

# **Toronto** STAFF REPORT

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June 8, 2006

To: Policy & Finance Committee

From: Chief Corporate Officer

Subject: Status Report on the Energy Plan for Toronto - Update  
All Wards

Purpose:

The purpose of this report is to seek City Council's approval of conservation and demand management programs and projects that are being considered for implementation to contribute to the reduction of electricity demand by 2010 and to seek City Council's approval of a process to further develop an Energy Plan for Toronto, consisting of all major fuel types, renewable energy and additional short, medium and long term goals.

Financial Implications and Impact Statement:

In order to initiate conservation and demand management programs and projects that are being considered for implementation to contribution to the 300 Megawatt Toronto target, an outside legal counsel on these arrangements will be necessary. Funding in the amount of \$80,000 is available in the 2006 Facilities and Real Estate Operating Budget (Other Locations – Energy and Waste Management – FA1357). Any additional costs relating to conservation and demand management programs and projects that are considered to be feasible for implementation in support of attaining 300 Megawatt of conservation and demand by 2010, will be reported back to the Policy and Finance Committee in due course.

Detailed work plan and technical and financial resources, including the creation of a Toronto Conservation Reserve Fund, required for undertaking the development of an Energy Plan, will be reported back to the Policy and Finance Committee in September 2006.

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

Recommendations:

It is recommended that:

- (1) City Council adopt a “Conservation First” energy strategy that positions conservation and demand management as the preferred first action to meet the energy needs of City of Toronto’s Divisions, Agencies, Boards, Commissions and Corporations and the city as a whole;
- (2) City Council endorse efforts by the Ontario Power Authority’s Conservation Bureau to seek 300 Megawatts of conservation and demand management in Toronto by 2010;
- (3) the Chief Corporate Officer, in consultation with the Deputy City Managers and Agencies, Boards, Commissions and Corporations, as appropriate, be authorized to coordinate the planning of conservation and demand management programs and projects of City of Toronto’s Divisions, Agencies, Boards, Commissions and Corporations in the Energy Plan;
- (4) the City Manager, or her designate, examine the opportunities within the corporation to optimize the effective and efficient implementation of the “Conservation First” Strategy and report back to the Policy and Finance Committee;
- (5) City Manager, or her designate, be authorized to negotiate and enter into agreements for the identification, development, funding, financing, implementation, monitoring, evaluation and reporting of conservation and demand management programs and projects, which are in support of the 300 Megawatt target for conservation and demand management by 2010, jointly with major stakeholders, namely the Ontario Power Authority, Toronto Hydro Corporation, the Toronto Atmospheric Fund and other third-party proponents, as appropriate, including, but not limited to:
  - (a) agreements that may include non-negotiable terms in accordance with the requirements of the Ontario Power Authority;
  - (b) agreements that may include non-negotiable terms in accordance with the requirements of the Provincial Government or its Agencies;
  - (c) agreements that may include terms that are consistent with Ontario Energy Board requirements;
  - (d) confidentiality agreements relating to the protection of any confidential City of Toronto’s Divisions, Agencies, Boards, Commissions and Corporations information provided for the purposes of preparing the Energy Plan, or submitting conservation and demand management programs and projects to the Ontario Power Authority and Toronto Hydro-Electric System Limited in order to fulfil their future Ontario Energy Board requirements; and,

- (e) agreements including Letters of Intent and related documents with Toronto Hydro-Electric System Limited, Toronto Hydro Energy Services Inc., and other proponents with respect to participation on conservation and demand programs and projects;
- (6) City staff be authorized to provide information, to parties in the agreements listed in Recommendation #5 above that is required to perform the necessary technical analysis to ascertain the feasibility of undertaking conservation and demand management programs and projects, subject to the following:
- (a) negotiation and execution of the necessary Confidentiality Agreements as required with the City on terms, and in a form satisfactory to the City Solicitor;
  - (b) negotiation and execution of an agreement to share all resultant technical and financial data with the appropriate City staff, including related capital and operating costs and revenues, (both estimated and actual) on an ongoing basis; and,
  - (c) the Deputy City Manager and Chief Financial Officer and Chief Corporate Officer, in consultation with the City Solicitor, are satisfied that there are no unreasonable risks relating to participation;
- (7) City staff be authorized to enter into discussions with the Ontario Power Authority to secure funding commitments for the following major areas of focus, which are in support of seeking 300 Megawatts of conservation and demand management referred to in Recommendation #2:
- (a) Funding for a five-year conservation financial incentive program targeting commercial, retail and industrial business conversions to improved energy conservation;
  - (b) Funding for a five-year demand management financial incentive program targeting commercial/retail and industrial businesses conversion to renewable energy and green building standards;
  - (c) Funding to expand existing City energy efficiency programs; and,
  - (d) Creation of a Toronto Conservation Reserve Fund that utilizes energy savings for ongoing conservation and demand management initiatives;
- (8) the City Solicitor be authorized to retain outside legal counsel to provide expert legal advice including to assist in negotiation and drafting of related agreements, on the Conservation and Demand Management Plan and the Energy Plan, and be authorized to utilize up to \$80,000 from the 2006 Facilities and Real Estate Operating Budget (Other Locations – Energy and Waste Management – FA1357);
- (9) City Council endorse the request by the Toronto Atmospheric Fund Board of Directors for funding support from the Ontario Power Authority to finance a new energy efficiency initiative in the Greater Toronto Area, targeting public, institutional and high-rise residential buildings with a detailed report to Council to be provided;

- (10) City Council confirm its previous decisions that Toronto Hydro Energy Services Inc. and Enwave Energy Corporation are the City's preferred energy services providers and that the City Manager communicate the City's position to all City of Toronto's Divisions, Agencies, Boards, Commissions and Corporations;
- (11) City Council request the Province, including the Premier's Office, to communicate to the Minister of Energy, the Ministry of the Environment, the Ministry of Municipal Affairs and Housing, the Ontario Power Authority, the Ontario Energy Board, Toronto Hydro Corporation and other major renewable energy stakeholders, the need to simplify the planning and approvals process and reduce participation costs respecting the connection requirements, metering, settlements and other agreements relating to the Ontario Power Authority's Standard Offer Program, announced March 2006, in order to reduce barriers to participation at the earliest feasible date;
- (12) City Council request the Province, including the Premier's Office, to communicate to the Minister of Energy, the Ministry of the Environment, the Ministry of Municipal Affairs and Housing, the Ontario Power Authority, the Ontario Energy Board, Toronto Hydro Corporation and other major renewable energy stakeholders, the need to reduce barriers, including participation costs respecting the connection requirements, metering, settlements and other agreements, to participation in conservation and demand management programs and projects at the earliest feasible date;
- (13) the appropriate City staff identify details of the current and pending Provincial legislation that may provide the City with additional legislative authority to attain Toronto's preferred state of energy sustainability over the period 2008-2030;
- (14) City Council authorize the further development of the Energy Plan, over the next 18 months, to address medium and long term goals (2010-2030), the reduction in use of all fossil fuels, conservation and demand management and supply options, including renewable sources such as solar, wind, biomass and biofuels;
- (15) City staff report back semi-annually to the Policy and Finance Committee with a final report at the latest March 2008, on progress being made to meet the 300 Megawatt conservation and demand management target and on the final Energy Plan to advance the City from its current state of energy use to the preferred state of energy sustainability;
- (16) a public consultation process be undertaken to solicit further input for the development of the Energy Plan, that considers relevant environmental, economic and equity concerns of the city as a whole and identifies feasible options for meeting Toronto's preferred state of energy sustainability over the period 2008-2030;

- (17) the Deputy City Manager and Chief Financial Officer report back to the Policy and Finance Committee at its meeting of September 18, 2006 on a detailed work plan, including resource requirements and the progress made in the creation of a Toronto Conservation Reserve Fund, for undertaking of the implementation of the final Energy Plan, referred to in Recommendation #16 above; and,
- (18) the appropriate City of Toronto officials be authorized and directed to take any necessary action to give effect thereto.

Background:

City Council at its meeting of May 23, 24 and 25, 2006 in considering a March 27, 2006 report from Deputy Mayor Joe Pantalone, Chair of the Roundtable on the Environment, among other things, approved the Policy and Finance Committee recommendation that:

- (a) the Director, Business and Strategic Innovation, Facilities and Real Estate Division, be requested to:
  - (i) expand the consultation on the Energy Plan to include the Toronto District School Board, the Toronto Catholic District School Board and the Toronto Transit Commission; and,
  - (ii) engage the public, as part of the consultation process, by using existing communication tools such as notices in Toronto Hydro bills and advertising on City bus shelters and litter bins;
- (b) the Director, Business and Strategic Innovation, Facilities and Real Estate Division, prepare a report to the Policy and Finance Committee at its meeting of June 20, 2006 on:
  - (i) the inclusion of more quantitative indicators of energy use including minimum and maximum energy demand and energy production capacities;
  - (ii) additional information on the split in energy use between industrial/commercial and residential and identify programs including energy efficiency projects that will reduce demand in both sectors;
  - (iii) the proposals contained in the communication (February 20, 2006) from Fiona Nelson; and,
  - (iv) that the City's Executive Environment Team be consulted to ensure that the report to the Policy and Finance Committee on June 20, 2006, address and integrate the City's broader environmental agenda.

Comments:

This report is intended to encompass both of the short term conservation and demand management programs and projects that will contribute to the targeted 300 Megawatt reduction by 2010.

Item a (i) mentioned above in the background to expand the consultation on the Energy Plan to include the Toronto District School Board, the Toronto Catholic District School Board and the Toronto Transit Commission was initiated in May 2006. Item a (ii) mentioned in the background to engage the public, as part of the consultation process, by using existing communication tools such as notices in Toronto Hydro bills and advertising on City bus shelters and litter bins was initiated on May 29, 2006 using transit shelters advertising across the City as communication tools.

The above items mentioned in the background of this report, with the exception of item (b) (iii), were addressed in a report entitled “Status Report on the Energy Plan for Toronto” dated April 5, 2006 to Policy and Finance Committee on April 11, 2006. The proposals contained in the communication (February 20, 2006) from Fiona Nelson, item (b) (iii) noted above, will be considered in the development of the Energy Plan for Toronto over the next 18 months.

The City’s current state of energy use is unsustainable. The City’s Energy Plan will serve as a road-map for the City as a whole to achieve a preferred state by embracing a sustainable approach to energy, emphasizing energy conservation, demand management and low-impact renewable energy sources. Sustainable energy can include environmentally sound energy production, affordable energy sources and adoption of energy efficiency technologies and activities. A sustainable Energy Plan for the City of Toronto will offer long-term benefits including improvements in air quality and protection of public health. The ways in which Toronto will meet the needs of the present without compromising the ability of future generations to meet their own needs will form the basis for the Energy Plan.

Consistent with the Energy Plan Terms of Reference (Appendix A attached) it is proposed that City Council adopt a “Conservation First” energy strategy that positions conservation and demand management as the preferred action to meet the energy needs of City of Toronto’s Divisions, Agencies, Boards, Commissions and Corporations and the city as a whole.

#### Toronto’s Electricity Supply Situation

The Province’s Independent Electricity System Operator forecasted in December 2005 that the City could begin to experience rotating power losses in the summer of 2008 if action is not taken to address the electricity demand-supply balance of the City.

On February 10, 2006, Ontario’s Energy Minister announced support for a 550 Megawatt power generation plant to be built in the Port Lands area of Toronto. This proposed plant is referred to as the Port Lands Energy Centre (PEC), the first phase of which is expected to be completed in 2008. The Minister also announced the government’s intention to target a reduction in the City’s power needs by 300 Megawatts over the same timeframe through conservation and demand management. The recommended ‘Conservation First’ strategy recognizes that saving a kilowatt rather than generating a kilowatt is cost effective and environmentally sound.

## Immediate Response to the Electricity Demand-Supply Challenge

At the City's Roundtable on the Environment meeting on February 20, 2006, a 10-Point Port Lands Green Energy Plan (Appendix B attached) was presented. It proposes conservation and demand management results exceeding a potential of 750 Megawatts. However, the feasible amount of conservation and demand management that could be realized by 2008 is subject to cost, process and regulatory barriers.

Ensuring an adequate electricity supply to meet demand has become critical. To address this issue, as an initial step, this report identifies preliminary initiatives that seek to address the impending electricity demand/supply imbalance in Toronto. These initiatives, focussing on scaling up programs already in place and starting programs that have previously been investigated for feasibility but have not received approval for implementation commence this year and will deliver conservation and demand management results by 2008 to 2010. The overall program is referred to as Conservation and Demand Management, a range of activities designed to influence the use of electricity by consumers, either by reducing overall electricity consumed, using electricity more efficiently, or by shifting usage to other times such as off-peak hours. Conservation and Demand Management involves intervention by an authority, such as a government or regulator, to introduce new codes or standards, or to provide direct financial incentives or information.

In order to achieve 300 Megawatts of additional, measurable and verifiable conservation and demand management, it is advantageous for the City, Toronto Hydro-Electric System Limited and the Ontario Power Authority to reach agreement on methodologies, program funding support and delivery arrangements that will achieve both the Ontario Power Authority's conservation and demand management target for Toronto and minimize the potential for rotating blackouts in the city as a whole during 2008 to 2010.

The City of Toronto has significant knowledge and experience in energy efficiency matters, primarily through the energy efficiency measures undertaken in its internally focussed Energy Retrofit Program and externally focussed programs, such as the Better Buildings Partnership, the Better Buildings New Construction Program and the Employee Energy Efficiency Program at Work. By addressing financial and organizational barriers, additional conservation and demand management programs and projects can be implemented. Any further resource requirements that are identified as necessary to achieve the 300 Megawatt target will be the subject of a further report.

A significant near term barrier for implementation of conservation and demand management initiatives is cost. To achieve the conservation and demand management target of 300 Megawatts, participation rates and realizable technical penetration in the various sectors will depend heavily on the attractiveness of incentives to off-set incremental costs of higher energy efficiency. Currently, the City is participating in the Toronto Hydro-Electric System Limited Conservation and Demand Management Plan. Virtually all participating projects in this Conservation and Demand Management Plan are guaranteed a payment of \$160 per peak kilowatt. However, consultations with key stakeholders have led City staff to conclude that a significantly higher level of guaranteed payments per kilowatt would be required from the

Ontario Power Authority to accomplish conservation and demand management results in the range of 300 Megawatts over the specified timeframe.

Another barrier is the requirement for connection, metering settlements and other agreements. This adds considerable uncertainty to outcomes, upfront costs and time delay that significantly impede participation rates in conservation and demand management programs and projects. There is particular concern that the recently announced Provincial Standard Offer Contract that pays a set price for electricity produced from solar, wind and biogas, has significant barriers to participation, contrary to the intention of the initiative. It would be beneficial for City Council to advise the Minister of Energy of the urgent need to address the known barriers.

IndEco Strategic Consulting, currently engaged by the City for the initial development of the energy planning process, identified a number of leading initiatives and strategies that may contribute to conservation and demand management in the short term. Some of these include:

- (a) Establishing a 'Conservation First' energy strategy to meet the energy needs of the City as a whole;
- (b) Implementing the City of Toronto Conservation and Demand Management Plan for corporate operations and the City as a whole;
- (c) Establishing district energy grids;
- (d) Requiring new Corporate City of Toronto buildings to be more energy efficient and assist private sector construction to be built to be more energy efficient;
- (e) Requiring retrofit of any City of Toronto's Divisions, Agencies, Boards, Commissions and Corporations building to be more energy efficient, including City Hall as a priority location; and,
- (f) Achieving energy self-sufficiency at Exhibition Place.

The success of these leading initiatives for conservation and demand management will depend on whether the City receives a commitment from the Province and the Ontario Power Authority, for conservation funding. Significant advances in electricity demand reduction, innovation, appropriate land use, distributed energy, renewable energy, district energy, emissions reduction, clean air and public health benefits and many other areas of importance will not be realized to the extent desired by the City and the Province if new sources of funding are not made available to the City as a whole.

The list of programs and projects that are contained in Appendix C represents some of the eligible conservation and demand management initiatives that may be considered, among others yet to be developed, for funding from one or more of the following bodies:

- (a) City of Toronto's Better Buildings Partnership (BBP) Loan Repayment Reserve Fund;
- (b) City of Toronto's Energy Retrofit Program;
- (c) Federation of Canadian Municipalities (FCM);
- (d) Natural Resources Canada (NRCan);
- (e) Ontario Power Authority (OPA);
- (f) Toronto Atmospheric Fund (TAF);



- (g) Toronto Hydro Corporation rate application process and third tranche funding; and,
- (h) Other funding and financing bodies.

In order for conservation and demand management programs and projects to be implemented in a timely and cost-effective manner, a coordinated approach that involves the City of Toronto's Divisions, Agencies, Boards, Commissions and Corporations is essential. Therefore it is proposed that the Chief Corporate Officer, in consultation with the Deputy City Managers and Agencies, Boards, Commissions and Corporations, as appropriate, be authorized to coordinate the planning of conservation and demand management programs and projects of City of Toronto's Divisions, Agencies, Boards, Commissions and Corporations in the Energy Plan.

Due to time constraints involved in the drafting of the appropriate legal agreements, it will be necessary to engage outside legal counsel. This report recommends the City Solicitor be authorized to retain outside legal counsel to provide expert legal advice, utilizing up to \$80,000 from the 2006 Facilities and Real Estate Operating Budget (Other Locations – Energy and Waste Management – FA1357).

#### Energy Plan for Toronto

To support City staff in the development of an Energy Plan, IndEco Strategic Consulting were initially retained to prepare a design framework document. The Executive Summary of the report entitled "Report on the Development on an Energy Plan for Toronto" is attached in Appendix D. The full report entitled "Report on the Development on an Energy Plan for Toronto" is attached in Appendix E. The report represents early and preliminary thoughts on the content of the Energy Plan which require both internal consultations within the City of Toronto's Divisions, Agencies, Boards, Commissions and Corporations and with external stakeholders.

The Report on the Development of an Energy Plan for Toronto defines and presents a preliminary overview of the elements of the Energy Plan. This includes a description of the preferred state (the desired energy sustainability situation) and present state (current energy situation) of energy in Toronto. It also identifies goals, objectives, targets, actions and measures that will assist in moving Toronto from the present to the preferred state. The report outlines the informal consultations to date with key internal and external stakeholders.

The outcome of this in-depth process will produce medium and long term targets and goals on energy use in Toronto for the timeframe of 2008 to 2030. The Energy Plan will provide principles of energy use and supply for Toronto. What constitutes a preferred state of sustainable energy for Toronto will be further defined within the scope of the Energy Plan. It will further set out actions that Toronto will engage in to directly affect energy use and indirectly to support the actions of others that align with Toronto's objective of a sustainable energy state. The resources needed to carry out the Energy Plan will also be detailed.

In designing a framework for developing an Energy Plan, the findings and conclusions documented in this report follow several consultation meetings with senior staff of Enwave Energy Corporation, Toronto Hydro Corporation and the Toronto Atmospheric Fund. Consultation meetings were also held with a broad range of major stakeholders including the

Ontario Power Authority, Toronto Hydro Energy Services Inc., the Independent Electricity System Operator, Hydro One, Natural Resources Canada, Enbridge Gas Distribution Incorporated, GreenSaver, the Toronto Catholic District School Board and the Toronto District School Board.

The City's existing Energy Management Program (EMP) adopted by City Council in February 2003, identified that an energy savings of 10 percent to 15 percent can be realized in City facilities. Some of the components of the EMP include administration of the energy supply contracts, steering the City's green power purchases, developing energy retrofit projects, establishing energy efficiency training programs and expanding the City's energy tracking and monitoring program. The Energy Plan will utilize the EMP as a foundation for examining how City facilities and operations can contribute to achieving the City's preferred state of energy sustainability.

#### Energy Plan Development Process

The information contained in the status report on the consumption of electricity and natural gas by the city as a whole as well as consumption within Toronto's municipal government provided in the April 5, 2006 Chief Corporate Officer's report to the May 16, 2006 meeting of the Policy and Finance Committee will be used to aid in the development of the Energy Plan for Toronto.

A public consultation process will be undertaken to solicit input for the development of the Energy Plan, that considers the relevant environmental, economic and equity concerns of the city as a whole and identifies feasible options for meeting Toronto's preferred state of energy sustainability over the period 2008-2030.

Initial internal consultations have been undertaken and further internal consultations will take place during the energy planning process that will lead to the production of a final Energy Plan. It is recognized that various other initiatives such as the Renewable Energy Action Plan, Clean Air Action Plan, Toronto Environmental Plan Update 2006, the Toronto Green Development Standard 2006, Water Efficiency Program, Green Economic Work Plan and the Toronto Waterfront Revitalization Corporation's Sustainability Framework, as well as other City initiatives may also pursue internal and external consultations during the energy planning timeframe.

#### Energy Plan Development Timeframe

It is proposed that the Energy Plan be completed and reported to the Policy and Finance Committee by March 2008. The first step proposed is to undertake external and internal stakeholder consultations. Additional public consultation can commence in July and August of 2006 with a report back to the Policy and Finance Committee in September 2006. The objective of this consultation process will be to accept input from the public and energy industry. A selection of elements to consider is provided in the IndEco Strategic Consulting report. Over the next 18 months, using the IndEco Strategic Consulting report on the development of an Energy

Plan as a framework, the areas of energy use and generation outlined in the report will be further investigated. Experts will be engaged to provide technical evaluations of feasibility, costs and benefits. Practices in other cities will be examined for potential adaptation to the needs and characteristics of the city as a whole. Pilot projects may be designed and carried out to test and refine the strategies to be used in the final Energy Plan.

The time, financial and technical resources needed to address the various aspects of the Energy Plan will be estimated. This will result in a detailed work plan and budget for the Energy Plan. A report on this work plan will be submitted in September 2006. The progress being made to meet the 300 Megawatt conservation and demand management target will be reported on periodically. The development of the final Energy Plan to advance the City from its current state of energy use to the preferred state of energy sustainability will be presented for consideration by the Policy and Finance Committee in March 2008.

#### City's Conservation and Demand Management and Generation Potential

The City of Toronto is the sole shareholder of Toronto Hydro Corporation, including its retail subsidiary, Toronto Hydro Energy Services Inc. The City also holds an equity interest in Enwave Energy Corporation. The foregoing organizations have articulated a desire to work cooperatively together with the City as preferred energy services providers, whereas a framework is developed regarding the roles and responsibilities of these two entities, in advancing the City from its current state of energy use to the preferred state of energy sustainability.

#### Expanded Jurisdiction for the Toronto Atmospheric Fund

At the 2005 Toronto Smog Summit, the Mayor, Federal and Provincial Ministers, and Mayors and Councillors from across the Greater Toronto Area endorsed and signed a joint Declaration to explore opportunities to establish a Greater Toronto Area Atmospheric Fund that would apply the Toronto Atmospheric Fund model across the entire Greater Toronto Area. Key objectives of the Greater Toronto Atmospheric Fund are:

- (a) To incubate, scale-up, fundraise for, and finance energy efficiency and renewable energy initiatives that reduce electricity use, smog, and greenhouse gas emissions throughout the Greater Toronto Area;
- (b) To accelerate market acceptance of current conservation and demand management programs offers by the Ontario Power Authority and local distribution companies in the Greater Toronto Area through regional financing and marketing partnerships;
- (c) To rigorously monitor, measure, and verify performance; and,
- (d) To expand the Toronto Atmospheric Fund model throughout Ontario.

In order to implement these objectives, Toronto Atmospheric Fund is seeking funding from the Ontario Power Authority to establish the Lighting Energy Efficiency Acceleration Program and a credit enhancement facility to support the capital requirements of lighting efficiency retrofits and

related energy efficiency initiatives in the Greater Toronto Area (beyond the City of Toronto). The two programs will aim to reduce peak electricity use in municipalities, universities and colleges, schools, hospitals, and condominiums by 35 Megawatts to 50 Megawatts. Toronto Atmospheric Fund is developing these initiatives in close consultation with the City's Energy Efficiency Office, Toronto Hydro Energy Services, Inc., as well as municipal energy management offices and local distribution companies throughout the Greater Toronto Area,

Conclusions:

Findings to date indicate that in excess of 300 Megawatts of peak electricity demand reduction can be achieved by 2010 through innovative supply and demand reduction options provided sufficient financial support is available to the eligible conservation and demand management programs and projects.

To ensure Toronto is well positioned in the future to deal with energy challenges and opportunities, an Energy Plan should be developed to advance the City from its present state of energy use to the preferred state of energy sustainability.

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Chief Corporate Officer

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List of Attachments:

- Appendix A – Draft Terms of Reference for an Energy Plan for the City of Toronto
- Appendix B – 10-Point Port Lands Green Energy Plan
- Appendix C – Preliminary List of Conservation and Demand Management Programs and Projects
- Appendix D – IndEco Strategic Consulting Executive Summary entitled “Report on the Development on an Energy Plan for Toronto”
- Appendix E – IndEco Strategic Consulting Report entitled “Report on the Development on an Energy Plan for Toronto”

Terms of Reference  
for a  
Comprehensive Energy Plan  
for  
The City of Toronto

Developed in consultation with  
Toronto Hydro Corporation  
Toronto Atmospheric Fund  
Enwave Energy Corporation

Prepared by:  
City of Toronto Energy Efficiency Office  
February 17, 2006



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## **1.0 City of Toronto's Rationale for Comprehensive Energy Plan**

The following Terms of Reference will provide guidelines for the development of a Comprehensive Energy Plan for the City of Toronto. City Council at its meeting of January 31, February 1 and 2, 2006 requested the Deputy City Manager and Chief Financial Officer to report to the February 20, 2006 meeting of the Roundtable on the Environment on a draft terms of reference for a Comprehensive Energy Plan for Toronto. Council further directed that the draft terms of reference be developed in consultation with Toronto Hydro Corporation, Enwave Energy Corporation, the Toronto Atmospheric Fund and the Energy Efficiency Office.

### **1.1 Province of Ontario's Rationale**

In December 2005, the Ontario Power Authority (OPA) presented the "Supply Mix Advice Report" to the Minister of Energy on options for the future development of Ontario's electricity system. This action was in response to a request from the Minister on May 2, 2005 for advice on the appropriate mix of electricity supply sources to satisfy the expected demand in Ontario, taking into account conservation targets and new sources of renewable energy out to 2025.

On February 10, 2006, Ontario's Energy Minister announced support for a 550 Megawatt plant to be built in the Port Lands area of Toronto. This proposed plant is referred to as the Port Lands Energy Centre (PEC), the first phase of which is expected to be completed by 2008. The Minister also announced the government's intention to target a reduction in the City's power needs of 300 Megawatts over the same timeframe through conservation and demand management.

## **2.0 Roundtable on the Environment**

The Mayor's Roundtable on the Environment is an advisory body of fifteen citizens with exceptional expertise in environmental issues. The Roundtable is chaired by Deputy Mayor Joe Pantalone and another City of Toronto Councillor sits as vice-chair. The Roundtable's role is to advise the Mayor and City Council on current and emerging environmental issues and to generally support the City's desire to be a leader in environmental and sustainability excellence.

The Roundtable reports regularly to Council through the Policy and Finance Committee. Increasing the use of renewable energy and reducing overall energy consumption within the corporation and throughout the City of Toronto are important priorities for the Roundtable on the Environment. The Roundtable has continued to contribute to the development of the City's new Comprehensive Air Quality Strategy, accelerated the implementation of the green fleet transition plan and supported green roofs and energy efficiency. City Council recently adopted recommendations from the Roundtable on the Environment pertaining to the need to develop a Renewable Energy Action Plan with targets and timelines. Council also adopted the Roundtable recommendation to request City staff to work towards renewable energy growth in partnership with agencies such as Toronto Hydro, Enwave, the Toronto and Region Conservation Authority and other organizations, as appropriate.

### **3.0 Current Situation**

The Province's Independent Electricity System Operator has stated that the City could begin to experience rotating power losses in the summer of 2008 if action is not taken to address the demand-supply balance of the City.

Toronto Hydro Corporation reported that both Leaside and Manby transformer facilities, which supply electricity to the City, are at their peak capacity. Toronto Hydro Corporation has confirmed that there is a need for new firm generation of approximately 250-350 Megawatts in combination with 200-300 Megawatts of conservation measures by 2008-2010.

### **3.1 City of Toronto's Leadership Position**

The City's leadership position respecting energy efficiency and conservation is well known locally, nationally and internationally as recognized by *Business Week* when the City received the Low Carbon Leader 2005 award from the Climate Group. To date, the City of Toronto has developed and implemented many successful energy efficiency and conservation programs within the corporation and in partnership with the business community.

The City also has numerous projects currently being implemented under its Energy Retrofit Program and the Toronto Hydro Conservation and Demand Management (CDM) Plan, in areas such as renewable energy, distributed energy, district energy,



energy efficiency, demand response and conservation and demand management. Furthermore, the City's Better Buildings Partnership has retrofitted more than 500 industrial, commercial, institutional and multi-residential buildings resulting in demand reductions of approximately 51 Megawatts and reductions in carbon dioxide emissions exceeding 1 Million tonnes. These projects will make a significant contribution towards the City's future energy needs and will provide relief to Toronto Hydro Corporation's distribution system and the provincial electricity grid system.

## **4.0 Background**

### **4.1 Environmental Plan**

City Council created an Environmental Task Force (the ETF) in March 1998 in the belief that governments, in partnership with citizens and stakeholders, should set the agenda for protecting and enhancing the natural environment. The ETF was made up of City Councillors, City staff, representatives from environmental groups, school boards, universities and schools across Toronto. The fundamental objective of the ETF was to prepare a comprehensive Environmental Plan for the City.

In developing the Environmental Plan, the ETF chose four areas to work in that it believed would help move the City towards sustainability.

These areas were:

- Transportation;
- Energy Use;
- Economic Development; and
- Education and Awareness.

These areas were selected because they echoed many of the key themes that were raised in the early workshops and included issues that City Council had asked the ETF to work on. The Comprehensive Energy Plan forms one of the City's strategies for facilitating the implementation of the Environmental Plan.

## **5.0 Goals**

The Terms of Reference for the Comprehensive Energy Plan was prepared by taking into account the Port Lands Green Energy Plan, the Renewable Energy Action Plan, the City of Toronto's Comprehensive Air Quality Strategy and the Environmental Plan Update. The goals include but are not limited to the development, quantification of projected savings and prioritization of initiatives identified in 5.1 - 5.5 below:

- 5.1** Develop high, moderate and low demand load forecast scenarios and identify Toronto's future energy needs for the short, medium and long term;
- 5.2** Identify and leverage on existing and developing initiatives in regard to peak-shaving mechanisms, renewable energy, distributed energy, district heating and cooling, demand response and conservation and demand management;
- 5.3** Identify feasible options for meeting the City's future energy needs including various technology solutions and any regulatory, legislative or institutional barriers that should be amended or eliminated to facilitate the goals of the Energy Plan;
- 5.4** Provide cost-benefit comparisons and co-benefits for the various base and peak load scenarios to reduce electricity demand, including an analysis of equivalent investments in conventional versus renewable energy sources, demand response and conservation and demand management;
- 5.5** Identify the preferred options for meeting the City's future energy needs after considering relevant environmental, economic and equity (including community) concerns;
- 5.6** Identify the preferred options for meeting the City's 15% energy reduction target in corporate operations and facilities; and
- 5.7** Explore opportunities to leverage synergies between City-owned businesses to simultaneously maximize shareholder value and attain comprehensive energy program targets.

## **6.0 Objectives and Strategies**

The following objectives and strategies are supportive of the foregoing goals in Section 5.0 and that the Energy Plan addresses the short, medium and long term sustainable energy needs of the City in a timely manner:

- 6.1** Develop target where needed and cut energy use in existing government, not-for-profit and private buildings in Toronto by the period 2008-2010;
- 6.2** Establish energy efficiency standards that exceed the Model National Energy Code for Buildings by a minimum of 25 percent, for the design and construction of new industrial, commercial, institutional and multi-residential buildings;

- 6.3** Establish a large-scale residential retrofit program for low-income consumers supported by appropriate financing, security and favorable repayment terms and conditions;
- 6.4** Establish a Renewable Energy Action Plan that ensures the City's green power strategy includes support, encouragement or incentives for all Torontonians to participate in green power purchasing and ensures a role for municipal energy generation;
- 6.5** Provide substantial community investment in renewable energy and conservation and demand management in the Beach and Riverdale areas to cut local emissions to balance out local impacts from operation of a new electricity generating facility;
- 6.6** Utilize the "Cool Cities" program adapted to the City of Toronto to include activities such as tree plantings, green roofs and light colored pavement. The scope of the projected reductions shall include recommendations of the Roundtable on the Environment which have already been adopted by Council. These recommendations from the Roundtable on the Environment include the development of strategies for the implementation of green roofs in consideration of the 5,000 hectares of total available green roof area identified in the report entitled "The Report on the Environmental Benefits and Costs of Green Roof Technology for the City of Toronto";
- 6.7** Expand the City's district energy systems to provide additional electricity, heating and cooling;
- 6.8** Set up a number of new district energy grids in the City, including the Port Lands, to provide electricity, heating and cooling systems with high distribution and utilization efficiencies;
- 6.9** Develop new distributed energy generating facilities and expand Toronto Hydro Corporation's Conservation and Demand Management (CDM) program to facilitate the economic conversion of diesel stand-by generators to dispatchable cleaner generation in industrial, commercial, institutional (ICI) and multi-residential buildings across the City;
- 6.10** Increase energy efficiency and cogeneration efforts in the industrial sector including the use of biogas at the City's wastewater treatment and solid waste facilities;
- 6.11** Increase the generation of electricity from biogas produced from the City's solid waste stream;

- 6.12** Identify the level of support and structure required including support from the business community and community groups that would be required to maximize the participation of clean back-up generators, distributed energy, demand response and conservation and demand management projects;
- 6.13** Identify the mechanisms included in the new City of Toronto Act that may be utilized in the future to facilitate the objectives of the Comprehensive Energy Plan;
- 6.14** Identify the local impact in Toronto of the plans outlined in the Ontario's Chief Energy Conservation Officer's Annual Report regarding changes to:
  - a) Ontario Energy Efficiency Act
  - b) Ontario Building Code
  - c) Back-up Generators
  - d) Financial Incentives for Hospitals and Schools
- 6.15** Engage Ontario Power Authority Demand Response programs through cooperation with Toronto Hydro Corporation and its affiliates via load control of appropriate City assets to create additional revenue streams; and
- 6.16** Identify and exploit the opportunities for increasing revenue streams and energy efficiency while reducing demand and annual operating costs in City facilities with respect to current and future Request for Proposals from the Ontario Power Authority in areas of clean generation and demand response.

Energy use in major sectors of the local economy should be considered and documented in the Comprehensive Energy Plan where appropriate. The Energy Plan will consider the strengths, weaknesses, opportunities, and threats for each business case. As well, the relevant considerations such as the political, economical, sociological and technological issues pertaining to each sector and/or recommendation or program contained in the implementation plan should be documented. All major stakeholders, their potential roles, functions, programs, contributions and proposed working relationships and partnerships should be documented.

## **7.0 Guidelines**

### **7.1 Financing and Funding**

The success of the Comprehensive Energy Plan produced will depend on whether the City receives a commitment from the Province and the Ontario Power Authority, for conservation funding. Significant advances in electricity demand reduction, innovation,

appropriate land use, distributed energy, renewable energy, district energy, emissions reduction, clean air and public health benefits and many other areas of importance will not be realized to the extent desired by the City and the Province if new sources of funding are not made available to the City to facilitate the implementation of the Comprehensive Energy Plan.

The Comprehensive Energy Plan should also include an assessment of the existing and potential economic benefits of relevant external programs and initiatives to the extent to which they can contribute to green economic development in the City of Toronto. Gap analysis or other approaches may be utilized to develop and support conclusions and recommendations.

The following may be used as a checklist of the categories of specific program/project areas and tasks and should be updated and referenced as appropriate. These areas should be reviewed and recommendations made regarding the appropriate level of funding that will be needed from the provincial government and funding and/or other arrangements with the Ontario Power Authority that will enable the City and the Province to realize the market potential of these programs and projects.

### **Renewable Energy**

- Develop a Renewable Energy Action Plan with targets and timelines
- Catalogue the various technical options for renewable energy
- Develop findings, conclusions and recommendations regarding the preferred renewable energy technologies, locations and sectors for economic deployment
- Catalogue the current projects being planned or being implemented including their costs and environmental and financial impacts
- Catalogue the relevant financing programs, strategies and incentives that may be applied to projects
- Provide guidance on how the City's green power strategy may include efforts for all sectors of the community to participate in green power purchasing

### **Better Buildings Partnership (BBP)**

- Update options for building assessments and project financing/implementation
- Catalogue the preferred options including partnerships with academia, Building Owners and Managers Association (BOMA), Energy Management Firms (EMFs), financial institutions, environmental groups, retailers and suppliers and other stakeholders
- Catalogue the relevant financing programs, strategies and incentives that may be applied to projects
- Update and edit the BBP Procedures Manual to reflect all changes

### **Employee Energy Efficiency Program at Work (E3@Work)**

- Develop and catalogue further strategies to engage the residential, small and medium enterprises (SMEs)

### **Toronto Hydro Conservation and Demand Management (CDM) Plan**

- Catalogue and incorporate the various projects that the City has submitted to Toronto Hydro-Electric System Limited (THESL) for inclusion in the CDM Plan within the framework of the Environmental Plan
- Catalogue and incorporate the various projects that THESL is undertaking that are included in the Environmental Plan but are not currently listed in the City's submission to THESL and incorporate in the Comprehensive Energy Plan
- Incorporate projects, financing, budgets, cash flow of projects, energy saved in the Comprehensive Energy Plan
- Fully reflect Conservation and Demand Management Plan results contributed by the City
- Coordinate detailed information for Conservation and Demand Management Plan for Energy Efficiency Office and THESL

### **Better Buildings New Construction Program (BBNCP)**

- Catalogue and incorporate the various projects within the framework of the Environmental Plan
- Incorporate projects, financing, budgets, cash flow of projects, energy saved in the Comprehensive Energy Plan
- Catalogue the preferred options including partnerships with academia, Building Owners and Managers Association (BOMA), Energy Management Firms (EMFs), financial institutions, environmental groups, retailers and suppliers and other stakeholders
- Develop findings and recommendations regarding the preferred market transformation mechanisms and program delivery methods, including potential partnership arrangements, to achieve maximum energy efficient levels in new construction

### **Energy Management Plan (EMP)**

- Catalogue City of Toronto's energy purchases and energy supply contracts
- Integrate energy tracking program with the City's accounting system
- Catalogue energy efficiency programs in City Divisions and as required by City Agencies, Boards and Commissions in order to reduce energy use
- Provide guidance on the City's purchase of 25% green power
- Communicate and encourage energy conservation actions to City staff

### **Energy Retrofit Program (ERP)**

- Update options for building assessments and project financing/implementation
- Catalogue the relevant financing programs, strategies and incentives that may be applied to projects
- Catalogue tracking, measuring, verification and reports of the performance of the projects to determine the energy savings associated with the measures applied to the projects

### **Better Transportation Partnership (BTP)**

- Catalogue preferred options for the evolution of the program within the framework of the Environmental Plan including an assessment of key stakeholder partnerships
- Catalogue relevant financing programs, strategies and incentives
- Develop findings, conclusions and recommendations regarding strategies to effectively engage and influence private and commercial sectors

## **8.0 Timing**

The Deputy City Manager and Chief Financial Officer will report to the June 20, 2006 meeting of Policy and Finance Committee, or sooner if feasible, to present the Comprehensive Energy Plan for Toronto.

## **9.0 Toronto Hydro Corporation and Affiliates Role**

- 9.1** Conduct consultations with Toronto Hydro Corporation and affiliates to determine the nature and scope, roles, responsibilities and partnerships that are feasible.

## **10.0 Enwave Energy Corporation's Role**

- 10.1** Conduct consultations with Enwave Energy Corporation to determine the nature and scope, roles, responsibilities and partnerships that are feasible.

## **11.0 The Toronto Atmospheric Fund's Role**

- 11.1** Conduct consultations with the Toronto Atmospheric Fund to determine the nature and scope, roles, responsibilities and partnerships that are feasible.

## **12.0 The City of Toronto Energy Efficiency Office's Role**

- 12.1** The role of the City of Toronto's Energy Efficiency Office will be determined based on the findings, conclusions and recommendations of the Comprehensive Energy Plan.

### **13.0 Energy and Waste Management Office's Role**

- 13.1** The role of the City of Toronto's Energy and Waste Management Office will be determined based on the findings, conclusions and recommendations of the Comprehensive Energy Plan.

### **14.0 Consultations**

The Energy Efficiency Office of Business and Strategic Innovation, Facilities and Real Estate Division will coordinate consultation with Toronto Hydro Corporation, the Toronto Atmospheric Fund and Enwave Energy Corporation with the assistance of the City's external consultant, IndEco Strategic Consulting.

Consultations will also be conducted with key stakeholders such as the Ontario Power Authority (OPA), the Ministry of Energy, the Independent Electricity System Operator (IESO), Hydro One, Ministry of the Environment, Ontario Power Generation (OPG), Building Owners and Managers Association (BOMA), community groups, business groups, internal corporate stakeholders and others.

### **15.0 Work Plan**

The City's external consultant, IndEco Strategic Consulting, will develop the work plan.

### **16.0 Budget**

The budget for the development of the Comprehensive Energy Plan is on file.



Appendix B – 10-Point Port Lands Green Energy Plan

**Port Lands Green Energy Plan —  
More than 750 Mega Watts of Power  
Report of the Expert Panel**

January 5, 2006

In response to the Province's proposal to site a large scale, 500 to 650 mega watt (MW) power plant in Toronto's Port Lands, our panel was commissioned by Deputy Mayor Sandra Bussin, City Councillor for the Port Lands Paula Fletcher, former Toronto-Danforth MPP Marilyn Churley and Jack Layton, MP for Toronto-Danforth, to assess the Province's proposal and to develop alternatives to it.

We accept that Toronto does need some new generation and we believe that a number of practical steps can be taken to reduce the need for this specific proposal. At the same time, we also see potential in developing generating capacity through a substantially reduced plant or plants that will provide a district energy system in the Port Lands. This would allow the shut down of existing boilers in the port area and reduce pollution. We believe that in order to protect our community interests that the City, through Toronto Hydro, should have a direct interest in his project.

We propose the following 10 ideas to **produce new energy, create more jobs, reduce energy bills, cut energy waste and reduce pollution**. Our 10-point Port Lands Green Energy Plan **adds more than 750 mega watts of power produced or saved** through a combination of new energy production and energy efficiency, eliminating the need to site a single, oversized 500 to 650 mega watt power plant in the Port Lands.

The Province's persistence in trying to site a large, natural-gas fired energy plant in the Port Lands compels us to develop a new green energy plan for the city. This is an opportunity to make east end Toronto, Riverdale and the Beaches, a showcase for clean energy.

The 10 Point Port Lands Green Energy Plan outlined below should be the basis for the City and community response to this Provincial project. The plan includes reducing demand for electricity, providing electricity through renewable sources and where electricity is produced using transitional fuel sources such as gas, producing it as efficiently as possible.

**10-Point Port Lands Green Energy Plan — More than 750 Mega Watts of Power**

- 1) Cut energy use in existing government and non-government buildings in Toronto through energy efficiency programs delivered by governmental and non-governmental partnerships (170 MW).
- 2) Set much higher energy efficiency standards for new buildings to be built in Toronto and promote ground source heat pumps for new buildings (energy calculation unavailable).

- 3) Invest in cutting household energy use through large scale low income housing energy retrofits. Develop a Toronto Hydro loan program for renewable and high efficiency residential investments (energy calculation unavailable).
- 4) Utilize the “Cool Cities” program developed in the United States that cuts summer heat in the city through tree plantings, green roofs and light coloured paving (energy calculation unavailable).
- 5) Invest in renewable energy projects, including community based projects, to provide necessary power across the city including an appropriately-sited wind farm on Lake Ontario, solar hot water, solar heating and solar electricity (60 MW).
- 6) Expand use of the City’s current district energy system to provide cogeneration, trigeneration and more cooling from Deep Lake Water Cooling (300 MW).
- 7) Use gas burned at Ashbridges Bay Treatment Plant for drying sludge to also make electricity. Use methane from the sewage sludge to power it (energy calculation unavailable).
- 8) Expand Toronto Hydro program to convert stand-by generators in large buildings across the city from diesel to natural gas to become suppliers of peak energy and start to develop cogeneration in those buildings (220 MW).
- 9) Set up a number of district energy grids in the city including the Port Lands to provide heat, cooling and power as efficiently as possible (energy calculation unavailable). The plant proposed by the Province of Ontario for the Port Lands must be restricted to a highly efficient, cogeneration plant no greater than 250 megawatts, half the size or less than the current proposal.
- 10) Provide substantial community investment in green energy and efficiency in the Beach and Riverdale to cut local emissions to balance out any impact from operation of the new plant (energy calculation unavailable). Provide other community benefits.

This document is meant to outline our thinking to date and to provoke debate about the direction we need to go in. We need to hear what people think of what we have proposed and to receive more suggestions.

## **BACKGROUND**

The 10-point Port Lands Green Energy Plan plan above summarizes a number of initiatives that add up to more than 750 mega watts of power produced or saved through new energy production and energy efficiency measures. We have detailed the elements of the plan below.

### **1) Energy Efficiency for Existing Buildings — 170 MW**

Cut energy use in existing government and non-government buildings in Toronto through energy efficiency programs delivered in partnership by Toronto Hydro, the Energy Efficiency Office, the Better Buildings Partnership, Enwave and the Toronto Atmospheric Fund. In addition build partnerships with non-governmental organizations, sectoral organizations and the private sector. The City of Toronto alone has 40 MW of power reductions it can implement. The calculation for non-government buildings immediate potential was recently reported at 130 MW in demand reductions.

## **2) Energy Efficiency for new buildings**

Set much higher energy efficiency standards for new buildings to be built in Toronto and promote ground source heat pumps for new buildings outside areas served by district energy (energy calculation unavailable).

## **3) Existing Residential Housing Energy Efficiency Programs**

Invest in cutting household energy use through large scale low income housing energy retrofits. Develop a Toronto Hydro residential loan program for solar panels, solar hot water and for high efficiency residential investments like upgrading air conditioning systems and purchasing appliances to Energy Star standards (energy calculation unavailable).

## **4) City Cooling Initiatives**

Utilize the “Cool Cities” program developed in the United States that cuts summer heat in the city through tree plantings, green roofs and light coloured paving. Studies in Florida show heavily treed neighbourhoods have summer electric bills 8% or more lower than less green neighbourhoods (energy calculation unavailable).

## **5) Renewable Energy — 60 MW**

Invest in renewable energy projects, including community based ones, to provide necessary power across the city including an appropriately-sited wind farm on Lake Ontario, solar hot water, solar heating and solar electricity. Recent assessments by Toronto Hydro envision potential for a 60 MW wind farm to serve Toronto.

## **6) Use the City’s Existing District Energy Systems — 300 MW**

Expand use of the City’s current district energy systems. Convert Enwave’s Walton Street steam plant in the downtown to make steam and electricity at the same time (cogeneration) and use summer steam to power air conditioning (trigeneration). Substantially expand existing Deep Lake Water Cooling system capacity and provide new DLWC for new developments on the waterfront. DLWC potential in the range of 150 MW. Cogeneration and trigeneration for Enwave potential in the 150 MW range.

## **7) Cogeneration at Ashbridges Bay**

Use gas burned at Ashbridges Bay Treatment Plant for drying sludge to also make electricity and use methane from the sludge to power it. The City of Ottawa ROP Environment Centre, a sewage treatment plant, installed a cogeneration system in 1996 for net annual savings of \$750,000 annually on initial annual electricity bill of \$2.6 million annually (energy calculation unavailable).

### **8) Invest in Peaking Generation and Cogeneration in Large Buildings — 220 MW**

Expand Toronto Hydro program to convert stand-by generators in large buildings across the city from diesel to natural gas to become suppliers of peak energy and start to develop cogeneration in those buildings. Invest in demand control in these same buildings. Large office buildings and institutions like community colleges could have their boiler plants converted to cogeneration. Mohawk College in Hamilton has its own cogeneration system, as does University of Toronto and York University. Calculated initial reduction in demand from such measures approximately 220 MW.

### **9) Modular District Energy Systems utilizing smaller Cogeneration Power Plants**

Set up a number of district energy grids in the city including the Port Lands to provide heat, cooling and power as efficiently as possible. One such plant proposed by the Province of Ontario for the Port Lands must be half the size or less of the current proposal. Thus it would be restricted to a highly efficient cogeneration plant no greater than 250 megawatts. Any such cogeneration plant built at the Hearn could provide heat and power to the existing and future industries in the port that are burning, or will burn gas. This would allow local industries to shut down their boilers and reduce local pollution. The West Don Lands and the Regent Park Redevelopment will benefit from having central district heating plants which could be operated on a cogeneration basis (energy calculation unavailable).

### **10) Community Benefits**

Provide substantial community investment in green energy and efficiency in the communities around the port lands to cut local emissions to balance out any impact from operation of the new plant (For example –provide solar hot water heating for all city and school board swimming pools). Provide improvements to the Port Area itself (for example – board walk along the shipping channel or an Alternative Energy Research Centre). Assist in the development of an energy plan for the future of the east end (energy calculation unavailable).

## **SUMMARY**

We believe that our approach will provide the community with environmental and economic benefits superior to those proposed by the Province. We were able to identify potential alternatives to the Port Lands energy plant that exceeded 750 MW. While there may be challenges to bringing all of the suggested alternatives to fruition within the required time frame,

we believe that there is enough potential to substantially reduce the size of the proposed plant and still provide energy security to the city and the community. A plant in the port that resulted in the closure of a number of existing boilers has the potential to avoid any net increase in emissions in our community. When we have heard back from the community we will provide a final report for consideration.

**Expert Panel on Green Alternatives:**

Peter Tabuns, Chair  
Kopperson

Keith Stewart

Melinda Zytaruk

Brent

## Appendix C – Preliminary List of Conservation and Demand Management Programs and Projects

### Preliminary list of potential Conservation and Demand Management programs:

- (a) Better Buildings Partnership: Various new projects being developed in the Industrial, Commercial and Institutional (ICI) and Municipal, Universities, Schools and Hospitals (MUSH) sectors (including not-for-profits) and provision of continued assistance to broader business sector in cooperation with other stakeholders;
- (b) Energy Efficiency Office: Focus on MUSH Sector, Small-Medium-Enterprises (SMEs) and Industrial Sectors;
- (c) Better Buildings Partnership Loan Program: Expand in cooperation with Toronto Hydro Corporation and Toronto Atmospheric Fund;
- (d) Toronto Conservation Reserve Fund;
- (e) Better Buildings New Construction Program (Design Advisory Services): Focus on all sectors to capture majority of buildings being designed for construction in the City of Toronto;
- (f) Community Better Buildings Partnership, Advisory and Provision of Start-up Services to Other Municipalities;
- (g) Renewable Energy Program such as the use of biogas at Highland Creek and Ashbridges Bay Treatment Plants, Thackeray Landfill Site and Photovoltaic Installation at Exhibition Place;
- (h) Employee Energy Efficiency Program at Work;
- (i) Hydrogen Village Program: New Generation from Hydrogen (Dispatchable Generation)
- (j) Energy Plan for the City of Toronto: All short, medium and long term projects and programs that contribute to Ontario Power Authority's goals;
- (k) Large-scale residential retrofit program for low-income consumers;
- (l) Peak Saver for additional 200 MW of demand response by 2011; and,
- (m) 20/20 The Way to Clean Air.

### Preliminary list of potential Conservation and Demand Management projects:

- (a) 10-Point Port Lands Green Energy Plan;
- (b) City Facilities Retrofit (All Eligible Buildings including City Hall);
- (c) Toronto Water, Transmission Operations Optimizer (Industrial Operations);
- (d) Toronto Water, Conservation and Demand Management including Cogeneration (Biogas, use Emergency Power – Dispatchable Generation);
- (e) Solid Waste Management, Conservation and Demand Management Initiatives (including Green Bin Program – Potential Anaerobic Digestion or other program using Source Separate Organics with Dispatchable Generation);
- (f) Solid Waste Management, Conservation and Demand Management Initiatives (including Dispatchable Generation);
- (g) Agencies, Boards and Commissions, New Conservation and Demand Management Initiatives (including Dispatchable Generation);

- (h) Agencies, Boards and Commissions Facilities Retrofit (All Eligible Buildings);
- (i) Enwave Energy Corporation, New Dispatchable Generation and Deep Lake Water Cooling;
- (j) Toronto Hydro Corporation, New Conservation and Demand Management Initiatives beyond existing 250 MW (5% peak load reduction commitment);
- (k) Toronto Atmospheric Fund, New Conservation and Demand Management Initiatives (including the Lighting Energy Efficiency Acceleration Program);
- (l) The “Cool Cities” adaptation for Toronto;
- (m) New distributed energy projects;
- (n) 2006 Summer RAC at Home Depot stores;
- (o) 2006 Fall multi-retailer Conservation and Demand Management campaign; and,
- (p) Toronto Waterfront Revitalization.

Appendix D – IndEco Strategic Consulting Executive Summary entitled “Report on the Development on an Energy Plan for Toronto”

# **Report on the Development of the Energy Plan for Toronto**

## **Executive Summary**





## Executive summary

The Energy Efficiency Office (EEO), Facilities and Real Estate, Business and Strategic Innovation, of the City of Toronto commissioned IndEco Strategic Consulting Inc. to begin to work on the development of the Energy Plan for Toronto. This report reflects the progress that has been made to date. The report represents early and preliminary thoughts on the content of the Energy Plan which require both internal consultations within the Corporate City Divisions and agencies, boards and commissions (ABCs) and with external stakeholders.

The purpose of this report is to:

- Document the work that has been completed to date on the development of the Energy Plan for Toronto
- Provide a framework for further development of the Energy Plan
- Provide a basis for stimulating discussion on the development and content of the Energy Plan within the Corporate City Divisions and ABCs
- Assist in finalizing the terms of reference for the Energy Plan
- Provide a basis for extensive public consultation on the Energy Plan.

Further work will expand upon, modify and refine this initial work, leading to the completion of the Energy Plan.

### Scope of the report

This report was prepared with a view of developing long-term, medium-term and short-term energy priorities for implementation. For the purposes of this report the short-term is defined as 2010, the medium-term as 2015 and the long-term as 2030. The work completed to date on the Energy Plan for Toronto has included a review and update of the EEO's 2002 Sustainable Energy Plan, limited consultation with key stakeholders, and initial development of the elements of the Energy Plan. In particular the work has involved:

- **Identifying the requirements** of Toronto's Strategic Plan, Environmental Plan, Official Plan and the Corporate City's existing energy and environmental goals, objectives and targets that need to be taken into account when developing the Energy Plan.

- **Conducting a situation analysis** that involved the identification of a first-cut Corporate City vision for energy sustainability in Toronto ('Preferred State') for discussion, and the identification of an initial description of the current situation regarding energy ('Present State'). This enabled some gaps to be identified and bridges built.
- **Developing options** to take the City from the Present State to the Preferred State. This involved a detailed examination of current energy use and constraints within the Corporate City and Toronto. It also involved identifying some key energy players and an inventory of energy initiatives taking place in the Corporate City, ABCs and Toronto. These options consist of the goals, objectives, targets, actions and measures that are identified.
- **Setting priorities for implementation** of the options. At this early stage of the planning process all measures were considered important. Therefore, in order to distinguish between them to set initial priorities for discussion, the measures were rated based on their urgency and ease of implementation. These are an initial set of priorities and require additional analysis. With further iterations of the process, these priorities may be modified and additional priorities may be added.
- **Informal consultation with key stakeholders.** Consultation took place with some key stakeholders to obtain their feedback on the immediate electricity supply constraints that Toronto is expected to face by 2008 unless steps are taken to address these problems now. Specific consultations were held with Enwave, Toronto Hydro Energy Services Inc., Toronto Hydro-Electric System Ltd., the Ontario Power Authority, Toronto District School Board and the City of Toronto's Mayor's Office. As well, there was a meeting in early May 2006 with representatives of City divisions to update them on the progress of the work on the Energy Plan, to request their feedback on the draft Terms of Reference for the Energy Plan and to indicate opportunities for further input and involvement in the development of the Energy Plan.
- **Broad consultation.** Formal written comments on the draft Terms of Reference for the Energy Plan for Toronto were solicited from a broad range of stakeholders. Further formal consultation on the draft Terms of Reference is expected to take place after completion of this report.

## **Elements of the Energy Plan**

This report defines and presents a preliminary overview of the elements of the Energy Plan. This includes a description of the Preferred State (the desired energy situation) and Present State (current energy situation) of energy in Toronto. It also identifies goals, objectives, targets, actions and measures that will assist moving Toronto from the Present to the Preferred State.

The measures identified have been categorized to the following three categories: very urgent and easy to implement, urgent and easy to implement, but may require some additional effort, not as urgent and may not be as easy to implement.

The very urgent and easy to implement measures are considered “quick-start” measures that should be implemented by 2010 to meet the immediate energy demand constraints. The urgent and easy to implement, but may require some additional effort are measures that have a longer time-frame for implementation and are more difficult to implement; these measures should be implemented by 2015. The not as urgent and may not be as easy to implement measures are those that are not as a critical and may be more difficult to implement due greater coordination, lack of resources etc. and that should be implemented by the end of the 2030 planning period. Any coordinating strategy underway and expected to be completed before 2010 is also considered a “quick-start”.

## **Next steps**

The immediate next steps in the development of the Energy Plan for Toronto are to:

- On June 6, 2006, a staff report on the development of the Energy Plan for Toronto will be presented to the Roundtable on the Environment and the “quick-starts” for 2010, identified to date, will be highlighted.
- On June 20, 2006, this staff report on the development of the Energy Plan for Toronto will be presented to the Policy and Finance Committee and the “quick-starts” for 2010, identified to date, will be highlighted. The specific process for future development of the Energy Plan will also be discussed. A preliminary timeline and plan for completion may include an 18-month timetable with key milestones and three consultation meetings with key stakeholders (30-50 stakeholders each).
- The work plan for the development of the Energy Plan for Toronto will be further discussed at a Council meeting on June 27, 2006. At this time there will also be a report on any consultation meetings that have been held up until that point.

- The structure, staffing, budget and other resources needed to complete Energy Plan will be discussed at the July 18, 2006 Policy and Finance Committee meeting.
- Approval of the structure, staffing, budget and other resources needed to complete Energy Plan will be presented for consideration by Council at the July 25, 2006 Council meeting.