In reply please quote:
Ref.: 06-PF#3(33)

May 2, 2006

POLICY AND FINANCE COMMITTEE:

Subject: Policy and Finance Committee Report 3, Clause 33
Other Items Considered by the Committee

City Council on April 25, 26 and 27, 2006, considered this Clause, and referred Item (l), entitled "City of Toronto Energy Plan", contained in this Clause, back to the Policy and Finance Committee for further consideration:

(l) City of Toronto Energy Plan

The Policy and Finance Committee:

(A) approved the following Recommendations (1) to (3) and (6) contained in the report (March 27, 2006) from Deputy Mayor Pantalone:

"(1) the Port Lands Green Energy Plan be taken into account in on-going preparation and implementation of the City of Toronto Energy Plan including the Renewable Energy Plan, the City of Toronto Air Quality Action Plan and the Environmental Plan Update;

(2) the City of Toronto continue to document the megawatts of energy saved and economic and air quality benefits accrued due to the City's energy conservation programs and the related reductions in energy demand in City operations;

(3) a report be submitted to the Roundtable on the Environment by Deputy City Manager Fareed Amin in consultation with Deputy City Manager and Chief Financial Officer Joe Pennachetti on the potential for renewable energy generation and use in the City of Toronto, to be completed by September 2006;

(6) the Director, Business and Strategic Innovation, Facilities and Real Estate Division be requested, to:

(a) 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;

(b) 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) amended recommendation (7) (b) contained in the aforementioned report by adding thereto the following:

"(iv) that the City's Executive Environmental 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.

and renumbered the recommendations so that they now read as follows:

"(1) the Port Lands Green Energy Plan be taken into account in on-going preparation and implementation of the City of Toronto Energy Plan including the Renewable Energy Plan, the City of Toronto Air Quality Action Plan and the Environmental Plan Update;

(2) the City of Toronto continue to document the megawatts of energy saved and economic and air quality benefits accrued due to the City's energy conservation programs and the related reductions in energy demand in City operations;

(3) a report be submitted to the Roundtable on the Environment by Deputy City Manager Fareed Amin in consultation with Deputy City Manager and Chief Financial Officer Joe Pennachetti on the potential for renewable energy generation and use in the City of Toronto, to be completed by September 2006;

(4) the Director, Business and Strategic Innovation, Facilities and Real Estate Division be requested, to:

(a) 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;

(b) 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;";

(5) the Director, Business and Strategic Innovation, Facilities and Real Estate Division, be requested to:

(a) prepare a report for presentation to the Roundtable on the Environment at its meeting on May 29, 2006, on:

(i) alternatives to the 550 megawatt Port Lands Energy Centre including consideration of a smaller facility;

(ii) an interim energy plan and the actions outlined in the 10 point Port Lands Green Energy Plan;

(iii) solid numbers on the difference between energy demand and capacity to meet energy demand in the City of Toronto and numbers on how much energy is used daily and for what purpose;

(iv) clear statements on actions that will lead to reduced energy demand, particularly the demand for electricity, such as reducing the use of conventional air conditioning during times of peak demand; and

(v) more detailed information on the investments required and related energy and financial savings with regard to the Port Land Green Energy Plan;

(b) prepare a report for presentation to the Policy and Finance Committee at its meeting on 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 Environmental 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;

(C) referred the following Recommendation (4) contained in the report (March 27, 2006) from Deputy Mayor Pantalone to the Mayor's Office for discussion with the Province:

> **"(4) Toronto City Council inform Premier McGuinty, the Ontario Minister of Energy, the Ontario Minister of the Environment, the Ontario Minister of Health and the Ontario Minister of Economic Development and Trade about the on-going energy conservation measures at the City of Toronto;"; and**

(D) directed that the following Recommendation (5) contained in the report (March 27, 2006) from Deputy Mayor Pantalone is out of order given that City Council has already taken a position respecting this matter:

> **"(5) Toronto City Council inform Premier McGuinty, the Ontario Minister of Energy, the Ontario Minister of the Environment, the Ontario Minister of Health and the Ontario Minister of Economic Development and Trade of the City of Toronto's opposition to building a 550 megawatt gas-powered generation facility on the Toronto waterfront given the economic, environmental and health benefits demonstrated by energy conservation and continued reductions in energy demand at the City of Toronto;";**

(E) received the report April 5, 2006) from the Chief Corporate Officer; and directed that a copy be forwarded to the Roundtable on the Environment for advice and comment at its meeting scheduled to be held on May 29, 2006; and

(F) requested the Energy Efficiency Office to report to the Round Table on the Environment on May 29, 2006 on how the City of Toronto can facilitate the creation of additional energy sources on a micro level – such as hotels, large office towers- in Toronto; and further whether a model similar to the Better Buildings Partnership could be developed by the city to achieve this goal.

(i) (March 27, 2006) from Deputy Mayor Joe Pantalone advising that the Roundtable on the Environment on February 20, 2006, received a presentation on the Draft Terms of Reference for a Comprehensive Energy Plan for the City of Toronto and the Portlands Green Energy Plan from Jodie Parmar, Director, Business and Strategic Innovation and Richard Morris, Manager, Energy Efficiency Office, Facilities and Real Estate Division; and as Chair of the Roundtable on the Environment, he has been requested by the Roundtable to forward the following recommendations to the Policy and Finance Committee for consideration and approval.

Recommendations:

It is recommended that:

(1) the Port Lands Green Energy Plan be taken into account in on-going preparation and implementation of the City of Toronto Energy Plan including the Renewable Energy Plan, the City of Toronto Air Quality Action Plan and the Environmental Plan Update;

(2) the City of Toronto continue to document the megawatts of energy saved and economic and air quality benefits accrued due to the City's energy conservation programs and the related reductions in energy demand in City operations;

(3) a report be submitted to the Roundtable on the Environment by Deputy City Manager Fareed Amin in consultation with Deputy City Manager and Chief Financial Officer Joe Pennachetti on the potential for renewable energy generation and use in the City of Toronto, to be completed by September 2006;

(4) Toronto City Council inform Premier McGuinty, the Ontario Minister of Energy, the Ontario Minister of the Environment, the Ontario Minister of Health and the Ontario Minister of Economic Development and Trade about the on-going energy conservation measures at the City of Toronto;

(5) Toronto City Council inform Premier McGuinty, the Ontario Minister of Energy, the Ontario Minister of the Environment, the Ontario Minister of Health and the Ontario Minister of Economic Development and Trade of the City of Toronto's opposition to building a 550 megawatt gas-powered generation facility on the Toronto waterfront given the economic, environmental and health benefits demonstrated by energy conservation and continued reductions in energy demand at the City of Toronto;

(6) the Director, Business and Strategic Innovation, Facilities and Real Estate Division be requested, to:

(a) 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;

(b) 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;

(7) the Director, Business and Strategic Innovation, Facilities and Real Estate Division, be requested to:

(a) prepare a report for presentation to the Roundtable on the Environment at its meeting on May 29, 2006, on:

(i) alternatives to the 550 megawatt Port Lands Energy Centre including consideration of a smaller facility;

(ii) an interim energy plan and the actions outlined in the 10 point Port Lands Green Energy Plan;

(iii) solid numbers on the difference between energy demand and capacity to meet energy demand in the City of Toronto and numbers on how much energy is used daily and for what purpose;

(iv) clear statements on actions that will lead to reduced energy demand, particularly the demand for electricity, such as reducing the use of conventional air conditioning during times of peak demand; and

(v) more detailed information on the investments required and related energy and financial savings with regard to the Port Land Green Energy Plan;

(b) prepare a report for presentation to the Policy and Finance Committee at its meeting on 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; and

(iii) the proposals contained in the communication (February 20, 2006) from Fiona Nelson.

(ii) (April 5, 2006) from the Chief Corporate Officer entitled “Status Report on the Energy Plan for Toronto – All Wards” addressing the consumption of electricity and natural gas by the broader Toronto community (“Toronto”), as well as

consumption within Toronto's municipal government corporation ("the City"); and advising that the information contained in this report will be used to aid in the development of the Energy Plan for Toronto.

Recommendation:

It is recommended that this report be received for information.

Councillor Cowbourne declared her interest in this matter in that her husband is employed by the Independent Electricity System Operator, which is responsible for the reliability of the electricity supply in Ontario.

The following Members of Council addressed the Policy and Finance Committee:

- Councillor Paula Fletcher, Toronto-Danforth; and

- Councillor Jane Pitfield, Don Valley West.

City Council – April 25, 26 and 27, 2006

Councillor Cowbourne declared an interest in this Item, in that her husband is employed by an independent electricity system operator which is directly responsible for the sale of hydro electricity in Ontario.

for City Clerk

M. Toft/sb

Monday, March 27, 2006

To: Policy and Finance Committee

From: Deputy Mayor Joe Pantalone, Chair, Roundtable on the Environment

Subject: Development of a Comprehensive City of Toronto Energy Plan

Members of the Policy and Finance Committee,

At the Roundtable on the Environment meeting on February 20, 2006, Jodie Parmar, Director, Business and Strategic Innovation and Richard Morris, Manager, Energy Efficiency Office, Facilities and Real Estate Division, made a presentation on the Draft Terms of Reference for a Comprehensive Energy Plan for the City of Toronto and the Portlands Green Energy Plan.

As Chair of the Roundtable on the Environment, I have been requested by the Roundtable to forward the following recommendations to the Policy and Finance Committee for consideration and approval.

Recommendations:

(1) That the Port Lands Green Energy Plan be taken into account in on-going preparation and implementation of the City of Toronto Energy Plan including the Renewable Energy Plan, the City of Toronto Air Quality Action Plan and the Environmental Plan Update;

(2) That the City of Toronto continue to document the megawatts of energy saved and economic and air quality benefits accrued due to the City's energy conservation programs and the related reductions in energy demand in City operations;

(3) That a report be submitted to the Roundtable on the Environment by Deputy City Manager Fareed Amin in consultation with Deputy City Manager and Chief Financial Officer Joe Pennachetti on the potential for renewable energy generation and use in the City of Toronto, to be completed by September 2006;

(4) That Toronto City Council inform Premier McGuinty, the Ontario Minister of Energy, the Ontario Minister of the Environment, the Ontario Minister of Health and the Ontario Minister of Economic Development and Trade about the on-going energy conservation measures at the City of Toronto.

(5) That Toronto City Council inform Premier McGuinty, the Ontario Minister of Energy, the Ontario Minister of the Environment, the Ontario Minister of Health and the Ontario Minister of Economic Development and Trade of the City of Toronto's opposition to building a 550 megawatt gas-powered generation facility on the Toronto waterfront given the economic, environmental and health benefits demonstrated by energy conservation and continued reductions in energy demand at the City of Toronto.

(6) Request the Director, Business and Strategic Innovation, Facilities and Real Estate Division, to:

(a) 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;

(b) 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;

(7) Request the Director, Business and Strategic Innovation, Facilities and Real Estate Division, to:

(a) prepare a report for presentation to the Roundtable on the Environment at its meeting on May 29, 2006, on:

(i) alternatives to the 550 megawatt Port Lands Energy Centre including consideration of a smaller facility;

(ii) an interim energy plan and the actions outlined in the 10 point Port Lands Green Energy Plan;

(iii) solid numbers on the difference between energy demand and capacity to meet energy demand in the City of Toronto and numbers on how much energy is used daily and for what purpose;

(iv) clear statements on actions that will lead to reduced energy demand, particularly the demand for electricity, such as reducing the use of conventional air conditioning during times of peak demand; and

(v) more detailed information on the investments required and related energy and financial savings with regard to the Port Land Green Energy Plan;

(b) prepare a report for presentation to the Policy and Finance Committee at its meeting on 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; and

(i) the proposals contained in the communication (February 20, 2006) from Fiona Nelson;

The province is moving forward with their plans to address energy needs, and it is essential that the City of Toronto has a coherent position that takes into account our efforts on conservation, demand management, and renewable energy. There is an urgent need to develop a comprehensive energy plan for the City of Toronto – a plan that incorporates renewable energy, conservation and demand management, and a realistic projection of the city's needs. I appreciate your consideration and approval of these recommendations.

Sincerely,

Deputy Mayor Joe Pantalone
Chair, Roundtable on the Environment

February 27, 2006

To: Deputy Mayor Pantalone
(Trinity-Spadina, Ward 19)

From: Roundtable on the Environment

Subject: **City of Toronto Energy Plan**

The Roundtable on the Environment requested the Chair to:

(1) request the Director, Business and Strategic Innovation, Facilities and Real Estate Division, to:

(a) 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;

(b) 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;

(c) consider preparing a further report for presentation to the Policy and Finance Committee at its meeting on April 11, 2006, on:

(i) suggested solutions to address peak period (July and August, 2006) requirements and detailing the existing capacity and demand;

(ii) comments on the Independent Electricity System Operator message that an additional 250 megawatts are needed by 2008 and determine if 350 megawatts of savings can be accomplished by 2008 using the 10 Point Green Plan for the Port Lands;

Mayor
DAVID MILLER

February 10, 2006

Shafiq Qaadri, MPP
Chair, Standing Committee on Justice
Room 1405, Whitney Block
Queen's Park
Toronto, Ontario
M7A 1A2
Fax: 416-325-3505

Dear Mr. Qaadri:

I am writing to comment on Bill 21 – Energy Conservation Responsibility Act that is under consideration by the Standing Committee on Justice Policy.

On February 1, 2006, I expressed Toronto's commitment to work with the province to find a solution to meeting future energy needs – a solution featuring not only new generation and energy conservation with aggressive demand management. We are confident that there are realistic measures that can be taken with appropriate provincial funding that would significantly reduce our energy consumption and assist with peak load management.

Accordingly, we welcome the recognition of the important role of municipal governments in achieving our respective energy conservation targets. The City of Toronto, on the threshold of a new relationship with the province based on mutual respect and cooperation as embodied in the recently introduced Bill 53, should be treated as a partner in achieving shared goals. We support this new legislation, but caution that without working in full cooperation with the City the intent of the legislation might not be realized.

The City is an acknowledged leader in energy conservation. For example, we have progressive purchasing policies with the goal of conserving energy and have taken important steps to ensure that city properties are designed and constructed to meet the Leadership in Energy and Environmental Design (LEED) Silver standard as a minimum. We also have a corporate Energy Management Program and a Green Fleets Transition Plan to reduce the consumption of fossil fuels. On March 3, 2005, all parties in the Ontario Legislature supported and passed a Resolution for a province-wide Better Buildings Partnership (BBP). The BBP is a City of Toronto program which has implemented energy retrofits in more than 500 buildings resulting in 51 Megawatts of demand reduction and as well as carbon dioxide reductions of over a million tonnes.

Based on our experience with conservation and new relationship with the province, I would like to share some concerns we have with the proposed legislation. Specifically, as it relates to municipal autonomy, flexibility and partnership.

We have specific concerns with Section 3 (2) of the legislation that provides individuals the authority to use energy saving devices even if they are prohibited by municipal by-law. This

(2) request the Policy and Finance Committee to request the Director, Business and Strategic Innovation, Facilities and Real Estate Division, to:

(b) prepare a report for presentation to the Roundtable on the Environment at its meeting on May 29, 2006, on:

(vi) alternatives to the 550 megawatt Port Lands Energy Centre including consideration of a smaller facility;

(vii) an interim energy plan and the actions outlined in the 10 point Port Lands Green Energy Plan;

(viii) solid numbers on the difference between energy demand and capacity to meet energy demand in the City of Toronto and numbers on how much energy is used daily and for what purpose;

(ix) clear statements on actions that will lead to reduced energy demand, particularly the demand for electricity, such as reducing the use of conventional air conditioning during times of peak demand; and

(x) more detailed information on the investments required and related energy and financial savings with regard to the Port Land Green Energy Plan;

(b) prepare a report for presentation to the Policy and Finance Committee at its meeting on 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; and

(ii) the proposals contained in the communication (February 20, 2006) from Fiona Nelson;

(3) consider placing the following ideas for discussion at the May 5, 2006, Roundtable on the Environment Workshop meeting:

(a) the context and broader issues of energy planning for the City such as innovation and environmental leadership and desirable lifestyles, type of jobs and industry the City wants to attract or develop; and

(b) innovative ideas for the new Environmental Plan; and

(4) forward a communication to Mayor David Miller advising of the comments, suggestions and recommendations made on the City of Toronto Energy Plan by the Roundtable on the Environment.

Background:

At the Roundtable on the Environment meeting on February 20, 2006, Jodie Parmar, Director, Business and Strategic Innovation and Richard Morris, Manager, Energy Efficiency Office, Facilities and Real Estate Division, made a Power Point presentation on the Draft Terms of Reference for a Comprehensive Energy Plan for the City of Toronto, and provided the following points of information:

(1) the purpose of the Draft Terms of Reference for a Comprehensive Energy Plan for the City of Toronto is to:

(a) provide guidelines for the development of a Comprehensive Energy Plan for the City;

(b) articulate the City's needs for an integrated energy plan that ensures reliability of supply through the use of both demand and supply side sources; and

(c) address the key issues, such as goals, objectives, strategies, timing, funding and resourcing; and

(d) ensure that the energy plan conforms closely with the values and wishes of residents of Toronto and the City's Environmental Plan; and

(2) the Terms of Reference for the Comprehensive Energy Plan were 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.

(3) the goal of the City's Comprehensive Energy Plan include but, are not limited to the development, quantification of projected savings and prioritization of initiatives identified below:

(a) develop high, moderate and low demand load forecast scenarios and identify Toronto's future energy needs for the short, medium and long term;

(b) 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;

(c) 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;

(d) 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;

(e) identify the preferred options for meeting the City's future energy needs after considering relevant environmental, economic and equity (including community) concerns;

(f) identify the preferred options for meeting the City's 15% energy reduction target in corporate operations and facilities; and

(g) explore opportunities to leverage synergies between City-owned businesses to simultaneously maximize shareholder value and attain comprehensive energy program targets.

The Roundtable on the Environment held a general discussion on the issue of the City of Toronto Energy Plan and provided the following comments:

(1) expand consultation on the Energy Plan including consultation with the Toronto District School Board, the Toronto Catholic District School Board and the Toronto Transit Commission;

(2) engage public using existing communication tools such as notices in Toronto Hydro bills and advertising on City bus shelters and litter bins.

(3) state goals of the Terms of Reference more clearly (e.g. reliable energy, affordable energy, energy that minimizes impact on the environment, commitment to soft energy);

(4) include more quantitative indicators of energy use including minimum and maximum energy demand and energy production capacities;

(5) clarify that this first phase of the Energy Plan is focused primarily on the production of electricity as opposed other forms of energy;

(6) provide 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;

(7) identify solutions that will reduce energy demand in the short-term;

(8) address issue of heat island effect and mitigation measures such as green roof implementation. Refer to Environment Canada study that links 1% reduction in heat island effect with 4% reduction in energy demand; and

(9) consider development and implementation of interim energy plan to address current problems, pending the development and implementation of larger framework energy planning.

The Roundtable on the Environment also had before it the attached reports and communications, as noted:

(1) Draft Terms of Reference for a Comprehensive Energy Plan for the City of Toronto

(a) Power Point presentation from Richard Morris, Manager, Energy Efficiency Office, Facilities and Real Estate Division, on the Draft Terms of Reference for a Comprehensive Energy Plan for the City of Toronto; and

(b) Briefing Note (February 17, 2006) from Richard Morris, Energy Efficient Office, Facilities and Real Estate Division, advising that the draft Terms of Reference proposes guidelines for the development of a Comprehensive Energy Plan for the City of Toronto; and that 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 terms of reference for a Comprehensive Energy Plan for Toronto; and further that City Council 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.

(2) Port Lands Green Energy Plan

Report (February 16, 2006) from the Executive Director, Technical Services Division advising that the purpose of the report is to provide information relative to the Port Lands Green Energy Plan.

Recommendations:

It is recommended that:

(1) the Port Lands Green Energy Plan be taken into account in on-going preparation and implementation of the City of Toronto Energy Plan including the Renewable Energy Plan, the City of Toronto Air Quality Action Plan and the Environmental Plan Update;

(2) the City of Toronto continue to document the megawatts of energy saved and economic and air quality benefits accrued due to the City's energy conservation programs and the related reductions in energy demand in City operations;

(3) a report to the Roundtable on the Environment by Deputy City Manager Fareed Amin in consultation with Deputy City Manager and Chief Financial Officer Joe Pennachetti on the potential for renewable energy generation and use in the City of Toronto, to be completed by September 2006;

(4) Council inform the Ontario Minister of Energy, the Ontario Minister of the Environment, the Ontario Minister of Health and the Ontario Minister of Economic Development and Trade about the on-going energy conservation measures at the City of Toronto as well as a summary of the City of Toronto's position relating to building a 550 megawatt gas-powered generation facility on the Toronto waterfront given the economic, environmental and health benefits demonstrated by energy conservation and continued reductions in energy demand at the City of Toronto.

(3) Ontario Energy Conservation Responsibility Act

(a) Briefing Note (February 7, 2006) from the Senior Environmental Planner, Environmental Services, Technical Services Division, advising that Bill 21, the *Energy Conservation Responsibility Act*, was introduced to the Ontario Legislature in November 2005. The Bill includes the *Energy Conservation Leadership Act*, which has implications for Ontario municipalities, including the City of Toronto; and

(b) Communication (February 10, 2006) from Mayor David Miller to Shafiq Qaadri, MPP, Chair, Standing Committee on Justice, providing comments on Bill 21, *the*

Energy Conservation Responsibility Act, that is under consideration by the Standing Committee on Justice Policy.

(4) Ontario Power Authority's Supply Mix and Advice Recommendations

(a) Briefing Note (February 7, 2006) from the Senior Environmental Planner, Environmental Services, Technical Services Division, advising that in May 2005, the Ministry of Energy directed the Ontario Power Authority to develop a comprehensive, long-term plan for electricity that supports the provincial government objectives of energy conservation, increased development of renewable energy resources, and phase-out of coal-fired generation; and

(b) Communication (February 3, 2006) from Dr. David McKeown, Medical Officer of Health, addressed to The Honourable Dalton McGuinty, Premier of Ontario, providing comments on the Ontario Power Authority's (OPA's) December 2005 report entitled "Supply Mix Advice Report".

(5) Communication (February 20, 2006) from Councillor Fletcher, Ward 30 – Toronto-Danforth, forwarding a communication from Fiona Nelson addressed to the Roundtable on the Environment, an outlining an alternative to the Province's plan to build a large power plant in the Port Lands.

A paper copy of the Power Point presentation from Richard Morris, Manager, Energy Efficiency Office, Business and Strategic Innovation, Facilities and Real Estate Division, is on file in the City Clerk's Office, North York Civic Centre.

Committee Secretary

Frank Baldassini/FB
Item 5

Attachment

c: Deputy City Manager Fareed Amin

Deputy City Manager and Chief Financial Officer
Executive Director, Technical Services Division
Executive Director, Facilities and Real Estate Division
Director, Business and Strategic Innovation, Facilities and Real Estate Division
Manager, Energy Efficiency Office, Facilities and Real Estate Division
Manager, Environmental Services, Technical Services Division
Senior Environmental Consultant, Environmental Planning and Support, Environmental Services, Technical Services Division

TORONTO

Briefing Note

Bruce Bowes, P. Eng.
Chief Corporate Officer

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100 Queen Street West
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bbowes@toronto.ca
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Terms of Reference for Comprehensive Energy Plan

Issue / Background:

The draft Terms of Reference (copy attached) proposes 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 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.

The goals of the City's Comprehensive Energy Plan include but, are not limited to the development, quantification of projected savings and prioritization of initiatives identified below:

- develop high, moderate and low demand load forecast scenarios and identify Toronto's future energy needs for the short, medium and long term;

- 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;

- 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;

- 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;

- identify the preferred options for meeting the City's future energy needs after considering relevant environmental, economic and equity (including community) concerns;

- identify the preferred options for meeting the City's 15% energy reduction target in corporate operations and facilities; and

- explore opportunities to leverage synergies between City-owned businesses to simultaneously maximize shareholder value and attain comprehensive energy program targets.

A necessary condition for the success of the Comprehensive Energy Plan is adequate conservation funding from the Province and the Ontario Power Authority.

A holistic approach will be taken to address the energy infrastructure and delivery issues as well as reliability and energy security. All areas addressed should be accompanied by a financial overview and cost estimates.

Key Points:

The Energy Efficiency Office, Business and Strategic Innovation, Facilities and Real Estate has been assigned the lead on this initiative.

A key feature of the Comprehensive Energy Plan will be its integrated development in consultation with internal and external stakeholders (e.g. Ministry of Energy, Ontario Power Authority, Hydro One, etc.).

The Sustainable Energy Business Plan is one of the City's methodologies for facilitating the implementation of recommendations of the Environmental Plan. This business plan is updated periodically. Request for Proposal No. 9119-05-7417 was released to the public on November 15, 2005 and the successful proponent, IndEco Strategic Consulting Inc., was engaged on February 10, 2006.

The Deputy City Manager and Chief Financial Officer will report to the June 20, 2006 meeting of the Policy and Finance Committee to present the Comprehensive 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

Table of Contents

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.

TORONTO STAFF REPORT

February 16, 2006

To: Roundtable on the Environment

From: William G. Crowther, Executive Director, Technical Service

Subject: Port Lands Green Energy Plan

Purpose:

The purpose of the report is to provide information relative to the Port Lands Green Energy Plan

Financial Implications and Impact Statement:

There are no direct financial implications from this report.

Recommendations:

It is recommended that:

(1) the Port Lands Green Energy Plan be taken into account in on-going preparation and implementation of the City of Toronto Energy Plan including the Renewable Energy Plan, the City of Toronto Air Quality Action Plan and the Environmental Plan Update;

(2) the City of Toronto continue to document the megawatts of energy saved and economic and air quality benefits accrued due to the City's energy conservation programs and the related reductions in energy demand in City operations;

(3) a report to the Roundtable on the Environment by Deputy City Manager Fareed Amin in consultation with Deputy City Manager and Chief Financial Officer Joe Pennachetti on the potential for renewable energy generation and use in the City of Toronto, to be completed by September 2006;

(4) Council inform the Ontario Minister of Energy, the Ontario Minister of the Environment, the Ontario Minister of Health and the Ontario Minister of Economic Development and Trade about the on-going energy conservation measures at the City of Toronto as well as a summary of the City of Toronto's position relating to building a 550 megawatt gas-

powered generation facility on the Toronto waterfront given the economic, environmental and health benefits demonstrated by energy conservation and continued reductions in energy demand at the City of Toronto.

Background:

At the January 23rd, 2006 Policy and Finance Committee meeting of City Council, staff were directed to provide information relative to the Port Lands Green Energy Plan to the February 20th meeting of the Roundtable on the Environment.

As a result of the Province of Ontario's earlier proposal to site a 550 megawatt (MW) gas-fired power plant in the Port Lands district on the Toronto waterfront (the Portlands Energy Centre), Deputy Mayor Sandra Bussin and Councillor Paula Fletcher commissioned a four-person panel of energy experts to evaluate and develop alternatives to the proposal. The evaluation team was chaired by Peter Tabuns and included Keith Stewart, Melinda Zytaruk and Brent Kopperson. The expert panel released its report, entitled *Port Lands Green Energy Plan – More than 750 Mega Watts of Power*, on January 5th, 2006.

The Portlands Energy Centre (PEC) first attracted public attention in late 2002 when TransCanada Energy Incorporated and Ontario Power Generation began public consultation on a proposed 550 megawatt combined cycle co-generation facility on the Toronto waterfront near the mothballed Hearn Generating Station.

The initial 2003 PEC proposal indicated that the facility would produce electricity as well as steam heat for district heating. This co-generation aspect of the plant was subsequently dropped when three years of discussions with Enwave - the largest district heating entity in Toronto- failed to result in an agreement for the sale of steam.

In December, 2005 the Independent Electricity System Operator warned that the city core faced the risk of rolling blackouts as early as 2008 unless 250 megawatts of generating capacity could be built in central areas. This prediction brought a sense of urgency to discussions about the PEC and potential alternatives. The Province of Ontario has suggested that building and bringing PEC on-line as soon as possible would ensure peak load demand was met in the City of Toronto for the foreseeable future.

In the past, the City opposed the Portlands Energy Centre proceeding without co-generation (Works Committee February 1, 2005). In addition, Toronto Public Health indicated that emissions from PEC are "anticipated to increase existing ambient air pollutant levels in the local community" while pointing out that "current air pollutant levels in Toronto are responsible for significant excess illness and mortality" (Works Committee May 19, 2005).

Technical Services have noted (Works Committee May 19, 2005) that there would be potential water quality issues associated with the thermal plume from the plant and that reducing or eliminating co-generation capacity would result in more emissions per unit of energy produced. It was also estimated that since the wind turbine at Exhibition Place produces enough electricity

to light 250 homes, eight similar sized wind turbines could generate sufficient electricity to light 2,000 homes.

Comments:

The Port Lands Green Energy Plan (Attachment 1) is a 10-point plan that recommends reducing energy demand through conservation and more efficient use and delivery of energy. The plan also encourages increased use of energy from renewable sources. The 10 recommendations are consistent with recommendations in the City of Toronto Environmental Plan and with the City's energy planning, energy conservation and renewable energy initiatives.

Energy Planning:

The Province of Ontario's decision to proceed with the Portlands Energy Centre and the release of the Port Lands Green Energy Plan coincide with the development and eventual implementation of the City of Toronto's new Energy Plan, that will set out short-, medium- and long-term measures, including energy conservation and renewable energy use, to ensure a stable and reliable supply of energy. The Energy Plan will also provide a clear context for making immediate and long-range decisions relating to energy use and City of Toronto operations. The City of Toronto Energy Plan includes the City's Renewable Energy Action Plan and is linked to work on the Air Quality Action Plan and the 2006 Environmental Plan Update as well as the Green Economic Development Strategy.

Energy Conservation:

The City of Toronto and Toronto Hydro continue to demonstrate that significant energy savings are possible through conservation measures and that energy conservation brings with it financial savings as well as improved air quality and related health benefits.

As illustrated in Attachment 2, current energy efficiency initiatives at city-owned buildings, partnerships with the community through the Better Building Partnership and Better Building New Construction Program and the use of innovative technologies such as Enwave's Deep Lake Water Cooling will result in close to 200 MW of reduced energy demand by the end of this year. An additional energy savings of a minimum of 120 MW will occur by late 2007 based on the implementation of funded existing programs. Significant opportunities for reduction in energy demand exist over the longer term through initiatives such as the build out of the city's green roof potential, expanded customer base for Enwave's Deep Lake Water Cooling and funding for expansion of existing programs such as the Better Building New Construction Program and the transmission optimizer project of Toronto Water.

The City of Toronto has a number of programs under way that complement the recommendations in the Port Lands Green Energy Plan. For example, Recommendations 1 and 2 *(energy efficiency for new and existing buildings)* are addressed by programs such as the Better Buildings Partnership, the Better Buildings New Construction Program, the Energy Efficiency at Work program, the traffic signal LED replacement program; the Energy Retrofit Program that is retrofitting almost all City-owned community centres, fire halls and civic centres and the green

roofs program. These initiatives are reducing the City's emissions from the use of fossil fuels and saving significant megawatts of energy annually.

The City of Toronto has also proposed changes to the Ontario Building Code that would make the Code more compatible with energy efficiency measures and with the use and production of energy from renewable sources.

Recommendation 4, *Cool City Initiatives*, is consistent with the ongoing development and subsequent implementation of the City's Green Development Standards and with the green roofs policy and with accelerated implementation of its commitment to double the extent of Toronto's tree canopy.

An overview of City of Toronto and Toronto Hydro recent energy savings and economic benefits is presented in Attachment 2.

Increased Reliance on Renewables

Recommendation 5, *invest in renewable energy projects*, is supported by the work of the City of Toronto's Renewable Energy Action Planning Working Group, which has the task of reporting to the Roundtable on the Environment and the City's Executive Environment Team on a renewable energy action plan that includes targets and timelines for increasing the use and the potential production of renewable energy in the City of Toronto. The City does not know the extent of its potential and capacity to produce renewable energy but since there is currently relatively little action on renewable energy implementation, the expansion of use of renewable energy technologies in Toronto offers the promise of significant reduction in energy demand from fossil fuel and other conventional energy sources.

Use of Methane Gas

Recommendation 7 suggests using gas burned at Ashbridges Bay Treatment Plan to make electricity in addition to drying sludge and to use methane from sewage sludge to power the process. The City of Toronto currently uses the methane gas during winter to fire heating for plant buildings and related processes. The only surplus methane at this time is during certain periods throughout the summer. Toronto Water is investigating options for maximizing the use of methane gas generated at the plant on a year-round basis. This includes consideration of the potential to generate electricity or offset existing and planned natural gas use by wastewater treatment processes.

Toronto Waterfront Revitalization:

Toronto Waterfront Revitalization Corporation has committed to making the city's waterfront both a national and global model for sustainability. The TWRC's sustainability policy, as outlined in its Sustainability Framework, emphasizes the approach that the waterfront can and will set new standards for best practices not only in Canada but throughout the world and it will do so in a manner that improves the health of the natural environment and the strength of the local, regional, provincial and national economies.

Robert Fung, chairman of the Toronto Waterfront Revitalization Corporation, has said he accepts that "Toronto needs electricity, but a big new power plant is at odds with the corporation's efforts to make the waterfront an attractive place to live, visit and work" (Toronto Star, February 11, 2006). The TWRC has indicated that a smaller-scale plant with co-generation capacity located inside the Hearn generating station is more compatible with the Corporation's vision of vibrant, accessible, sustainable communities on Toronto's waterfront.

Conclusions:

The Port Lands Green Energy Plan is in-line with current and on-going City of Toronto environmental and economic objectives and identifies initiatives that, if implemented, could contribute to reducing the need for a 550 megawatt energy facility in the Port Lands. The Port Lands Green Energy Plan is also consistent with sustainable energy use and related sustainable community and economic development objectives for the Toronto waterfront.

The City of Toronto's current conservation measures will result in close to 200 MW of reduced energy demand by the end of this year. The continuation of existing programs will reduce energy demand by least a further 120 MW by the end of 2007. Additional untapped energy savings could be realized through the implementation of innovative new programs, greater use of renewable energy and the accelerated implementation of longer term programs that have energy conservation benefits.

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List of Attachments:

Attachment 1: Port Lands Green Energy Plan
Attachment 2: City of Toronto Conservation Measures and Related Benefits

Attachment 1: 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 Keith Stewart Melinda Zytaruk Brent Kopperson

Attachment 2 **City of Toronto Energy Conservation Measures and Related Benefits**

Program or Project	**$ Spent**	**MW Saved (annually)**	**$ Saved (per year)**	**Future MW savings**
Arenas Retrofit	10,200,000	.614	1,350,000	See column 2
Better Building New Construction Program	650,000	4.3	n/a	4 (approximate- per 20 buildings)
Better Building Partnership	150,000,000	51	16,980,000	51 (plus any new retrofits)
Civic Centre Retrofit	4,200,000	.411	525,000	See column 2
Enwave Deep Lake Water Cooking	177,859,776	36 MW (generated)	n/a	25MW (additional capacity)
Exhibition Place Energy Retrofit	6,600,000	1.756	873,000	See column 2
Exhibition Place Photovoltaic	500,000	.1 (generated)	16000	1 (according to expansion plan)
Fire Halls Energy Efficiency Retrofit	2,700,000	.25	300,000	See column 2
Green Roofs	80,000	n/a	21,560,000 (potential at .75 build out)	114.6 (.75 build out)
LED conversion	3,500,000 (total for 2004 & 2005)	.959	1,800,000	7.3 (at full replacement)
Toronto Community Housing Corporation appliance renewal	6,400,000	n/a	500,000	n/a
Toronto Hydro Programs	21,440,000 since 2004	**134** since 2004	n/a	**116** by Sept 2007
Transmission optimizer project (water pump efficiency)	n/a	n/a	n/a	7 (requires investment of $5 million)

Energy Conservation Responsibility Act (Bill 21)

Issue/Background:

Bill 21, the Energy Conservation Responsibility Act, was introduced to the Ontario Legislature in November 2005. The Bill includes the **Energy Conservation Leadership Act**, which has implications for Ontario municipalities, including the City of Toronto.

The Energy Conservation Leadership Act will **require municipalities to prepare, implement, and report on annual energy conservation plans**, including prescribed energy conservation targets. The Act will also **require municipalities to consider energy conservation and energy efficiency in their acquisition of goods and services and when making capital investments**.

Bill 21 also provides local electricity distribution companies with the legal authority to install 800,000 smart meters in Ontario residences and small commercial customers by the end of 2007, and to collect and manage the data flowing from the smart meters. Bill 21 also amends the Conservation Authorities Act to permit Conservation Authorities to sell water power generated on their lands. Both the smart metering and Conservation Authorities aspects of Bill 21 are not of direct relevance to the City of Toronto's operating divisions, but will have implications for Toronto Hydro and Toronto and Region Conservation.

Key Points:

1. **The City of Toronto has already undertaken a number of policy initiatives that will help to meet the requirements of the Energy Conservation Leadership Act:**

   - Purchasing and Materials Management Division (PMMD) adheres to the Environmentally Responsible Purchasing Policy, which was adopted by City Council in October 1999. In the policy, energy efficiency is listed as one of the criteria that should be considered in the acquisition of goods and services. The policy stipulates that bidders are to be made aware of the policy, and that the policy is to be applied in the evaluation of all quotations, proposals and tenders received in determining the successful bidder or proponent.

   - PMMD is an active participant in the "GIPPER" Network (Governments Incorporating Procurement Policies to Eliminate Refuse). This is a regional network of government agencies that produces guidelines for environmental purchasing. The City's ongoing participation in this network will ensure that Toronto has access to the most progressive energy efficiency guidelines.

   - Facilities and Real Estate Division recommended adopting the Leadership in Energy and Environmental Design (LEED) Silver standard as an interim sustainable energy efficiency guideline for City-owned buildings that are being renovated, retrofitted, or newly constructed. This standard is in keeping with the recommendations of the Province's Conservation Action Team.[1]

1 *Building a Conservation Culture in Ontario: Report of the Conservation Action Team to the Honourable Dwight Duncan, Minister of Energy*: May 19, 2005, Recommendation #15, p.23.

- The Energy Management Program approved by Council in 2003 provides a framework for reducing energy use in City facilities and requires the Energy and Waste Management Office to report annually on progress made.

- Fleet Services Division is implementing the Green Fleets Transition Plan, the implementation of which will help the City reduce the amount of fossil fuel consumed by the City's fleet, and also reduce harmful emissions by 23 per cent.

2. **Toronto's energy efficiency targets will have to align with the "prescribed energy targets" referred to in Bill 21.**

   The Ministry of Energy has indicated that these prescribed targets will be determined cooperatively through consultations with public agencies, and that there will be some flexibility in allowing municipalities to set their own targets. Toronto's existing energy targets are as follows:

   - A 15 percent reduction in energy use in all City facilities from 2000 levels, by 2005;
   - Commitment to purchase 25 percent of the City's energy needs through green power by 2005;
   - A 20 percent reduction in greenhouse emissions from 1990 levels by 2005.

   These targets already meet or exceed the targets that the province has set for itself, which bodes well for future negotiations with the province. It is important to note that these targets will incorporate other forms of energy use (e.g., transportation and heating fuels) in addition to electricity use. What is not clear at this point is how or if public agencies will be penalized for not meeting their prescribed targets.

3. **Under the Energy Conservation Leadership Act, the City will be required to report annually on its energy conservation plan.**

   The Energy and Waste Management Office has provided City Council with progress reports on implementation of the Energy Management Program mentioned above. Efforts to report on the City's energy conservation measures will be further enhanced by the greenhouse gas inventory currently being conducted by Environmental Services. This inventory will provide a baseline against which reductions in both energy use and greenhouse gas emissions can be monitored. However, ongoing monitoring and reporting on energy conservation targets will need to be mindful of the requirements of the Act, which include:

   - an itemized description of the public agency's significant energy-consuming technologies and operations;

   - a summary of annual energy usage for each of the public agency's technologies and operations;

   - a description of current and proposed activities and measures to conserve the energy used by the public agency's technologies and operations;

   - a summary of the progress and achievements in energy conservation and other reductions since the previous year's report.

Conclusion:

Toronto has many initiatives under way that are compatible with the intentions of the Energy Conservation Leadership Act. However, the degree to which these initiatives will meet the requirements of the Act is not known at this point. As a result, the City of Toronto has written a letter (see attachment) to the Ministry of Energy asking to work in partnership with the Province in developing the regulations that will accompany the Act to ensure that municipal autonomy is protected, that there is flexibility in interpretation and implementation of the Act, and that the Province works in partnership with the City of Toronto, rather than taking a prescriptive approach in defining and enforcing the regulations.

Prepared by: **Kim Peters, Senior Environmental Planner**
Environmental Services Section
Technical Services Division

Circulated to: **Members of the Roundtable on the Environment**
Fareed Amin, Deputy City Manager

Further information: **Kim Peters**
(416) 392-1848

Date: **February 7, 2006**

Attachment: **Letter from Mayor David Miller to Shafiq Qaadri**

BRIEFING NOTE (DRAFT)

Ontario's Integrated Power System Plan – Supply Mix

Issue/Background:

In May 2005, the Ministry of Energy directed the Ontario Power Authority to develop a comprehensive, long-term plan for electricity that supports the provincial government objectives of energy conservation, increased development of renewable energy resources, and phase-out of coal-fired generation. In response, the OPA provided the *Supply Mix Advice Report* in December 2005. The Report presents options for the future development of Ontario's electricity system, including the following key recommendations:

Conservation and Demand Management	• An immediate goal of a 5% reduction in demand by 2007, but it is possible that Ontario can achieve greater reductions over the long term. Long-term targets will be addressed by the Chief Energy Conservation Officer at a future date.
New Renewable Energy Capacity	**The future supply mix should include:** • **Wind Energy**: up to 5,000 MW by 2025 (an increase of 3,600 MW over current procurements), which represents 15% of the supply mix. • **Water Power**: up to 1,500 MW by 2025 (an increase of 1,350 over current procurements). • **Hydro Imports:** up to 1,250 MW. • **Biomass:** up to 500 MW by 2025 (an increase of 470 MW over current procurements). This includes capture of methane from municipal landfills and wastewater treatment plants. • **Solar Photovoltaic**: up to 40 MW
Nuclear Power	• Nuclear generation should amount to between 12,900 and 15,900 MW by 2025. With current generation capacity estimated at 3500 MW, this will mean up to 12,400 MW of additional nuclear generation capacity will have to be added
Natural Gas	• Natural gas should amount to 1,500 MW by 2025 through a combination of fuel cells and distributed generation.
Gasification	• Coal-handling facilities at coal-fired plants should remain in place in case gasification becomes economically and environmentally feasible. Up to 250 MW should be included in supply mix scenarios.
Coal-fired Generation	• Ensure that the phase-out of coal-fired generation is supported by reliable alternatives.

The Supply Mix Report has significant implications for the City of Toronto as well as other municipalities in the Province of Ontario:

Key Points:

1. Nuclear Power

1.1 In July 2004, Toronto City Council passed a resolution requesting that the Government of Ontario phase out coal-fired power plants by combination of measures, including conservation and demand management, renewable energy sources, and small scale high-efficiency natural gas-fired cogeneration power plants, rather than by nuclear energy.

1.2 The continued dominance of nuclear power proposed in the Supply Mix Report means ongoing environmental and health risk for Ontario and Toronto residents from both nuclear waste transportation and storage, and nuclear generation facilities. The Supply Mix Report supports OPG's decision not to proceed with refurbishing Pickering Units 2 and 3 (due to a weak business case), but other refurbishments and new builds are a key component of the power supply plan. Any expansion of nuclear capacity in the province needs to take into account the potential environmental and health risks as well as the added costs that municipalities will have to incur to meet the emergency preparedness requirements imposed on them by the province. In addition, any location of new nuclear generating stations is likely to be strongly opposed by local communities.

1.3 As indicated in the attached letters from Toronto's Medical Officer of Health, the increased reliance on nuclear energy is not supported by the City of Toronto, and it could have serious environmental and health consequences, and should therefore be subject to a health impact assessment. This approach is supported by several non-governmental organizations (i.e., Greenpeace, Pembina Institute and David Suzuki Foundation) who are concerned that the proposed supply mix will not be subject to an environmental assessment (EA). Only specific power projects will be subject to an EA, and the Supply Mix Report suggests that "timely decisions" are necessary because of the long lead time associated with planning and constructing new nuclear facilities.

2. Renewable Energy

2.1 The City of Toronto and other municipalities can play a role in generating power from renewable sources, especially those relating to biomass (including biogas). Toronto's methane gas capture and destruction projects at the Brock West, Beare and Keele Valley landfill sites already produce a total of 30 MW of electricity.

2.2 The City has the potential to increase its biogas generating capacity through an expanded Source-Separated Organics (SSO) Processing System. The City is in the early stages of a planning study, one of the objectives of which is to ensure that the biogas produced through anaerobic digestion of organic wastes is put to beneficial use. Currently there are no estimates for the amount of power that could be produced through and expanded SSO Processing System, but there is potential.

2.3 A Renewable Energy Working Group has been formed within the City of Toronto to help explore ways that the City can respond to the increased opportunities for renewable energy production in the province.

3. Conservation and Demand Management (CDM)

3.1 The Supply Mix Report appears not to have been prepared in tandem with a report from the Chief Energy Conservation Officer that fully explores the potential for CDM in the province. This gives the appearance that CDM is not a priority for the provincial government; that providing additional power is more important than conserving existing resources.

3.2 As pointed out by the Medical Officer of Health in the attached letter, CDM provides the greatest environmental health benefit of all the energy supply options available to Ontario.

Conclusions:

Although the health impacts of phasing out coal-fired power are likely to be positive, there are significant environmental and health risks associated with the proliferation of nuclear power. As a result, the Ministry of Energy should consider subjecting the supply mix plan to full environmental, health and social impact assessments.

The proposed supply mix calls for increased development of renewable energy as well as significant conservation and demand management (CDM) in the province, and municipalities should be seen as valuable partners in delivering both renewable energy and CDM.

Prepared by: **Kim Peters, Senior Environmental Planner**
Environmental Services Section
Technical Services Division

Circulated to: **Members of the Roundtable on the Environment**

Further information: **Kim Peters**
(416) 392-1848

Date: **February 7, 2006**

Mayor
DAVID MILLER

February 10, 2006

Shafiq Qaadri, MPP
Chair, Standing Committee on Justice
Room 1405, Whitney Block
Queen's Park
Toronto, Ontario
M7A 1A2
Fax: 416-325-3505

Dear Mr. Qaadri:

I am writing to comment on Bill 21 – Energy Conservation Responsibility Act that is under consideration by the Standing Committee on Justice Policy.

On February 1, 2006, I expressed Toronto's commitment to work with the province to find a solution to meeting future energy needs – a solution featuring not only new generation and energy conservation with aggressive demand management. We are confident that there are realistic measures that can be taken with appropriate provincial funding that would significantly reduce our energy consumption and assist with peak load management.

Accordingly, we welcome the recognition of the important role of municipal governments in achieving our respective energy conservation targets. The City of Toronto, on the threshold of a new relationship with the province based on mutual respect and cooperation as embodied in the recently introduced Bill 53, should be treated as a partner in achieving shared goals. We support this new legislation, but caution that without working in full cooperation with the City the intent of the legislation might not be realized.

The City is an acknowledged leader in energy conservation. For example, we have progressive purchasing policies with the goal of conserving energy and have taken important steps to ensure that city properties are designed and constructed to meet the Leadership in Energy and Environmental Design (LEED) Silver standard as a minimum. We also have a corporate Energy Management Program and a Green Fleets Transition Plan to reduce the consumption of fossil fuels. On March 3, 2005, all parties in the Ontario Legislature supported and passed a Resolution for a province-wide Better Buildings Partnership (BBP). The BBP is a City of Toronto program which has implemented energy retrofits in more than 500 buildings resulting in 51 Megawatts of demand reduction and as well as carbon dioxide reductions of over a million tonnes.

Based on our experience with conservation and new relationship with the province, I would like to share some concerns we have with the proposed legislation. Specifically, as it relates to municipal autonomy, flexibility and partnership.

We have specific concerns with Section 3 (2) of the legislation that provides individuals the authority to use energy saving devices even if they are prohibited by municipal by-law. This

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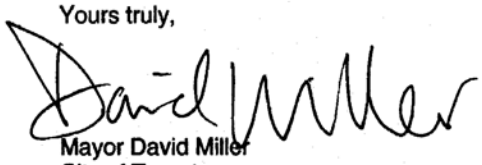
aspect of the legislation demonstrates a lack of respect for municipal authority and we therefore recommend that Section 3 (2) be struck out. By-laws are developed to address specific concerns and the development of by-laws goes through public consultation. If a citizen is concerned that a by-law impedes energy conservation, mechanisms are in place to appeal the by-law.

Flexibility is required regarding the proposed energy conservation plans and purchasing policy. Regarding Section 4 (1) of the legislation, we will be requesting that through regulation, the energy conservation plans be required every two to three years as opposed to annually. This would allow us to build the capacity internally and to ensure that any new initiatives can be reported. We also have a progressive purchasing policy based on sound environmental principles and believe that the province if it adopted a role in this regard should simply set minimum standards and not be prescriptive.

Partnership is also important when implementing the smart meter component of this legislation. As providers of affordable housing and social assistance there could be significant implications for the City regarding smart meters. The impact this has on providers of affordable housing deserves it own full consultation process. Low income residents in the City who own or rent homes that will be affected by the introduction of smart meters should also be given due consideration.

The City of Toronto expects to be a partner in developing the regulations under this legislation. We also want to be involved in discussions about providing resources to the City to invest in conservation measures. I believe if the City and the province work in partnership to address our concerns and implement the legislation, it has great potential. The City looks forward to engaging in further discussions related to this legislation.

Yours truly,



Mayor David Miller
City of Toronto

Dr. David McKeown
Medical Officer of Health

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February 3, 2006
The Honourable Dalton McGuinty
Premier of Ontario
Legislative Building Queen's Park Toronto, Ontario
M7A 1A1
Dear Premier McGuinty:

Re: Ontario Power Authority's *Supply Mix Advice Report,* December 2005
EBR# PO05E0001

I am writing to provide comments on the Ontario Power Authority's (OPA's) December 2005 *Supply Mix Advice Report* (EBR# PO05E0001). At this time, the Province of Ontario is defining its energy future. We have an opportunity to embrace sustainable energy and reap the benefits long into the future. However, the plan described in the OPA report will not help us to achieve this vision. This letter describes my key concerns about the OPA's recommendations, and provides steps that would lead us to an alternative vision, a sustainable energy strategy.

(1) Energy conservation and demand management

The OPA report recommends reliance on nuclear power, plus some renewable energy. However, the report recommends a remarkably small role for energy conservation and demand management (CDM). Of all the energy supply options available to Ontario, CDM provides the greatest environmental health benefit. By reducing energy demand and increasing energy productivity, we can prevent new sources of air pollution, greenhouse gases or radioactive waste. Embracing CDM would also reduce the need to build more expensive energy supply and transmission capacity in Ontario.

Considering these benefits, the OPA should be a great champion of CDM. The report should have a generous CDM target as its foundation and primary goal, and describe the steps Ontario will take to achieve this vision. Instead, the report indicates that OPA was not able to properly assess the potential for conservation (Volume 1, p. 16). As a result of this inability, OPA assumes that there will be little demand reduction through CDM efforts, and makes up for this by recommending more new energy supply capacity. CDM is not included in the OPA's comparison of the energy options'

environmental impacts (Volume 1, p. 31), indicating that CDM was not considered on an equivalent basis as new energy supply.

At its meeting July 20, 21 and 22, 2004, Toronto City Council requested that the Government of Ontario set targets to reduce electricity demand by 40 percent by 2020, using energy efficiency and conservation. According to a study by the Pembina Institute and the Canadian

Environmental Law Association (2004), it is possible for Ontario to reduce energy demand by 40 percent by the year 2020, relative to business as usual. This would be achieved through a combination of financial incentives, approaches to financing, and reducing barriers to cogeneration. The study also estimates that Ontario is capable of producing more than 55 percent of its energy supply from renewable sources by 2020, if implemented in concert with these aggressive energy conservation measures. Even if these estimates are ambitious, there is room for a much larger role for CDM than the five percent demand reduction by 2025 assumed by the OPA (Volume 1, page 5).

To achieve a sustainable energy future, the Province must explore innovative CDM approaches and best practices, with the goal of truly creating a culture of conservation. For example, the OPA should examine and expand successful techniques, such as providing local electric utilities with the resources and flexibility needed to reduce their customers' energy demand. This approach has encouraged Toronto Hydro Electric System Ltd. to commit to reducing its customers' peak energy demand by five percent by 2007. By helping utilities reduce their customers' demand on peak demand days, particularly on smog alert days, the OPA could reduce Ontario's need for expensive energy imports while improving air quality and health.

(2) Nuclear energy

While I support Ontario's decision to phase out coal-fired electricity generation by 2009, I have concerns about the potential reliance on nuclear power recommended in the OPA report. Canada is already storing 36,000 tonnes of radioactive uranium waste. The risks from radioactive waste continue for thousands of years after the fuel has been used to generate electricity, and the waste requires management over this time period. The use of nuclear energy can result in releases of radioactive material during operations, and there is a very low chance of a catastrophic release caused by natural events, accidents or foul play. Nuclear power also raises a number of questions regarding cost and reliability. Ontario's nuclear reactors have routinely incurred cost overruns for building, refurbishment and operation of facilities, and many have underperformed relative to expectations. The use of nuclear power creates risks that must be managed for many generations to come. This energy source therefore does not adhere to the key principle of sustainable development. In contrast, CDM and renewable energy do not carry these risks and impacts.

In addition to concerns about reliance on nuclear power, I also have concerns about the adequacy and completeness of the OPA's assessment of nuclear power. While the report indicates that it assesses the life-cycle impacts of energy options (Volume 1, p. 30), the main report (Volume 1) does not mention the chance of a catastrophic event occurring at a nuclear energy facility. While the probability of this type of mishap is low, the potential impacts on health are substantial, and must be considered in any meaningful discussion of nuclear power.

In addition, I do not believe that OPA's conclusion that, "the environmental indicators show that nuclear energy has lower impact over its life cycle than many other supply sources, including natural gas generation" (Volume 1, p. 25), is sufficiently well-founded. First, the assessment of nuclear power did not consider all potential adverse impacts from the energy source, including a catastrophic

outcome. Second, the weighting system used to compare the environmental characteristics of the energy options (Volume 1, p. 30), was not balanced appropriately: it puts too much emphasis on impacts from greenhouse gas emissions (weight of 20), compared to impacts such as radioactivity, waste and water impacts (weight of 1 each).

(3) Recommendations

Recommendation 1:
I urge the OPA and the Government of Ontario to create a sustainable energy strategy that gives clear priority to conservation and demand management approaches, and supply from low-impact, renewable energy sources, rather than placing such a heavy emphasis on nuclear energy.
This recommendation is consistent with the request made by City Council in July 2004 for the Province to develop a strategy using, "a combination of measures, in the following order of priority: energy conservation and efficiency, ecologically sustainable renewable electricity supply sources and small scale high-efficiency natural gas-fired co-generation power plants that replace existing mono-generators and provide electricity and heat to local district heating grids, rather than by nuclear energy".
Recommendation 2:
I recommend that a comprehensive Health Impact Assessment of Ontario's energy options should be undertaken, including nuclear power and conservation and demand management. I recommend that the Province of Ontario engage an independent party to complete the HIA, with advice from the Chief Medical Officer of Health.
As described above, in my opinion, the OPA report describes Ontario's energy options without sufficiently characterizing and assessing their environmental and health impacts. Having a clear picture of the environmental and health impacts of the various energy options is key to understanding their long-term costs and suitability for Ontario. Health Impact Assessment (HIA) is the most comprehensive means available for assessing the health, social, economic and environmental impacts and benefits of our energy options. An HIA for Ontario's energy options should include quantitative estimates of all inputs required and outputs generated by the energy options, using a true lifecycle assessment. It should include an assessment of a catastrophic event at a nuclear energy facility. It should also include an assessment of any anticipated benefits to air quality and health from reduced demand for domestic and imported energy. Health care costs should also be estimated for all energy options.
With innovation and a strong will to create a sustainable energy strategy, I believe Ontario is capable of moving toward this vision over the long-term.
Sincerely,
ORIGINAL SIGNED BY
David McKeown, MDCM, MHSc, FRCPC
Medical Officer of Health
- 4 -
cc: The Honourable Donna Cansfield, Minister of Energy
The Honourable Laurel Broten, Minister of Environment
The Honourable George Smitherman, Minister of Health and Long-Term Care
Dr. Sheela Basrur, Chief Medical Officer of Health
Mr. Jan Carr, Chief Executive Officer, Ontario Power Authority
Mr. Peter Love, Chief Energy Conservation Officer, Ontario Power Authority
Coordinator, Energy Economics, Office of Energy Supply and Competition
Attach: Letter from MOH to the Honourable Dwight Duncan, Ontario Minister of Energy, dated August 24, 2005, *Recommendations on Ontario's Future Energy Supply Mix*

TORONTO STAFF REPORT

April 5, 2006

To: Policy & Finance Committee

From: Chief Corporate Officer

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

Purpose:

This status report addresses the consumption of electricity and natural gas by the broader Toronto community ("Toronto"), as well as consumption within Toronto's municipal government corporation ("the City"). The information contained in this report will be used to aid in the development of the Energy Plan for Toronto.

Financial Implications and Impact Statement:

There are no financial implications associated with this report.

Recommendations:

It is recommended that this report be received for information.

Background:

In December 2005, the Ontario Power Authority presented its "Supply Mix Advice Report" to the Minister of Energy regarding 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.

The Independent Electricity System Operator, in its 18-Month Outlook report dated December 22, 2005, concluded that Toronto could begin to experience blackouts in the summer of 2008 if no action is taken to address the demand-supply balance of the city.

City Council at its meeting of January 31 to February 2, 2006 adopted a motion requesting 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 an Energy Plan for Toronto (the "Energy Plan"), directing that these terms of reference be developed in consultation with Toronto Hydro Corporation, Toronto Hydro Energy Services Inc., Enwave Energy Corporation, the Toronto Atmospheric Fund and the City's Energy Efficiency Office.

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, 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 electricity demand of 300 Megawatts over the same timeframe through conservation and demand management initiatives.

At its meeting of February 20, 2006, the Roundtable on the Environment received the draft terms of reference for the Energy Plan, along with proposed additional recommendations to be considered by the Policy and Finance Committee.

Comments:

This update report addresses the consumption of electricity and natural gas by the broader Toronto community as well as consumption within the City of Toronto's Divisions, Agencies, Boards and Commissions. Related carbon dioxide emissions are also reported on due to their potential impact on climate change. Other energy forms will be reported on as the information becomes available.

The ultimate objective is to integrate all relevant information within the overall Energy Plan so that the most effective strategies can be developed to yield the greatest amount of conservation and demand management results for Toronto. All other matters pertaining to the Energy Plan, including a report from IndEco Strategic Consulting (the external technical and professional services firm engaged by the City) will be addressed in a June 20, 2006 report to the Policy and Finance Committee.

The findings and conclusions documented in this report follow several consultation meetings with senior staff of Enwave Energy Corporation, Toronto Hydro Corporation and its retail subsidiary (Toronto Hydro Energy Services Inc.), and the Toronto Atmospheric Fund. Consultation sessions were also held or are being arranged with a broad range of major stakeholders including Natural Resources Canada, Ontario Power Authority, the Independent Electricity System Operator, Hydro One, Enbridge Gas Distribution, Toronto District School Board, the Toronto Catholic District School Board, and Green$aver.

(1) Energy Usage in Toronto

Data pertaining to electricity and natural gas consumption have been collected and are presented in report Appendices A – L. Appendices M and N provide an estimate of electricity-related greenhouse gas emissions for 2005 and natural gas-related emissions for 2004.

(2) Electricity Demand During 2005

Data obtained from Toronto Hydro-Electric System Limited ("THESL") indicates that in 2005, total electricity peak demand for the Community was 4,936 Megawatts in 2005. Peak demand is defined as the highest rate of consumption at a given time.

Hydro One estimates summer peak load growth at a rate of 1.62 per cent on average for each year over the next 12 years in Central Toronto (comprising of the former Borough of East York, former City of York and the former City of Toronto), while THESL has projected total load growth of approximately 1 per cent annually for the city. Such demand growth factors, along with THESL's Leaside and Manby transformer facilities nearing their peak capacity, has resulted in a confirmation from THESL that there is a need for new generation within the city of approximately 250-350 Megawatts, in combination with 200-300 Megawatts of conservation and demand management measures (by 2008-2010).

In its 18-Month Outlook report (dated December 22, 2005), the Independent Electricity System Operator concluded that Toronto could begin to experience rotating blackouts in the summer of 2008 if no action is taken to address the demand-supply balance of the city.

(3) Electricity Consumption

The subsections below are divided into electricity consumption by the city as a whole, and by City Divisions and ABCs. Detailed data are provided in report Appendices A – F.

(a) Toronto

THESL has indicated that electricity consumption for Toronto in 2005 was 26,372,169 Megawatt hours at a cost of $2.69 billion. Consumers of electricity are classified into three categories:

(i) residential users, or households (i.e. single residences and multiple residences up to six units), accounting for 22 per cent of total consumption;
(ii) large users, or customers with monthly peak demands of 5,000 kilowatts or greater, accounting for 10 per cent of total consumption; and
(iii) general service users, or consumers not classified as either household residential or large users and are typically small businesses and "bulk-metered" multi-unit residential establishments, accounting for 68 per cent of total consumption.

Data pertaining to electricity consumption for the city, are presented in report Appendices A and B.

(b) City Divisions and Agencies, Boards & Commissions

Data obtained from the Facilities and Real Estate Division's Energy and Waste Management Office indicates that the total electricity consumption for 2005 by City Divisions and ABCs was 2,043,519 Megawatt hours at a cost of $177 million, representing approximately eight per cent of

the electricity consumption in the city as a whole. City Divisions consumed 999,860 Megawatt hours, at a cost of approximately $86 million, representing approximately four per cent of the total actual electricity consumption in Toronto, while City ABCs consumed 1,043,659 Megawatt hours, at a cost of approximately $91 million, representing approximately four per cent of the total actual electricity consumption in Toronto.

The highest electricity consumer within City Divisions is Toronto Water with 571,254 Megawatt hours or 57 per cent of the total electricity consumption by City Divisions followed by Parks and Recreation with 120,028 Megawatt hours or 12 per cent of the total electricity consumption by City Divisions.

The highest electricity consumer within the City Agencies, Boards and Commissions is the Toronto Transit Commission with 452,669 Megawatt hours or 43 per cent of the total electricity consumption of City ABCs, followed by the Toronto Community Housing Corporation with 427,746 Megawatt hours or 41 per cent of the total electricity consumption of City ABCs.

Detailed data are provided in report Appendices C – F.

(4) Natural Gas Consumption

The subsections below are divided into natural gas usage by the city as a whole, City Divisions and its ABCs. Detailed data are provided in report Appendices G – L.

(a) Toronto

Enbridge Gas Distribution provided information indicating that the natural gas consumption in the city as a whole, in 2004, was 4,323,001,973 m^3. This data is classified in four categories:

(i) residential users, accounting for 34 per cent of total consumption;
(ii) apartment users, accounting for 20 per cent of total consumption;
(iii) commercial users, accounting for 29 per cent of total consumption; and
(iv) industrial users, accounting for 17 per cent of total consumption.

Detailed data are provided in report Appendices G and H.

(b) City Divisions and Agencies, Boards & Commissions

Data obtained from the Facilities and Real Estate Division's Energy and Waste Management Office indicated the total natural gas consumption for 2005 by City Divisions and ABCs was 138,378,879 m^3 at a cost of approximately $55.4 million of which:

(i) City Divisions consumed 42,504,148 m^3, at a cost of approximately $18.1 million; and
(ii) City ABCs consumed a total of 95,874,731 m^3, at a cost of approximately $37 million.

Detailed data are provided in report Appendices I – L.

(5) Summary of Greenhouse Gas Emissions

Carbon dioxide emissions associated with the electricity consumed in the city as a whole have been estimated at approximately six million tonnes for 2005. Carbon dioxide emissions for natural gas consumed in the city as a whole were estimated at approximately eight million tonnes in 2004.

Detailed data are provided in report Appendices M and N.

(6) Conservation and Demand Management

The City of Toronto'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.

There are currently several organizations involved in the design, development and delivery of Conservation and Demand Management (CDM) programs and projects in the city as a whole. After a rigorous review, it was concluded that a greater co-ordination among the various organizational entities would assist in addressing existing barriers to the effective and efficient delivery of CDM programs.

The City of Toronto's Energy Efficiency Office/Better Buildings Partnership, THESL and Natural Resources Canada, among others, have recognized the significant benefits of reducing duplication of effort in the delivery of programs locally and have started to address this issue by executing joint Agreements for the delivery of certain programs. An excellent example of this cooperation is demonstrated through the Better Buildings New Construction Program, in which these three entities cooperate in the local co-ordination of candidate buildings for the Commercial Building Incentive Program, which is a Natural Resources Canada program.

This cooperative effort significantly reduces the level of effort required of developers who wish to participate in the program, reduces administrative cost through streamlining of processes, improves the participation rate and minimizes the appearance of competing programs and entities. It is therefore highly desirable that where feasible, the CDM programs relating to the Energy Plan be implemented through cooperation with the various entities such as the Ontario Power Authority, THESL, THESI, Enwave Energy Corporation and the Toronto Atmospheric Fund.

The scale of energy conservation and demand management initiatives underway in the city is illustrated by participation in the Energy Retrofit Program (including City Divisions, Agencies, Boards and Commissions) and the Better Buildings Partnership which now approaches 500 retrofitted buildings totalling 39 million square feet and cumulative utility cost reductions of approximately $200 million. The cumulative carbon dioxide emissions reductions for these projects amount to over one million tonnes.

(7) Minister's Directive dated February 10, 2006 to the Ontario Power Authority (OPA)

In a Ministerial Directive to the OPA (February 10, 2006), the Ontario Minister of Energy authorized 300 Megawatts of CDM in the city as a whole, to be realized by 2010. In order to achieve 300 Megawatts of additional, measurable and verifiable CDM, it is desirable for the City, THESL and the OPA to reach agreement regarding methodologies, programs and delivery arrangements that will achieve both the Minister's target and minimize the potential for rotating blackouts in the city as a whole during 2008 to 2010.

Furthermore, a 10 Point Green Plan for the Port Lands, as presented to the City's Roundtable on the Environment on February 20, 2006, proposes CDM results exceeding 750 Megawatts, which could make a significant contribution to the Energy Plan for Toronto. The amount of conservation and demand management that could be realized by 2008 exceeds the targeted reduction of 350 Megawatts, as illustrated in report Appendix O. This would potentially reduce the need for building additional, large, centralized generation projects in the City of Toronto.

The 10 Point Green Plan for the Port Lands also stated that the plan would "produce new energy, create more jobs, reduce energy bills, cut energy waste and reduce pollution."

The 10 Point Green Plan for the Port Lands can achieve a minimum of 350 Megawatts in conservation and demand management results, if incentives from the OPA are sufficient to guarantee a three-year payback. Staff are conducting a detailed sector-by-sector analysis of the plan, and will report to the Roundtable on the Environment on May 29, 2006, and to the Policy and Finance Committee on June 20, 2006.

Participation rates and realizable technical penetration in the various sectors covered by the 10 Point Green Plan for the Port Lands will depend heavily on the attractiveness of any OPA incentives. Currently, the City is participating in the THESL CDM Plan. Virtually all participating projects in this CDM Plan are guaranteed a payment of $160 per 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 OPA in order for the 10 Point Green Plan for the Port Lands to accomplish CDM results in the range of 350 Megawatts over the specified timeframe.

Conclusions:

This report addresses the consumption of electricity and natural gas by the city as a whole as well as the consumption within City Divisions, Agencies, Boards and Commissions. Any additional data received from the various key stakeholders, such as the Ontario Power Authority, Enbridge Gas Distribution, Toronto Hydro Corporation, Toronto Hydro Energy Services Incorporated and Enwave Energy Corporation, will be reported to the Policy and Finance Committee meeting on June 20, 2006. All other matters pertaining to the Energy Plan for Toronto, including a supporting report from IndEco Strategic Consulting, will also be submitted at that time for consideration.

Finally, the 10 Point Green Plan for the Port Lands, as submitted to the February 20, 2006 Roundtable on the Environment, could make a significant contribution to the City's overall Energy Plan, dependent on the availability of sufficient funding from the OPA. Discussions are currently underway with the OPA, the outcome of which will be reported to the Policy and Finance Committee meeting on June 20, 2006.

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List of Attachments:

Appendix A	2005 Electricity Consumption within Toronto
Appendix B	2005 Electricity Consumption within Toronto
Appendix C	2005 Electricity Consumption by City Divisions, Agencies, Boards and Commissions
Appendix D	2005 Electricity Consumption by City Divisions
Appendix E	2005 Electricity Consumption by City Agencies, Boards and Commissions
Appendix F	2005 Electricity Consumption for Toronto
Appendix G	2004 Natural Gas Consumption within Toronto
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Appendix A

2005 Electricity Consumption within Toronto

Classification	Description	2005 Consumption	Percent of Total
Residential Users	Households (i.e., single residences and multiple residences up to 6 units)	5,724,299 MWh	22
Large Users	Customers with a monthly peak demand of 5,000 kilowatts or greater	2,563,100 MWh	10
General Service Users	Consumers not classified as either household residential or large users (e.g., small businesses and "bulk-metered" multi-unit residential establishments)	18,084,770 MWh	68
Total		**26,372,169 MWh**	**100**

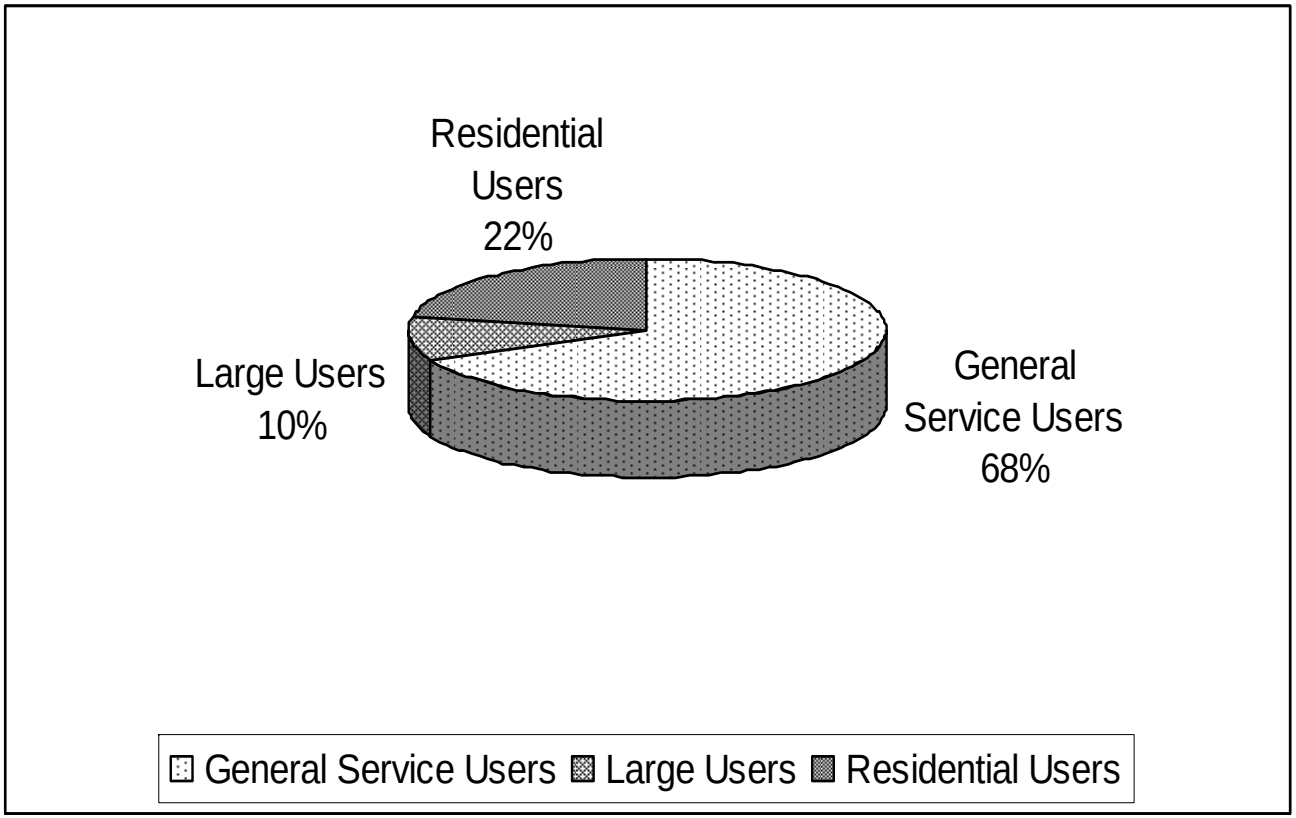
Notes:

1. Toronto Hydro-Electric System Limited ("THESL") indicates that in 2005, total electricity peak demand for the Community was 4,936 Megawatts in 2005. Peak demand is defined as the highest rate of consumption at a given time.

2. All three classifications contain City Divisions, Agencies, Boards and Commissions based on the building size and metering configuration.

Appendix B

2005 Electricity Consumption within Toronto



Notes:

- Residential Users – Households (i.e. single residences and multiple residences up to 6 units)
- Large Users – Customers with a monthly peak demand of 5,000 kilowatts or greater
- General Service Users – Consumers not classified as either household residential or large users (e.g., small businesses and "bulk-metered" multi-unit residential establishments)

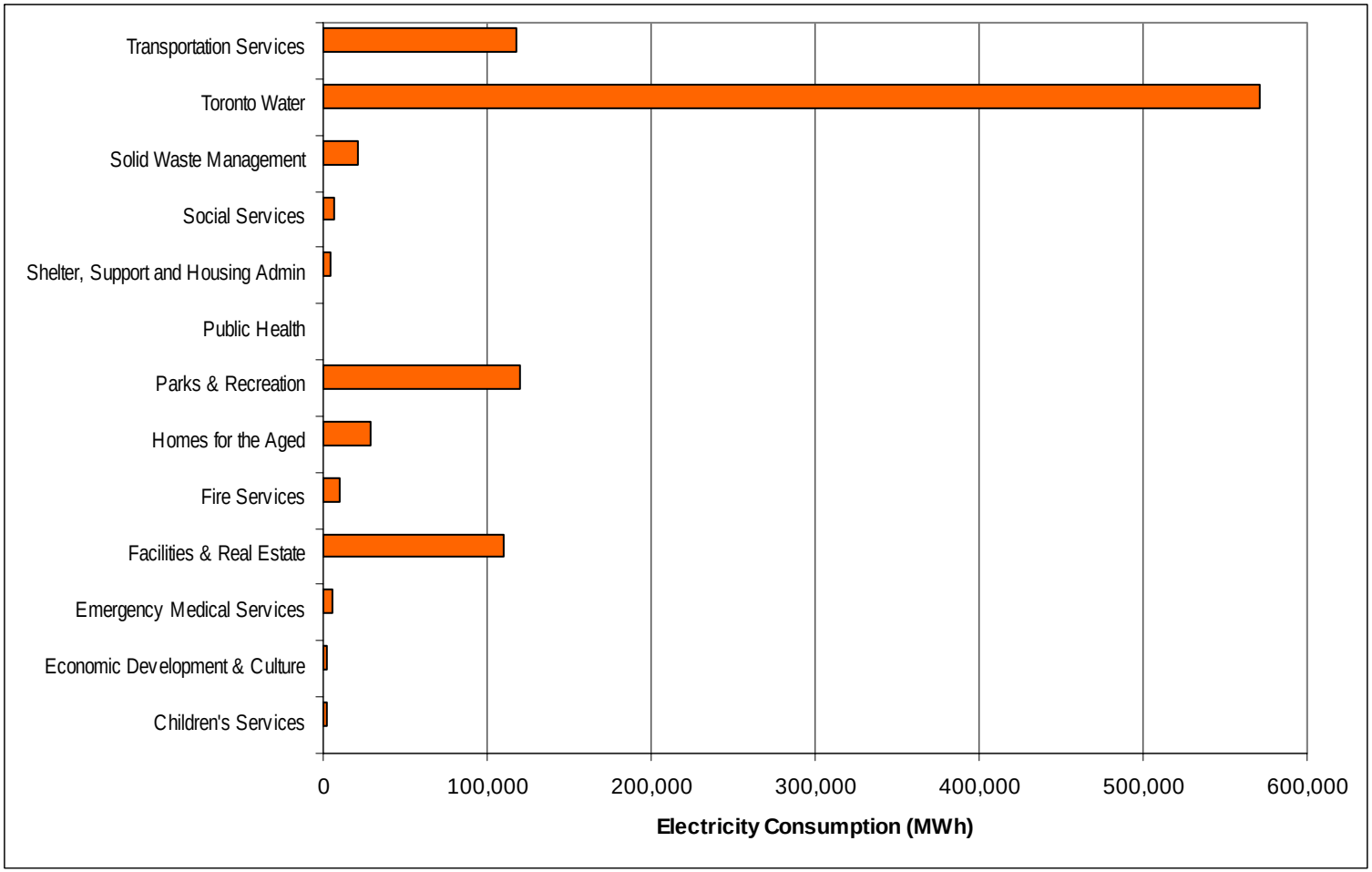
Appendix C

2005 Electricity Consumption by City Divisions, Agencies, Boards and Commissions

City Divisions	Consumption (MWh)	Cost ($)
Children's Services	1,774	178,924
Economic Development & Culture	2,143	212,034
Emergency Medical Services	5,226	464,238
Facilities & Real Estate	109,466	9,257,666
Fire Services	9,897	997,880
Homes for the Aged	28,553	2,439,772
Parks & Recreation	120,028	11,672,595
Public Health	1,468	148,259
Shelter, Support and Housing Admin	4,600	425,700
Social Services	6,928	640,638
Solid Waste Management	21,031	1,859,033
Toronto Water	571,254	45,576,664
Transportation Services	117,491	12,585,356
Sub-Total	**999,860**	**86,458,759**
Agencies, Boards, Commissions		
Arena Boards	6,734	620,387
Community centre Boards	3,266	320,854
Exhibition Place	37,327	3,133,211
Other ABCs	8,023	814,749
Parking Authority	20,797	1,778,054
Public Library	32,503	3,016,798
Police Services	31,277	2,700,115
Toronto Community Housing Corp	427,746	37,047,444
Toronto Economic Development Corp	4,150	393,909
Toronto Transit Commission	452,669	39,999,050
Toronto ZOO	19,168	1,671,547
Sub-Total	**1,043,659**	**90,896,118**
TOTAL	**2,043,519**	**177,354,877**

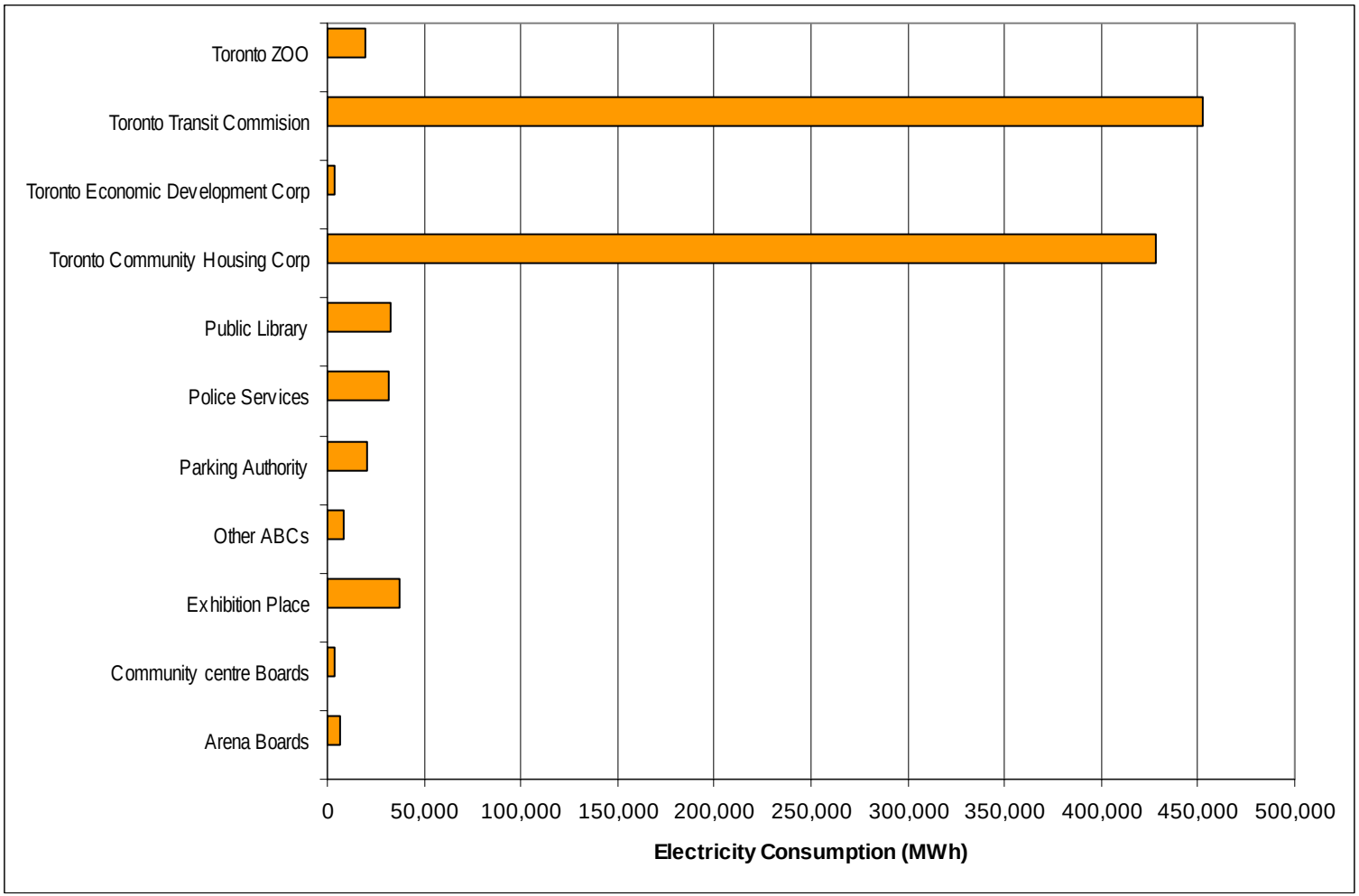
Appendix D

2005 Electricity Consumption by City Divisions



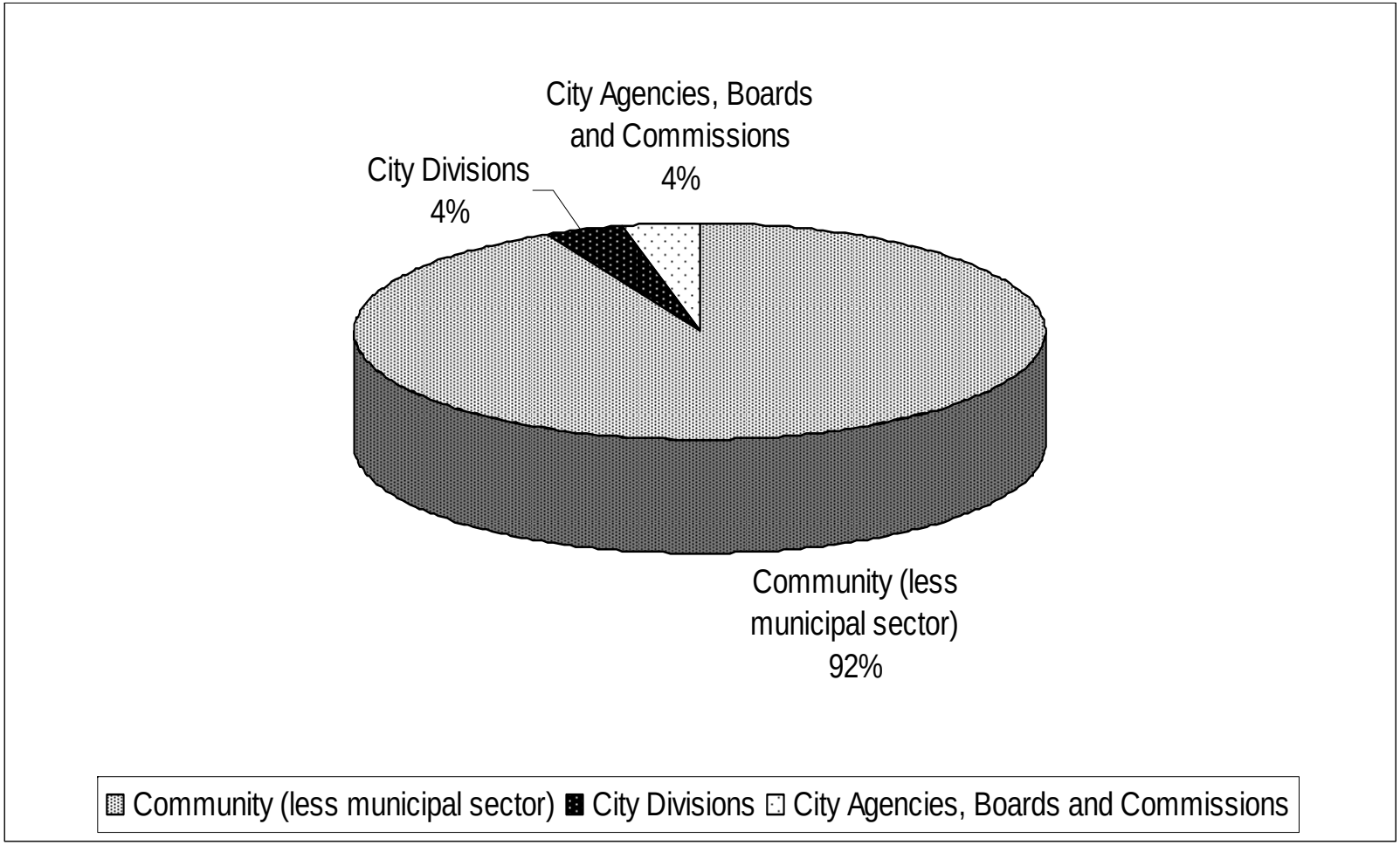
Appendix E

2005 Electricity Consumption by City Agencies, Boards and Commissions



Appendix F

2005 Electricity Consumption for Toronto



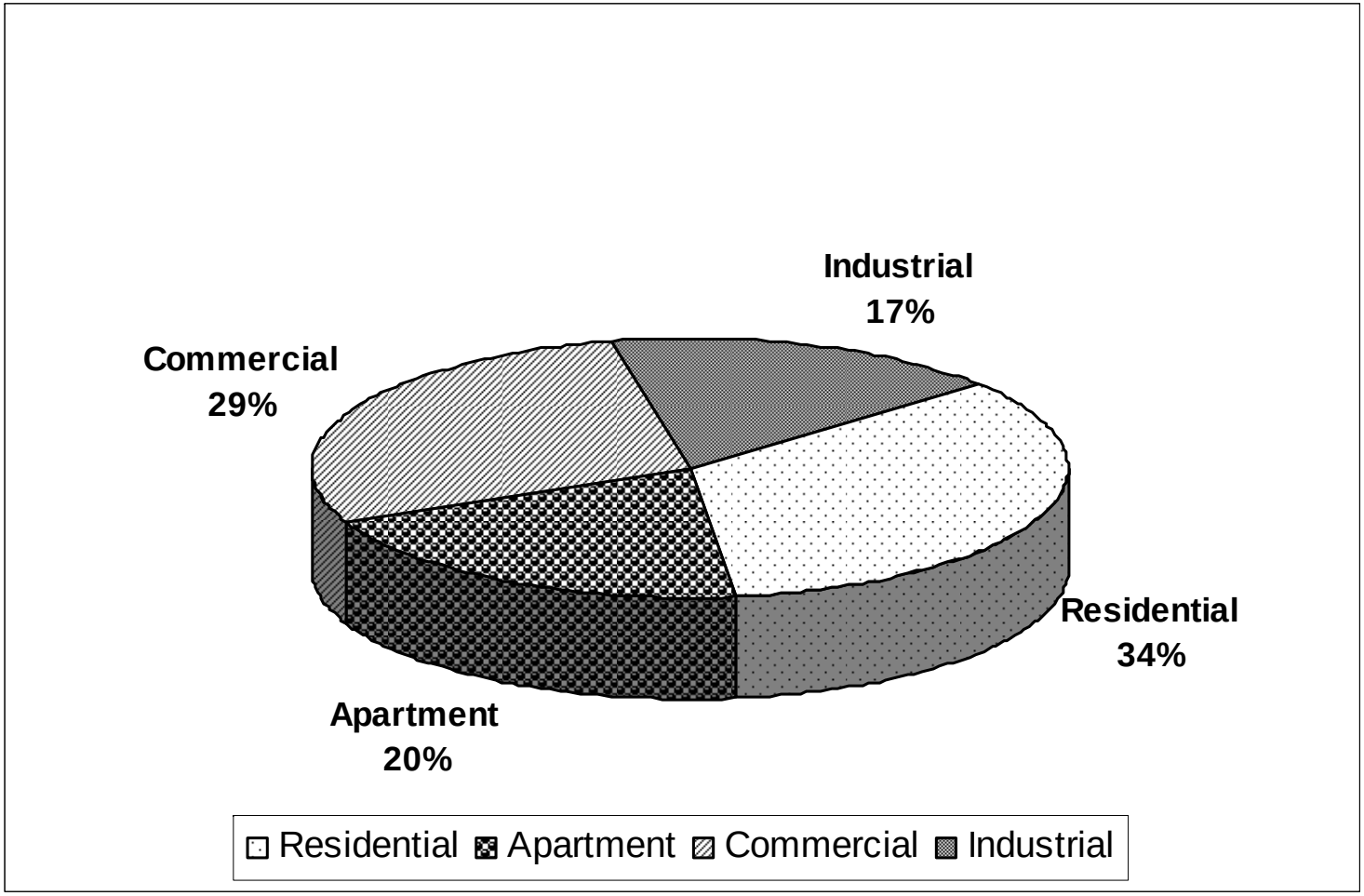
Appendix G

2004 Natural Gas Consumption within Toronto

Classifications	Percentage of Total	Consumption m^3
Residential	34	1,475,174,053
Apartment	20	867,737,020
Commercial	29	1,233,680,459
Industrial	17	746,410,441
Total	**100**	**4,323,001,973**

Appendix H

2004 Natural Gas Consumption within Toronto



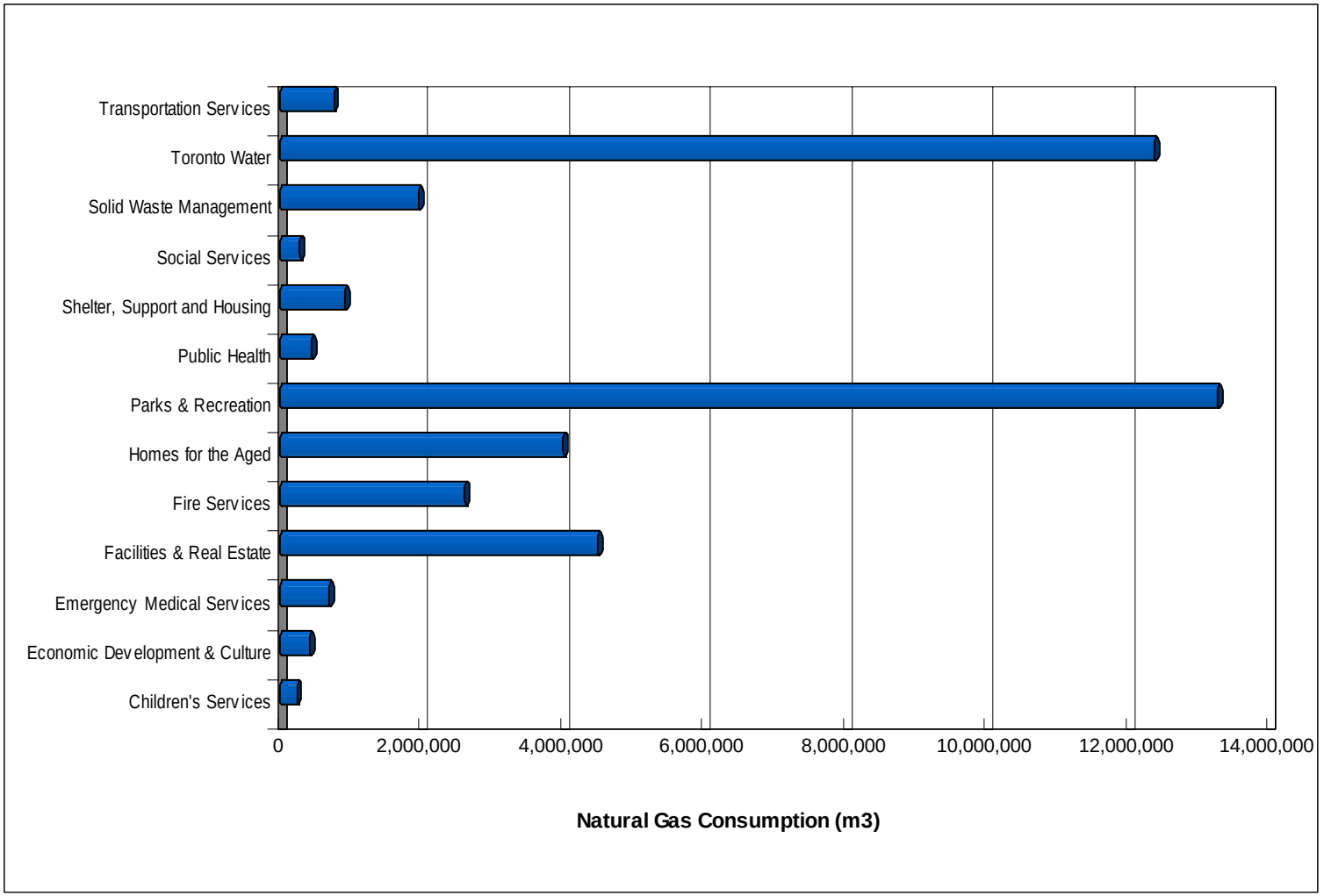
Appendix I

2004 Natural Gas Consumption by City Divisions, Agencies, Boards and Commissions

City Divisions	Consumption m^3	Cost $
Divisions		
Children's Services	241,845	114,712
Economic Development & Culture	426,911	186,322
Emergency Medical Services	695,645	311,545
Facilities & Real Estate	4,499,076	1,969,285
Fire Services	2,615,308	1,214,917
Homes for the Aged	4,008,631	1,697,802
Parks & Recreation	13,269,171	5,823,780
Public Health	448,085	198,594
Shelter, Support and Housing Admin	921,068	400,067
Social Services	284,345	132,980
Solid Waste Management	1,960,391	840,937
Toronto Water	12,371,707	4,891,772
Transportation Services	761,965	339,094
Sub-Total	**42,504,148**	**18,121,807**
Agencies, Boards, Commissions		
Arena Boards	411,293	179,770
Community centre Boards	603,318	268,075
Exhibition Place	3,085,792	1,304,529
Other ABCs	441,790	195,178
Parking Authority	141,669	63,451
Public Library	2,133,380	994,073
Police Services	2,915,164	1,351,886
Toronto Community Housing Corp	62,940,158	23,463,842
Toronto Economic Development Corp		
Toronto Transit Commission	19,387,126	7,941,331
Toronto ZOO	3,815,041	1,559,527
Sub-Total	**95,874,731**	**37,321,662**
TOTAL	**138,378,879**	**55,443,469**

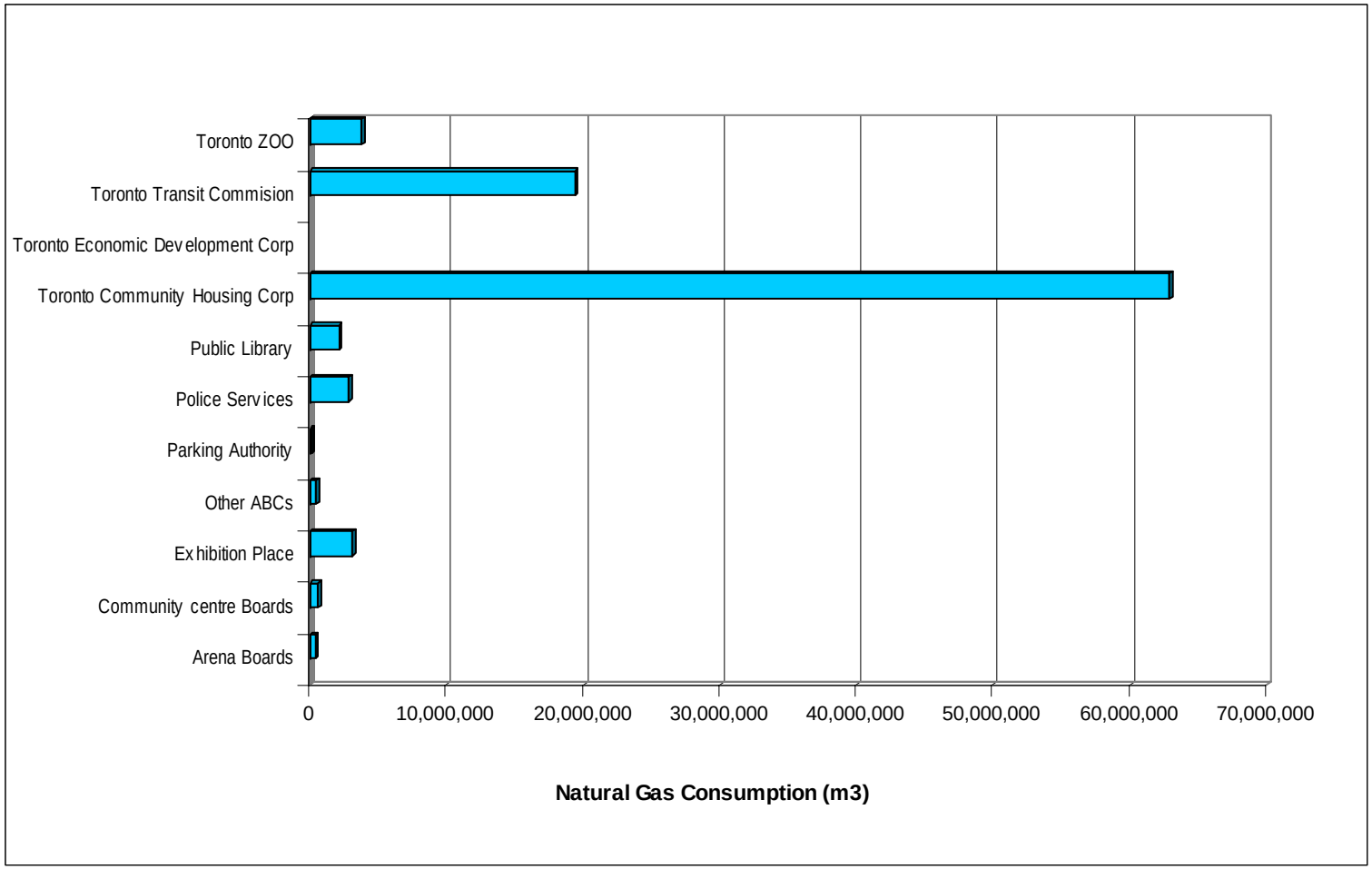
Appendix J

2004 Natural Gas Consumption by City Divisions



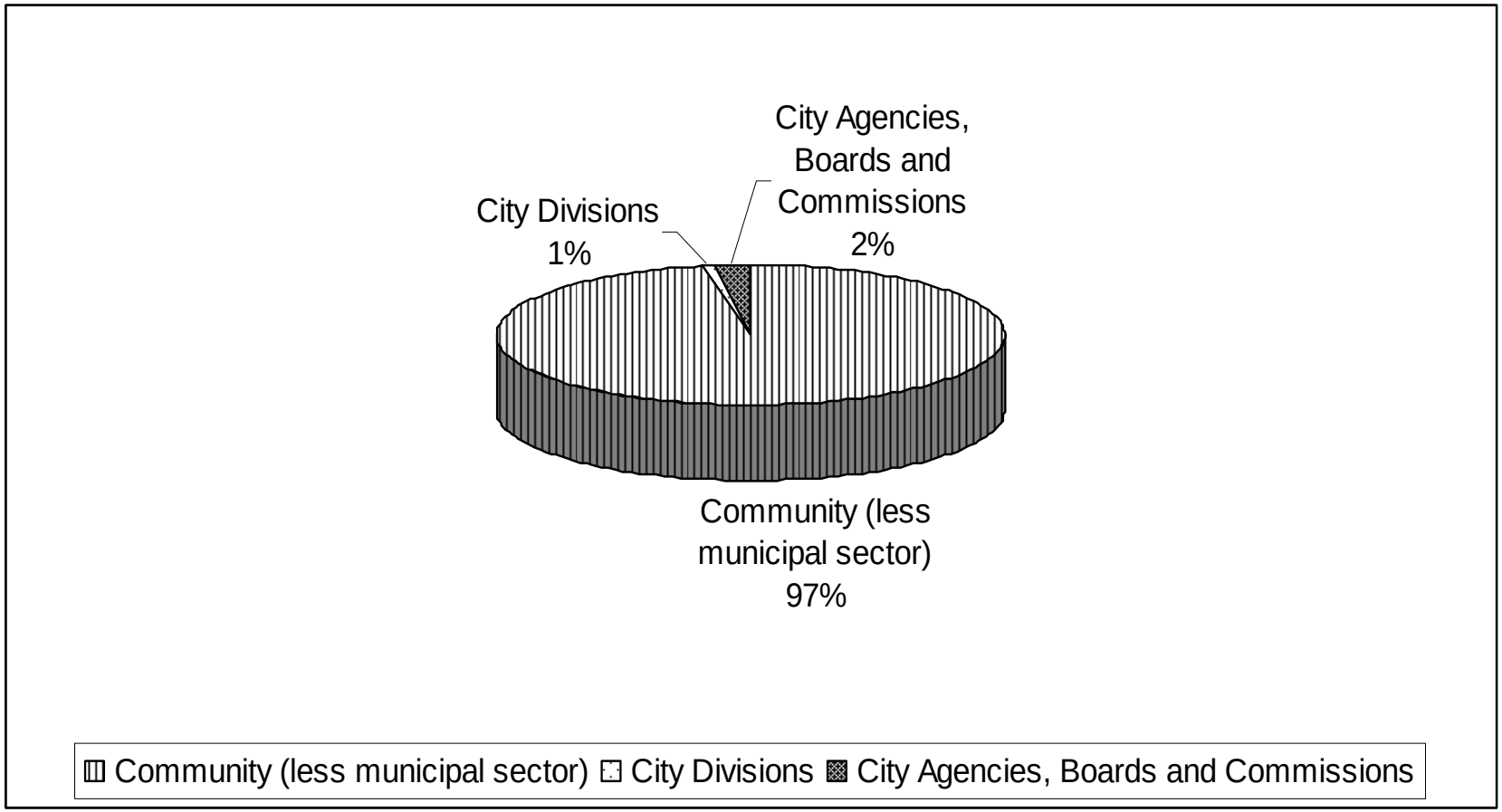
Appendix K

2004 Natural Gas Consumption by City Agencies, Boards and Commissions



Appendix L

2004 Natural Gas Consumption for Toronto



Appendix M

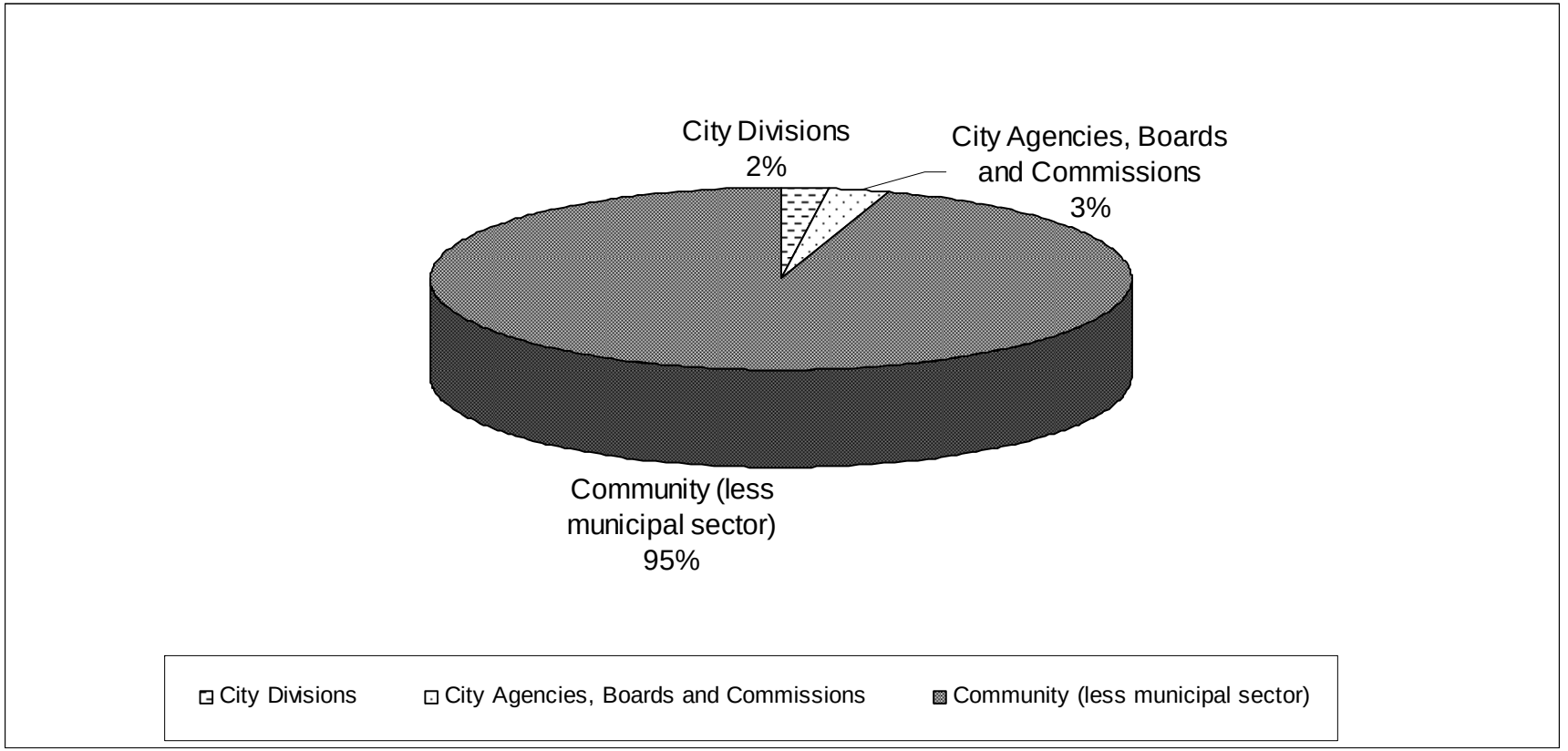
2005 Carbon Dioxide Emissions Based on Electricity and Natural Gas Consumption

	From Electricity ($kgCO_2$)	Percentage from Electricity	From Natural Gas ($kgCO_2$) *	Percentage from Natural Gas*	Grand Total ($kgCO_2$)	Grand Total (Percentage)
City Divisions	231,967,529	4	79,525,261	1	311,492,790	2
City Agencies, Boards and Commissions	242,128,903	4	179,381,622	2	421,510,525	3
Community (less municipal sector)	5,644,246,776	92	7,829,429,808	97	13,473,676,584	95
Toronto	**6,118,343,208**	**100**	**8,088,336,691**	**100**	**14,206,679,899**	**100**

Note: (*) 2004 Data

Appendix N

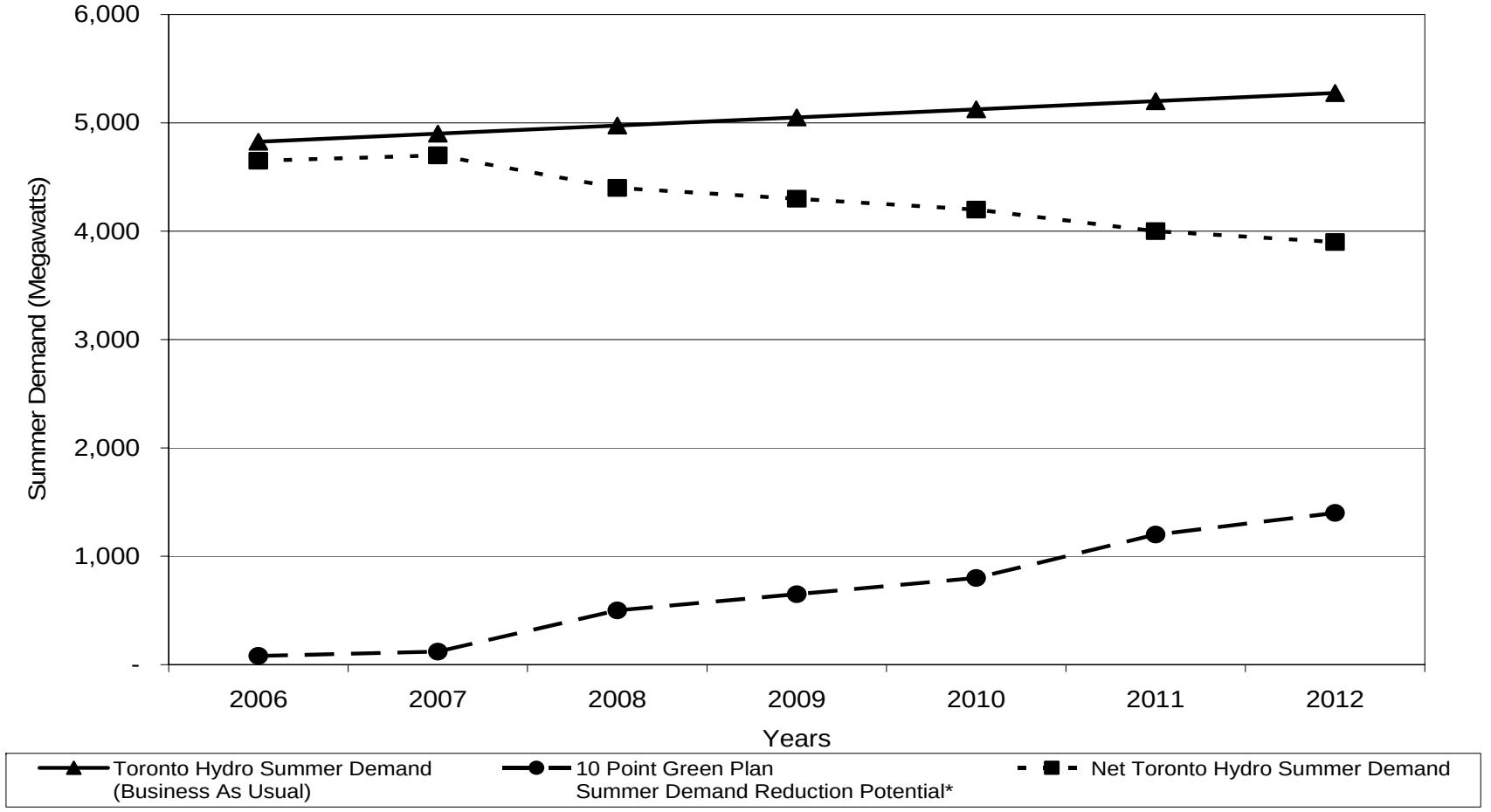
2005 Percentage of Total Carbon Dioxide Emissions Based on Electricity and Natural Gas Consumption*



Note: (*) 2004 Data

Appendix O

Toronto 10 Point Green Plan for the Port Lands
Potential Impact on Summer Demand (2006 – 2012)



Note: (*) Assuming sufficient funding to reduce average project payback to 3 years (IRR of 33%)

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