www.lhp.org.uk/home-lhp.fcm?subsite=1676 ▪ The London Renewables Programme (2003) was set up to inform the adoption of renewable energy targets for London and promote action to meet them. http://www.london.gov.uk/mayor/environment/energy/london_renew.jsp ▪ The proposed Low Emission Zone for London aims improving the city’s air quality by 	

encouraging vehicle operators to clean up their fleets.

http://www.london.gov.uk/mayor/environment/air_quality/lez.jsp

- The Mayor and Transport Energy produce a series of Fleet Operator's Guides with information on the fuel and technology options.
http://www.london.gov.uk/mayor/environment/air_quality/business/fleet_guides.jsp
- The Mayor's Climate Change Action Plan (2007) is the first comprehensive plan to cut London's carbon emissions. <http://www.london.gov.uk/mayor/environment/climate-change/ccap/index.jsp>
- London Climate Change Agency has been established as a municipally owned company that will work closely with the private sector to tackle climate change. It is receiving substantial support from the Mayor's business arm, the London Development Agency (LDA), and top UK and global companies. <http://www.lcca.co.uk>
- Mayor's Green Procurement Code aims to help organisations to identify opportunities to recycle waste and/or buy products manufactured from recycled materials.
http://londonremade.com/download_files/LR_procurement.pdf
- *Help create a green London: advice for business* brochure
http://www.london.gov.uk/mayor/environment/air_quality/docs/green_lon_advice_business.pdf
- The London 2012 Olympic and Paralympic set out a strong vision for sustainable Games; The environment is a key dimension of 2012 London. The goal: the 'greenest' games in history. This is clearly reflected in the procurement principles issued by London 2012 and the sustainable nature of bids will influence the ODA in its choice of supplier. This is an opportunity for companies to develop further sustainable construction and development expertise. <http://www.london.gov.uk/mayor/olympics/benefits-environment.jsp>

Program Relevance and Applicability to the City of Toronto

- Renewable energy targets
- London Hydrogen Partnership
- The Green Procurement Code
- Environment as a key dimension of major events
- Advice for Business brochure

Other Cities

Tokyo, Japan

Green Condominium Labeling Program

In 2005, the Tokyo Metropolitan Government (TMG) launched a mandatory green condominium-labeling program aimed at enhancing buyers' awareness of a condominium's environmental performance. Condominiums are rated on a scale of one to three in each of following four impact categories: Building cladding thermal performance; Energy saving of utilities; Long Building Life, and, Greenery. The sellers of condominiums are also required to include the environmental performance in their advertising so that purchasers are aware of the performance of the buildings.

The Tokyo Metropolitan Government has influenced the banking community to promote green building development. As a result, banks offer lower interest loans to owners and developers of high performance buildings (Halsall Associates, GHK International, 2006)⁵.

Additional information: <http://www2.kankyo.metro.tokyo.jp/kouhou/env/eng/pdf/all.pdf>

Support Programs Concerning Diesel Vehicle Regulations

TMG enforced the regulations on emissions from diesel vehicles in accordance with the Tokyo Metropolitan Environmental Security Ordinance (2003). Diesel vehicles (buses, trucks and special-purpose vehicles, such as concrete mixer trucks, garbage collection vehicles, and refrigerator/freezer vehicles, but not passenger cars) that are not meeting the PM emission standards specified in the Ordinance are not allowed to travel in Tokyo; new vehicles within seven years of registration are exempt from the regulations.

TMG has supported programs available for small-and medium-sized enterprises to help respond to the regulations in accordance with the Ordinance. These include a loan mediation program and subsidies for the installation of PM reduction devices. In addition, in order to accelerate the air pollution improvement, TMG has established a special loan program for the purchase of replacement vehicles to meet the Automobile NOx PM Control Law (for fiscal 2005 and fiscal 2006).

Additional information: <http://www2.kankyo.metro.tokyo.jp/kouhou/env/eng/pdf/all.pdf>

Tokyo Renewable Energy Strategy

In 2006, the government has set demanding goals for medium-and long-term perspectives, and developed the "Tokyo Renewable Energy Strategy," which defines the basic concepts for policies and systems to promote further utilization and expansion of renewable energy.

In cooperation with the private sector, and to increase dissemination and further utilization of renewable energy, TMG has promoted leading projects, including a wind power generation pilot project on the waterfront area (2002). A solar power generation device is placed on the rooftop of Tokyo Metropolitan Assembly Hall, which is also used for rooftop gardening. The government designated "electricity" as an item subject to Tokyo Metropolitan Green Purchasing Guideline. Since April 2004, the government has promoted utilization of renewable energy by requesting the large-scale institutions attached to TMG to purchase electricity generated by renewable energy so that such electricity accounts for more than 5% of total electricity purchasing.

⁵ <http://www.toronto.ca/environment/consultantsreport.htm>

Additional information: http://www.isep.or.jp/e/Eng_project/TokyoREstrategy060526.pdf

Malmö, Sweden

100 % Locally Renewable Energy

The Bo01 housing expo area in Malmö's Western Harbour is one of the biggest and most ambitious projects in Europe for sustainable urban development. An old industrial site was to be transformed into a diversified inner city environment with the aid of good architecture and environmental initiatives.

Named "*City of Tomorrow*", the new district in the Western Harbour has become an internationally leading example of sustainable urban construction. It has also become a driving force in Malmö's development towards environmental sustainability and is setting the standard for the further development of housing in the former industrial harbour area.

The neighbourhood combines the highest green standards with the density of an urban centre (it is estimated that around 10,000 people will live and 20,000 will work there). The green vision of the district includes, among other initiatives, an energy system which is built on a commitment to use 100% renewable energy from local sources. The energy used in the Western Harbour will be generated in or near the area.

The City has set up a strict energy budget for all buildings and is using a variety of energy sources to achieve its commitment of using 100% renewable energy: roof-mounted solar photovoltaic (PV) panels; a wind turbine; and a ground-source heat pump station coupled to a groundwater aquifer heat-exchange system. The new electricity grid and district heating network feed into the city's district energy system. The main investors are the energy company E.ON Sverige, the City of Malmö and several developers. The European Commission and the Swedish Government have also contributed to the project.

Additional information:

http://www.ekostaden.com/information/ekostaden_tpl_01.aspx?pageID=133&parentID=221§ionID=4&level=4&introID=137

Manchester, United Kingdom

The Environmental Business Pledge is an initiative developed for Manchester Businesses. The Pledge was introduced through Manchester City Council's 2004 campaign, *Challenge Manchester: 100 Days to a Clean City*, where over 250 businesses pledged to improve their local environment. Today, the Pledge offers services that businesses to improve their environmental performance achieve major cost savings and increase competitiveness.

The scheme is designed to reward and recognise those companies doing their part to improve the city's environment. The Environmental Business Pledge gives businesses the opportunity to gain bronze, silver and gold recognition awards for their achievements.

Additional information: <http://www.manchester.gov.uk/environment/pledge/benefit.htm>

Barcelona, Spain

As part of its Plan for Energy Improvement, Barcelona City Council introduced a *Solar Thermal Ordinance*, which entered into force in August 2000. The ordinance regulates, through local legislation, the implementation of low-temperature systems for collecting and using active solar energy for the production of hot water for buildings. New buildings and buildings undergoing

major refurbishment are required to use solar energy to supply 60% of their running hot water requirements.

Since its enforcement licenses for the installation of a total of 19,523 square meters of solar panels have been requested, compared to a total of 1,650 square meters of panels before the ordinance was in place. This increase in the installation of solar panels has resulted in annual energy savings of 15.675 MWh/year and a corresponding reduction in eCO₂ emissions of 2.756 tones of CO₂ per year (Barcelona Energy Agency, 2004)⁶. In 2005, nearly 80% of all new residential buildings were equipped with the solar thermal technology.

The positive experience with the Solar Ordinance in Barcelona encouraged the city's council to widen the field of application of the Ordinance and it approved a modification of the Ordinance on 24 February 2006, which makes a solar fraction of 60%–70% mandatory for all new buildings and major refurbishments (C. Peters, 2006)⁷.

The Barcelona Solar Thermal Ordinance, the first regulation of this type to be adopted in a large European city, has been used by other municipalities as a basis to draft their own regulations. At present 39 municipalities in Catalonia and 26 in the rest of Spain have followed Barcelona's example and have now adopted solar ordinances.

Additional Information: <http://www.barcelonaenergia.com/eng/operations/ost.htm> and http://www.barcelonaenergia.com/document/OST_new_explanation_eng.pdf

Los Angeles, USA

Commercial Solar Power Incentive

Solar Energy for a Green LA is a program that encourages both consumers and businesses to install solar panels. To help promote solar power in Los Angeles and decrease the city's dependence upon traditional energy resources, the Los Angeles Department of Water & Power (LADWP) offers a solar incentive program to make solar power more affordable. The city's goal: 20 megawatts of solar power by 2010.

The solar power program has been allocated a total budget of \$150 million through June 30, 2011. The cost of eligible solar PV systems is reduced with incentive funds, which function like rebates. The incentive for PV systems made by a qualified Los Angeles manufacturer is currently an additional \$.02/kWh, for a total maximum incentive of \$.16/kWh.

Additional information: <http://www.ladwp.com/ladwp/cms/ladwp004196.jsp>

Portland, USA

Biofuel Initiatives

Portland (OR) is the first city in the US with a local renewable fuels standard. In 2006, Portland City Council voted and approved a renewable fuels ordinance requiring that the city's gas stations provide 5 percent blend of biodiesel for all vehicle diesel fuel sold in the city limits. Gasoline is required to contain at least 10% ethanol. The standard is effective July 1, 2007. This aims stimulating local production of biodiesel start-ups, while enabling local farmers to have a market for biodiesel crops.

City Council also allocated financial resources to support economic development around clean energy, including biofuels.

⁶ http://www.energie-cites.org/IMG/pdf/pujol_gt2.pdf

⁷ <http://www.sustainable-buildings.org/Shada-Issue3April2006.pdf>

The *Biofuels Investment Fund* supports the development of infrastructure to enhance the production, storage, blending and distribution infrastructure for B20 or higher, and E85. The Fund also supports non-infrastructure related projects in line with Portland's biofuels priorities, including proposals that further the development of Oregon-grown feedstock supply chains. A total of \$450,000 is available in the Biofuels Investment Fund with a maximum grant amount for any project of \$225,000.

The Retail & Fleet Biofuels Infrastructure Grant provides incentives of up to \$10,000 to install or convert fueling equipment at retail gas stations and fleet fueling sites to biodiesel blends of B20 or higher, and ethanol blends of E85. Incentives are available on a first-come, first-served basis to projects that meet the grant's eligibility guidelines. The City estimates awarding a total of approximately \$120,000 to 12 to 15 projects.

Additional information: <http://www.portlandonline.com/osd/index.cfm?a=151115&c=41625>

Businesses for an Environmentally Sustainable Tomorrow (BEST) Awards

Portland has been recognizing outstanding sustainable businesses since 1993 through its Businesses for an Environmentally Sustainable Tomorrow (BEST) awards. The BEST Business Awards are issued annually by the City of Portland Office of Sustainable Development to recognize Portland-area businesses for significant and unique achievements in the area of sustainable business practices.

The BEST Awards are presented in eight areas: Energy, Water Efficiency, Waste Reduction/Pollution Prevention, Transportation Alternatives, Sustainable Food Systems, Sustainable Stormwater Management, Sustainable Product Development and BEST Overall Business Practices.

Additional information: <http://www.portlandonline.com/osd/index.cfm?c=ebgcf&a=befbib>

Other Business Services

For all businesses and offices:

- BlueWorks custom assistance: Help with designing a recycling and sustainable purchasing program
- BlueWorks Business Membership: Recognition for sustainability in business operations
- G/Rated Tenant Improvement Guide: Guidance and certification for green workspaces
- G/Rated Program: Custom technical assistance with green building questions

For food and hospitality businesses:

- Portland Composts! free technical assistance, training, collection bins and recognition for commercial composting
- BlueWorks custom assistance: Green catering and sustainable local food purchasing strategies
- BlueWorks Business Membership: recognition for sustainability in business operations

For architects and engineers:

- BlueWorks custom assistance: Personal consulting for sustainable paper use and office practices
- BlueWorks Business Membership: Recognition for sustainability in business operations

- G/Rated professional development: Trainings in green building, energy efficiency and sustainable design
- G/Rated project assistance: Custom assistance from commercial and residential green building specialists

For developers and builders:

- G/Rated: Expert technical assistance in implementing all LEED and Portland LEED certifications
- G/Rated professional development: Trainings in green building, energy efficiency and sustainable design
- G/Rated Green Investment Fund: \$500,000 annual grants fund for innovative building projects
- BlueWorks Business Membership: Recognition for sustainability in business operations
- BlueWorks custom assistance: Personal consulting for sustainable paper use and office practices

For multifamily property owners and managers:

- Multifamily Energy Team: Tax credits and cash incentives for energy efficiency upgrades
- Multifamily Recycling Team: Free technical assistance, tenant educational materials and signage
- BlueWorks Business Membership: recognition for sustainability in business operations
- G/Rated Multifamily Green Building Guide: For new construction and remodeling

For commercial property managers:

- Multifamily Recycling Team: Free technical assistance, tenant educational materials and signage
- BlueWorks custom assistance: Help with designing a recycling and sustainable operations program for tenants
- BlueWorks Business Membership: recognition for sustainability in business operations
- G/Rated custom assistance: With tenant improvements, heating and cooling efficiency, and energy issues
- Portland Composts!: Free commercial composting assistance for food service tenants

Additional information: www.sustainableportland.org

Seattle, USA

Seattle City Light's Energy Smart Services

Energy efficiency programs are offered through the municipal electric utility, Seattle City Light. Two of Seattle City Light's programs provide vital services free of charge: efficient lighting design assistance through the Lighting Design Lab and facility assessment audits for medium-to-large commercial (and industrial) buildings. Seattle City Light offers rebates for energy-efficient lighting for small businesses through its *Smart Business Program*, high-efficiency commercial solid-door refrigerators and freezers, and energy-saving controls for vending machines. In addition, its *Demonstration Technology Bonus* increases incentives by 10 percent for use of selected "new" technologies in conservation projects.

Seattle City Light's Energy Smart Services resources include:

- Financial incentives and technical resources for new construction and existing medium-to-large commercial (and industrial) buildings.
- Energy Analysis Assistance and Building Commissioning to incorporate energy efficiency for new construction and major remodels.
- Online resources for improving energy performance, including a funding calculator.

Additional information: <http://www.seattle.gov/light/>

Water Smart Technology Program

The Water Smart Technology Program is a water conservation program for regional commercial, industrial and institutional customers offered by local water providers in the Saving Water Partnership, including Seattle Public Utilities. The program provides financial assistance for both technical studies and project installation that makes it cost-effective to realize the benefits of water-efficient technologies. It offers financial incentives for qualified water conservation projects completed by small and large businesses alike, which often reduce participant paybacks from over three years to two years or less. The program also offers technical information on water-efficient technologies, bill analysis, on-site water audits, life cycle cost analysis, free brochures and speaking engagements on water conservation, water-efficient irrigation information, and end-use metering.

Additional information:

[http://www.seattle.gov/util/Services/Water/For Commercial Customers/WATERCONS_200311261707523.asp](http://www.seattle.gov/util/Services/Water/For_Commercial_Customers/WATERCONS_200311261707523.asp)

Seattle Climate Partnership

In February of 2005, Mayor Greg Nickels challenged the Seattle community to “meet or beat” the global warming pollution reduction target of the Kyoto Protocol. He appointed a Green Ribbon Commission on Climate Protection to develop recommendations for achieving that goal. One of the Commission’s key recommendations was the formation of the Seattle Climate Partnership—a voluntary ‘pact’ among Seattle-area employers to take action to reduce their own emissions, and to work together to help meet the community reduction target goals.

Seattle-area employers that join the Partnership commit to take actions to reduce their greenhouse gas emissions, while at the same time cutting costs, improving the work environment for their employees, and improving their record of corporate responsibility. In exchange for making (and keeping) this commitment, Partners will receive a host of benefits, including high-quality technical assistance, access to utility incentive programs, opportunities for cost-saving collaborations such as joint purchasing arrangements, and recognition for a job well-done.

Additional information: <http://www.seattle.gov/climate/partnership.htm>

New York City, USA

Solar Energy Policies

Environmental Economic Development Assistance Unit (EEDAU)

The Environmental Economic Development Assistance Unit is part of the New York City Department of Environmental Protection’s Bureau of Environmental Compliance (BEC). EEDAU’s mission is to “*foster the joint goals of economic development and environmental protection by*

offering compliance and technical assistance to New York City industrial and commercial establishments and promoting environmentally sound business practices”.

EEDAU has five core programs:

- Compliance (Regulatory) Assistance provides businesses with updated information on environmental rules and regulations. Compliance Assistance is industry-specific and includes information on applications for registration and certification; hazardous substance reporting requirements and associated fee schedules; air and noise regulations; waste disposal; and environmental liability issues.
- Pollution Prevention (P2) Program encourages businesses to avoid production practices that create air pollutant emissions and waste. Through the P2 program businesses learn why adopting environmentally responsible production practices can significantly reduce costs associated with operations and compliance. EEDAU conducts and coordinates industry-specific P2 workshops for businesses and business service providers.

Additional information: <http://www.nyc.gov/html/dep/html/pollprev.html>

- Green Business Development works with businesses that will have direct positive impacts on the environment. EEDAU also assists green businesses identify customer bases and financial resources. Green businesses use or produce biodegradable, recyclable, and reusable products and materials.
- Financial Referrals - EEDAU coordinates efforts with business service providers, public agencies and private institutions to find sources of financial aid for regulatory compliance and pollution prevention. Financial assistance comes in the form of grants, loans, and business incentive programs.
- Regulatory Reform - EEDAU identifies and makes recommendations for modifications to New York City environmental laws to ensure that local businesses are not burdened by compliance requirements.

EEDAU establishes and maintains close working relationships with individual businesses, professional industrial and commercial support organizations, as well as business service providers such as Local Development Corporations (LDCs), Business Improvement Districts (BIDs), Chambers of Commerce, Economic Development Corporations (EDCs), Merchant Associations, and other environmental organizations, and federal, state, and local government agencies.

Additional information: <http://www.nyc.gov/html/dep/html/eedau.html>

Sustainable Design

In 2005, New York City enacted Local Law 86, which mandates that new City construction be designed to achieve a LEED rating of Certified or Silver and, in many cases, to use energy and water more efficiently than current codes require. Further, the law requires that renovations to existing buildings reduce potable water consumption and increase energy efficiency. Over the next ten years \$12 billion in construction will be required to meet the green building standards of the LEED) program⁸. This law, together with New York State's Green Building Tax Credit and existing New York City High Performance Building Guidelines, aims further stimulate green building construction practices in New York City.

⁸ <http://www.nycedc.com/Web/NYCBusinessClimate/IndustryOverviews/GreenIndustry/GreenIndustry.htm>

Additional information: <http://www.nyc.gov/html/ddc/html/ddcgreen/>

New York City Economic Development Corporation (NYCEDC)

The NYCEDC is New York City's primary vehicle for implementing the City's economic development strategy. It supports and enhances the City's job and revenue, supporting and promoting New York City's business community, providing financial services, and promoting the economic revitalization of the City's waterfront, industrial zones and neighborhoods.

To promote the growth of the Green Sector in New York City, NYCEDC provides the following services specific to the sector:

- Showcase local green companies - including product designers, clean-tech energy companies, architectural firms, and building commissioning agents
- Determine if and how NYC job training, economic development and incentive programs can be used to support growth of green tech companies
- Facilitate interactions between green companies, both domestic and international
- Investigate opportunities for green tech companies in and out of NYC to provide valuable guidance
- Support connections between universities and green tech companies with city and state resources
- Connect local green companies with developers and buyers of green products and services
- Cultivate New York City as a leader in the industries associated with clean-tech and green building

Additional information:

<http://www.nycedc.com/Web/NYCBusinessClimate/IndustryOverviews/GreenIndustry/GreenIndustry.htm>

Boston, USA

LEED Standards into Zoning Code

Bost has become the first major city in the US to require adherence to the US Green Building Council's LEED (Leadership in Energy and Environmental Design) Certified standard as part of the private development review process. The new Green Building zoning provision requires that all buildings larger than 50,000 square feet, funded either by the City or by private developers, be able to meet LEED-Certified standards. Project developers have the choice of pursuing LEED certification through the City or presenting proof of the project's certification to City officials.

The new regulation is expected to boost the area's green economy, impacting developers, architects, contractors and product manufacturers.

Additional information:

<http://www.massclimateaction.org/GreenBuildings/MeninoGreenBldgPR1206.pdf>

Boston Solar Challenge

Mayor Thomas M. Menino and the City's Office of Environmental and Energy Services have partnered with the New England Wind Fund in a program called Boston Solar Challenge, where the city will receive free solar panels to put on city buildings.

Additional information: <http://www.newenglandwind.org/wind/boston.php>



Appendix C

**Green Industry Database in the
City of Toronto**

Company	Tel	Type of Industry
APPo (association of power producers of ontario)	(416) 322-6549	Association/Not for Profit organization
Canadian Bioenergy Assoc.		Association/Not for Profit organization
Canadian Energy Research Institute	403-220-2372	Association/Not for Profit organization
Canadian Gas Association	(416) 481-1828	Association/Not for Profit organization
Canadian Independent Petroleum Marketers Assn	416-691-9292	Association/Not for Profit organization
Canadian Petroleum Products Institute	416-492-5677	Association/Not for Profit organization
Canadian Renewable Fuels Association (CRFA)	(416) 304 - 1324	Association/Not for Profit organization
Canadian Urban Transit Association (CUTA)	416-365-9800	Association/Not for Profit organization
Canadian Vehicle Manufacturers' Association	(416) 364-9333	Association/Not for Profit organization
Canadian Venture Capital Association (CVCA)	416-487-4299	Association/Not for Profit organization
Clean Air Canada		Association/Not for Profit organization
Clean Air Foundation	(416) 922-9038	Association/Not for Profit organization
Green Enterprise Toronto		Association/Not for Profit organization
Energy Ontario	416-961-2339 ext.227	Association/Not for Profit organization
Greater Toronto Marketing Alliance	(416) 360-3844	Association/Not for Profit organization
Independent Electricity System Operator	(416) 506-2810	Association/Not for Profit organization
Ontario Energy Association	416 961-2339 x221	Association/Not for Profit organization
Ontario Environment Industry Association		Association/Not for Profit organization
Ontario Forest Industries Association	(416) 368-2842	Association/Not for Profit organization
Ontario Sustainable Energy Association	(416) 977-4441	Association/Not for Profit organization
Pollution Probe	(416) 926-1907 X 231	Association/Not for Profit organization
The Composting Council of Canada		Association/Not for Profit organization
Canadian Eco-Industrial Network	416-686-5887	Association/Not for profit Organization
Canadian Energy Efficiency Centre		Association/Not for profit Organization

Company	Tel	Type of Industry
Creative Communities Research Inc.	416-466-5172	Association/Not for profit Organization
Evergreen Energy - Ontario Power Generators	(416) 592-2555	Corporate Energy
Bullfrog Power Inc.	(416) 360-3464 ext. 202	Corporate Energy
Ontario Power Authority	(416) 967-7474 ext. 237	Corporate Energy
Ontario Power Generation	(416) 592-6699	Corporate Energy
Direct Energy		Corporate Energy
Brascan Asset Management	(416) 359-8557	Corporate Energy
Cimco Refrigeration	416-465-7581	Corporate Energy
Eastern Power	(416) 234-1301	Corporate Energy
Enbridge Consumers Gas		Corporate Energy
Energetech/BC Hydro JV		Corporate Energy
EPCOR Utilities Inc.	(416) 773-7428	Corporate Energy
Great Lakes Power Inc.	(416) 956-5139	Corporate Energy
Hydro One	(416) 345-5000	Corporate Energy
Imperial Oil	416-968-4584	Corporate Energy
Shell Canada Ltd	(416) 227-7146	Corporate Energy
Siemens Building Tech. Ltd	(416) 512-7700	Corporate Energy
Siemens Canada Limited	416 207 9512	Corporate Energy
Toronto Hydro	416 542-3000	Corporate Energy
Toronto Hydro Energy Services Inc.	(416) 542-3047	Corporate Energy
TransCanda Pipelines Limited (TCPL)	(416) 869-2145	Corporate Energy
Union Gas	4164965357	Corporate Energy
University of Toronto	(416) 978-4984	Education
York University	(416) 736-5479	Education

Company	Tel	Type of Industry
Bay Area Health Trust	905.521.2100x73766	Finance and Venture Capital
Corpfinance International Ltd	(416) 673-2350	Finance and Venture Capital
Covington Funds	(416) 365-0060	Finance and Venture Capital
CPP Investments	(416) 868-4075	Finance and Venture Capital
Derlan Industries Limited	416-364-5852	Finance and Venture Capital
First Ontario Labour Sponsored Investment Fund Ltd.	(416) 487-5444	Finance and Venture Capital
Integrated Partners	416-360-7667	Finance and Venture Capital
Manulife Capital	(416) 926-5727	Finance and Venture Capital
Ontario Teachers' Pension Plan Board	(416) 730-5330	Finance and Venture Capital
RBC Capital Partners	(416) 842-4077	Finance and Venture Capital
RBC Financial Group	(416) 974-8291	Finance and Venture Capital
Scotiabank Private Equity Investments	(416) 945-4888	Finance and Venture Capital
Torquest Partners	(416) 956-7022	Finance and Venture Capital
Wellington Financial LP	(416) 848-3503	Finance and Venture Capital
Yorkton Securities	(416) 864-3510	Finance and Venture Capital
Aberdeen Gould	(416) 488-2887	Finance and Venture Capital
Access Capital Corp.	(416) 366-4820	Finance and Venture Capital
Adventis Capital	905.901.4791	Finance and Venture Capital
Argosy Partners - The Shotgun Fund	(416) 367-3617	Finance and Venture Capital
AVEtec Energy Corporation	(416) 932-2143	Finance and Venture Capital
Bartek	416-693-0910	Finance and Venture Capital
BCE Capital Inc.	(416) 408-0100	Finance and Venture Capital
BDC Venture Capital	(416) 954-9861	Finance and Venture Capital
BMO Capital Corporation	(416) 867-3208	Finance and Venture Capital

Company	Tel	Type of Industry
BMO Equity Partners LP / BMO Venture Partners LP	(416) 359-6464	Finance and Venture Capital
Borealis Private Equity	(416) 361-1011	Finance and Venture Capital
Brightpark Ventures, L.P.	(416) 488-1999	Finance and Venture Capital
CAI Capital Management Co.	(416) 306-9810	Finance and Venture Capital
Canadian General Capital Limited	(416) 362-0644	Finance and Venture Capital
Capital Access LLC	416.410.1713	Finance and Venture Capital
CastleHill Ventures	(416) 862-8574	Finance and Venture Capital
CCFL Mezzanine Partners	(416) 977-1450	Finance and Venture Capital
CFI Capital Inc.	(416) 364-6191	Finance and Venture Capital
CIBC Capital Partners	(416) 594-7000	Finance and Venture Capital
Clairvest Group Inc.	(416) 925-9270	Finance and Venture Capital
Cleantech Venture Network LLC	(416) 763-7184	Finance and Venture Capital
Dancap Private Equity Inc.	(416) 590-9398	Finance and Venture Capital
EdgeStone Capital Venture Partners	(416) 860-3740	Finance and Venture Capital
Genesys Capital Partners	(416) 598-4900	Finance and Venture Capital
Growth Works Ltd.	(416) 934-7753	Finance and Venture Capital
Hargan-Global Ventures Inc.	(416) 923-0660	Finance and Venture Capital
HDL Capital Corporation	(416) 599-7330	Finance and Venture Capital
Investeco Capital	(416) 304-1750	Finance and Venture Capital
Jefferson Partners	(416) 367-1533	Finance and Venture Capital
JL Albright Venture Partners	(416) 367-2440	Finance and Venture Capital
Kilmer Capital Partners Limited	(416) 635-6100	Finance and Venture Capital
Latitude Partners Incorporated	(416) 513-9090	Finance and Venture Capital
Macdonald & Associates	(416) 964-1265	Finance and Venture Capital

Company	Tel	Type of Industry
McKenna Gale Capital	(416) 364-8884 ext. 240	Finance and Venture Capital
McLean Watson Capital Inc.	(416) 363-2000	Finance and Venture Capital
Mercator Investments Limited	(416) 865-0003	Finance and Venture Capital
Mindfirst Inc.	(416) 440-0448	Finance and Venture Capital
MM Venture Partners	(416) 977-9718	Finance and Venture Capital
Moskowitz Capital Management Corp.	(416) 781-6500	Finance and Venture Capital
MWI & Partners	(416) 369-3981	Finance and Venture Capital
Norvest Capital Partners Inc.	(416) 361-3553	Finance and Venture Capital
Omers Capital Partners	(416) 361-1011	Finance and Venture Capital
ONCAP L.P.	(416) 214-4300	Finance and Venture Capital
Orion Securities	(416) 848-3514	Finance and Venture Capital
Penfund Management Limited	(416) 865-0300	Finance and Venture Capital
Pinnacle Capital	(416) 601-2270	Finance and Venture Capital
Primaxis Technology Ventures Inc.	(416) 313-5210	Finance and Venture Capital
PRIVEQ Capital Funds	(416) 447-3330	Finance and Venture Capital
Probyn & Company	(416) 777-2800 ext. 237	Finance and Venture Capital
Quantum Leap Co.	(416) 777-0383 x 224	Finance and Venture Capital
Quorum Group of Companies	(416) 971-6998 x 4227	Finance and Venture Capital
RBC Technology Ventures	(416) 974-7225	Finance and Venture Capital
ROI Fund Inc.	(416) 361-6162	Finance and Venture Capital
Roynat Capital Inc.	(416) 933-2730	Finance and Venture Capital
Scotia Merchant Capital Corporation	(416) 863-7483	Finance and Venture Capital
TD Capital	(416) 307-8470	Finance and Venture Capital
TechnoCap Inc.	(514) 483-6000	Finance and Venture Capital

Company	Tel	Type of Industry
Tera Capital Corp.	(416) 368-8372	Finance and Venture Capital
The Business, Engineering, Science & Technology Discoveries Fund (The B.E.S.T. Fund)	(416) 214-4616	Finance and Venture Capital
The Probyn Group	(416) 777-2800 ext. 224	Finance and Venture Capital
Toll Cross Investments Inc.	(416) 365-1960	Finance and Venture Capital
Trellis Capital Corporation	(416) 398-2299	Finance and Venture Capital
VenGrowth Capital Management Inc.	(416) 971-6656	Finance and Venture Capital
Ventures West Management Inc.	(416) 861-2277	Finance and Venture Capital
Verde Finance Corp.	(416) 850-2158	Finance and Venture Capital
Watervest Technologies Inc.	416.899.9595	Finance and Venture Capital
Whitecastle Private Equity Partners Fund LP	(416) 961-5355	Finance and Venture Capital
XPV Capital Corp.	(416) 864-0475 x 303	Finance and Venture Capital
The Clean Air Partnership		Funding organization
Toronto Atmospheric Fund	416-392-0253	Funding organization
Excelerator	978-6052	Funding organization
Ontario Centre of Excellence	(416) 861-1092	Funding organization
Sustainable Development Technology Canada	647-292-4850	Funding organization
Sustainable Development Technology Canada		Funding organization
City of Toronto	(416) 392-1004	Government
Environmental Commissioner of Ontario	416-325-3377	Government
Foreign Affairs and International Trade	(416) 973-2137	Government
Italian Trade Commission	(416) 598-1566 ext.107	Government
Ministry of Economic Development & Trade	(416) 325-6871	Government
Ministry of Research and Innovation, Commercialization Branch	416.326.9658	Government
ON Ministry of Agriculture, Food & Rural Affairs	416-325-1713	Government

Company	Tel	Type of Industry
Ontario Ministry of Energy	(416) 327-3373	Government
Ontario Ministry of the Environment	416-212-4552	Government
Ontario Center for Environmental Technology Advanc	(416) 778-5264	Professional services
6 DEGREES.CA	(416) 657-1662	Professional Services
AIG CONSULTANTS- ENV. MANAGEMENT DIVISION	(416) 596-4086	Professional Services
ALTECH ENVIRONMENTAL CONSULTING LTD.	(416) 467-5555 x245	Professional Services
AQUA TERRE SOLUTIONS INC.	(416) 635-5882 x121	Professional Services
ARRAY INTERNATIONAL ARCHITECTS INC.	(416) 733-3583 x103	Professional Services
B. & R. ENGINEERING CO. LTD	(416) 742-5144	Professional Services
BAY CHARLES CONSULTING COMPANY	(416) 967-3337 x115	Professional Services
BORDEN LADNER GERVAIS LLP	(416) 367-6038	Professional Services
BREGMAN + HAMANN ARCHITECTS	(416) 596-2299 x5151	Professional Services
BRUCE A. BROWN ASSOCIATES LIMITED	(416) 424-3355	Professional Services
BUILDING PERMIT SERVICES BY ARCHITECT INC.	(416) 760-8500	Professional Services
CAN ENVIRONMENTAL CENTRE	(416) 396-3270	Professional Services
CH2M HILL	(416) 499-0090 x360	Professional Services
CHEM PROCESS & ENVIRONMENT INC.	(416) 236-5377	Professional Services
CHURCH & TROUGHT INC.	(416) 391-2527 x23	Professional Services
CLEAR LANDS INC.	(416) 726-1751	Professional Services
CRONOS CONSULTING GROUP	(416) 537-7244 x24	Professional Services
CURRENT GENERATION INC.	(416) 585-7928	Professional Services
DAVID HEARN & ASSOCIATES	(416) 204-9771	Professional Services
DAVIES WARD PHILLIPS & VINEBERG LLP	(416) 863-6931	Professional Services
DIANNE SAXE PROFESSIONAL CORPORATION	(416) 962-5882	Professional Services

Company	Tel	Type of Industry
Dick Engineering Inc.		Professional Services
DUNLOP ARCHITECTS INC.	(416) 596-6666 x241	Professional Services
ENVIRO-LYNX INVESTIGATIONS INC	(416) 234-8658	Professional Services
ENVIROMETREX CORPORATION	(416) 928-0917	Professional Services
Environmental Consulting	(416) 951-9030	Professional Services
EQUISOFT	(416) 214-6887 x1089	Professional Services
ESRI CANADA	(416) 386-6496	Professional Services
EXPERIENCE RENEWAL SOLUTIONS INC.	(416) 843-2226	Professional Services
FILTER INNOVATIONS INC	(416) 490-7848	Professional Services
FRANK J. E. ZECHNER	(416) 207-3317	Professional Services
FRASER MILNER CASGRAIN LLP	(416) 367-6751	Professional Services
GIFFIN KOERTH FORENSIC ENGINEERING & SCIENCE	(416) 368-1700 x222	Professional Services
GLOBAL CAPITAL PARTNERS INC.	(416) 867-9099 x223	Professional Services
GLOBAL ENGINEERING SERVICES LIMITED	(416) 512-0031	Professional Services
GOWLING LAFLEUR HENDERSON LLP	(416) 862-4296	Professional Services
GREENIUS INC	(416) 926-0954	Professional Services
HARBOUR REMEDIATION & TRANSFER INC.	(416) 406-0987	Professional Services
HARDY STEVENSON & ASSOCIATES	(416) 944-8444 x222	Professional Services
HOPSCOTCH INTERACTIVE INC.	(416) 696-7230	Professional Services
ICF CONSULTING CANADA, INC.	(416) 341-0382	Professional Services
IDEALOGIC SEARCHOUSE (1996) INC.	(416) 506-9900	Professional Services
IMMACUTECH SYSTEMS TECHNOLOGIES INC.	(416) 778-8017	Professional Services
INDECO STRATEGIC CONSULTING INC	(416) 532-4333	Professional Services
INTEGRATED MANAGEMENT SOLUTIONS LTD.	(416) 789-5044	Professional Services

Company	Tel	Type of Industry
INTELEX TECHNOLOGIES INC.	(416) 599-6009	Professional Services
LARKIN ARCHITECT LIMITED	(416) 504-6054 x21	Professional Services
LINE ARCHITECT INC.	(416) 955-9938	Professional Services
LORE PRODUCT DESIGN ENGINEERING AND DEVELOPMENT INC.	(416) 489-9008	Professional Services
LTC MONARCH ENVIRONMENTAL CONSULTING LTD.	(416) 653-3727	Professional Services
LURA CONSULTING	(416) 410-3888	Professional Services
MACLEOD DIXON LLP	(416) 202-6745	Professional Services
MARSH CANADA LIMITED	(416) 349-4791	Professional Services
MCW CONSULTANTS LTD.	(416) 598-2920 x233	Professional Services
Mech and Associates	905-785-8431	Professional services
METRO WASTE PAPER RECOVERY INC.	(416) 232-8805	Professional Services
MICROMEDIA PROQUEST	(416) 369-4389	Professional Services
MIE CONSULTING ENGINEERS LTD.	(416) 424-2675	Professional Services
MONALT ENVIRONMENTAL INC.	(416) 391-3241	Professional Services
MOSS DESIGN	(416) 972-0601	Professional Services
MOUNTAIN VALLEY GEOPHYSICS CORP	(416) 249-6664	Professional Services
NORDITRADE INC	(416) 489-8438	Professional Services
OLESON WORLAND ARCHITECTS	(416) 365-1414	Professional Services
OPG VENTURES INC.	(416) 592-5967	Professional Services
PANCON ENGINEERING LIMITED	(416) 748-6976	Professional Services
PLANMAC INC.	(416) 626-5300	Professional Services
PRICEWATERHOUSECOOPERS LLP	(416) 941-8256	Professional Services
R.V. ANDERSON ASSOCIATES LTD	(416) 497-8600	Professional Services
READ, VOORHEES & ASSOCIATES LIMITED	(416) 445-4360 x2	Professional Services

Company	Tel	Type of Industry
RIVERSIDES	(416) 868-1983	Professional Services
S2S ENVIRONMENTAL INC.	(416) 410-4333 x2	Professional Services
SHAHEEN & PEAKER LIMITED	(416) 213-1255	Professional Services
SNC-LAVALIN ENGINEERS & CONSTRUCTORS INC.	(416) 252-5311 x2857	Professional Services
STERICYCLE INC.	(416) 644-3545 x222	Professional Services
STEVEN ROWE ENVIRONMENTAL PLANNER	(416) 489-7434	Professional Services
STRATEGIC ALTERNATIVES	(416) 538-3533	Professional Services
SUSTAINABLE EDGE INC.	(416) 488-4425	Professional Services
SUSTAINABLE RESOURCES MANAGEMENT INC.	(416) 493-9232	Professional Services
T. HARRIS ENVIRONMENTAL MANAGEMENT INC.	(416) 679-8914	Professional Services
TAFLER RYLETT ARCHITECTS	(416) 535-6070	Professional Services
TERRAPEX ENVIRONMENTAL LTD.	(416) 245-0011 x231	Professional Services
THE VENTIN GROUP LTD., ARCHITECTS	(416) 588-6370	Professional Services
THOMAS A. FEKETE LIMITED	(416) 494-0601	Professional Services
TORONTO RECYCLING INC.	(416) 663-0333	Professional Services
TORONTO RENEWABLE ENERGY CO-OPERATIVE	(416) 977-5093	Professional Services
TOXPROBE INC.	(416) 467-5106	Professional Services
WALTERS FORENSIC ENGINEERING INC.	(416) 971-8900 x202	Professional Services
WE COMMUNICATIONS INC.	(416) 444-5842	Professional Services
WILLMS & SHIER ENVIRONMENTAL LAWYERS	(416) 862-4835	Professional Services
The Ventin Group Ltd., Architects	(416) 588-6370	Professional Services
Environics Communications	(416) 920-9000	Professional Services
CRA International		Professional Services
Deloitte & Touche LLP	(416) 643-8710	Professional Services

Company	Tel	Type of Industry
Emerging Energy Options Inc.	(416) 690-3314	Professional Services
Energy @ Work	(416) 806-1802	Professional Services
Energy Profiles Limited	(416) 440-1323	Professional Services
Environmental Business Consultants	416-837-0770	Professional Services
FC Consulting	416-281-1630	Professional Services
MBC Energy & Environment	(416) 488-6676	Professional Services
MZ Consulting	(647) 271-4442	Professional Services
Summerhill Group	(416) 922-9038	Professional Services
Kinectrics	(416) 207-6094	Professional Services
SNC-Lavalin Engineers & Constructors Inc.	(416) 252-5311	Professional Services
Mercer Investment Consulting	416 868 2066	Professional Services
Middlefield Bancorp Limited	416-362-0714	Professional Services
Aird & Berlis LLP's	(416) 865-7757	Professional Services
McCarthy Tetrault LLP		Professional Services
Power Budd LLP	(416) 642-8582	Professional Services
Torkin Manes Cohen Arbus LLP	416 777 5369	Professional Services
Delcan Corporation		Professional Services
Aldworth Engineering Inc.	(416) 446-6300	Professional Services
AmbientEco Group	416-605-2213	Professional Services
NIAGARA FLAPPERLESS INC.	(416) 675-4206 x25	Technology
REGENESIS	(416) 595-9841	Technology
TERRAFIX ENVIRONMENTAL TECHNOLOGY INC.	(416) 674-0363 x230	Technology
Airborne Technologies inc	(403) 253-7887 x300	Technology
ALTECH TECHNOLOGY SYSTEMS INC.	(416) 467-5555 x223	Technology

Company	Tel	Type of Industry
Biomaxx Systems Inc.	416 915 2855	Technology
Conserval Engineering		Technology
Commercial Alcohols Inc.	416-304-1700	Technology
HUNNISETT CHEMICALS LTD	(416) 421-5212	Technology
FEEL GOOD CARS INC.	(613) 297-1731	Technology
GLOBAL REPAIR LTD	(416) 686-3690 x0	Technology
Zero Waste Energy Systems Inc.	(416) 460-4286	Technology
TEKRAN INSTRUMENTS CORPORATION	(416) 449-3084	Technology
GreenField Ethanol Inc.	4163041700	Technology
Toxin Alert Inc.	416-213-0990, ext 202	Technology
Shamrock Fuels Inc.	(416) 253-9397	Technology
S.A. ARMSTRONG LIMITED	(416) 755-2291	Technology
FuelMaker Corporation	416.674.3034 x220	Technology
HLS ECOLO	(416) 740-3900 x259	Technology
ENVYROZONE INC	(416) 674-8800 x224	Technology
TOWER RECYCLING SYSTEMS CANADA INC.	(416) 744-9183 x22	Technology
GREENWARE ENVIRONMENTAL SYSTEMS INC.	(416) 363-5577 x137	Technology
WASTE SOLUTIONS GROUP INC.	(416) 744-9183 x222	Technology
STORMCEPTOR CANADA INC.	(416) 960-9900 x223	Technology
Ecotechnos Inc.	(416) 284-2970	Technology
Helix Synergy Inc	(416) 265-8276	Technology
ITER Canada	(416) 203-9409	Technology
Ecostrat Inc.	416-968-8884	Technology
GRASSROOTS ENVIRONMENTAL PRODUCTS	(416) 466-2841	Wholesale and Retail Sales

Company	Tel	Type of Industry
GREEN SHIFT	(416) 925-9665	Wholesale and Retail Sales
GREENFORLIFE.CA INC	(416) 467-7621	Wholesale and Retail Sales
UPPER CANADA ORGANIC PRODUCTS	(416) 233-3205	Wholesale and Retail Sales
BOX MASTER INC.	(416) 424-4691	Wholesale and Retail Sales
TERRAFIX GEOSYNTHETICS INC.	(416) 674-0363 x234	Wholesale and Retail Sales



Appendix D

List of Key informants

Alex Gill	ONEIA
Alex Miller	ESRI
Angelo Poto	Toronto Water
Anna Pace	City Manager's Office
Barbara Leonhardt	City Planning, Policy & Research
Brian Denney	TRCA
Brian Milani	GET/York University
Carol Mee	Public Health
Chantal Brundage	TABIA Green T BIZ
Chris Caners	UofT Sustainability
Chris Lowry	GET
Christine Raissis	Economic Development
Christopher Morgan	Toronto Environment Office
Councillor Gord Perks	Ward 14
Councillor Pam McConnell	Ward 28
Councillor Paula Fletcher	Ward 30
Daniel Olsen	CH2MHILL
Deputy Mayor Joe Pantalone	Ward 19
Drew Shintani	Fleet Services
Dylan Aster	Building Division
Elaine Baxter-Trahair	Toronto Waterfront Secretariat
Greg Kiesling	Bullfrog Power
Hon Lu	TEDCO
James Sbrolla	EBC
Jane Welsh	City Planning, Policy & Research
Jay Mullin	OCETA
Jennifer Penney	Clean Air Partnership
Joanne Rusnell	Cleantech
Joe D'Abramo	City Planning, Policy & Research
John Alderdice	Economic Development
John Cartwright	Toronto and York Region Labour Council
Joyce McLean	Toronto Hydro
Keir Brownstone	Toronto Community Housing Corporation
Kim Peters	Toronto Environmental Office
Kim Peters	Toronto Environmental Office
Kyle Benham	Economic Development
Lawson Oates	Toronto Environment Office
Mark Bekkering	Toronto Environment Office
Marlene Conway	Ontario Aerospace Council
Mary Chau	TTC
Mary Chau	TTC
Mary MacDonald	Mayors Office
Mary Pickering	Toronto Atmospheric Fund
Maryanne Langdon	TTC
Mathew Green	Solid Waste Services
Mike Mulqueen	City Planning, Policy & Research
Nelson Switzer	RBC
Peter Viducis	Economic Development
Phil Jessup	Toronto Atmospheric Fund
Randy McLean	Economic Development
Richard Ubbens	Parks Forestry and Recreation
Rob Maxwell	Energy Efficiency Office

Rob McMonagle	Energy Efficiency Office
Sean Cosgrove	Energy Efficiency Office
Ted VanVliet	Building Division
Tedd Weymann	Planning Policy Finance & Administration
Todd Latham	ReNew Canada
Victoria Hollick	Conserval Engineering



Appendix E

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