KLIPPENSTEINS
BARRISTERS & SOLICITORS
160 JOHN STREET, SUITE 300,
TORONTO, ONTARIO M5V 2E5
TEL: (416) 598-0288
FAX: (416) 598-9520

February 19, 2010

BY COURIER (2 COPIES) AND EMAIL

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, Suite 2700
Toronto, Ontario M4P 1E4
Fax: (416) 440-7656
Email: boardsec@oeb.gov.on.ca

Dear Ms. Walli:

Re: Pollution Probe – Written Argument
EB-2009-0139 – Toronto Hydro – 2010 Rates

Pursuant to Board's direction during the hearing, please find enclosed Pollution Probe's written argument for this proceeding.

Yours truly,

Murray Klippenstein

MK/ba

Encl.

cc: Applicant and Intervenors per Appendix "A" to *Procedural Order No. 1* by email

EB-2009-0139

ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act, 1998*, S.O. 1998, c.15, Schedule B;

AND IN THE MATTER OF an Application by Toronto Hydro-Electric System Limited for an Order approving just and reasonable rates and other charges for electricity distribution to be effective May 1, 2010 (the "Toronto Hydro 2010 Rates Application").

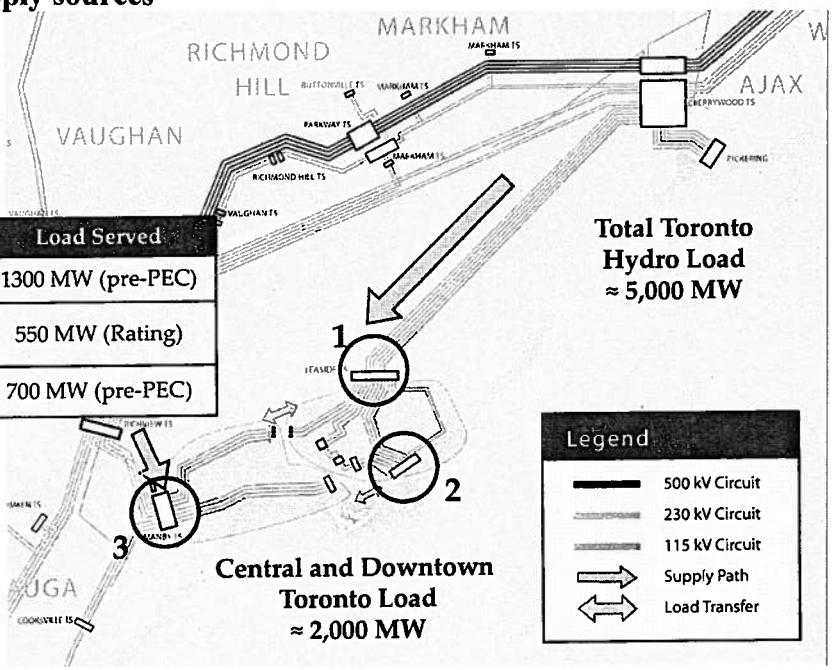
WRITTEN ARGUMENT
on behalf of POLLUTION PROBE

February 19, 2010

Fig. 1 - Toronto electricity supply sources[1]

- Two supply systems, Leaside and Manby, serve the Central and Downtown Toronto area, with the Portland Energy Center connected at Hearn to support the Leaside system.

Source	Load Served
1) Leaside	1300 MW (pre-PEC)
2) Portland Energy Center (PEC) at Hearn	550 MW (Rating)
2) Manby	700 MW (pre-PEC)



[1] Navigant Consulting, *Central and Downtown Toronto Distributed Generation: Final Report* dated June 28, 2009 (Exhibit Q1, Tab 4, Schedule 1-3) at pg. 32.

KLIPPENSTEINS
Barristers & Solicitors
160 John Street, Suite 300
Toronto, Ontario M5V 2E5

Murray Klippenstein
Basil Alexander
Tel: (416) 598-0288
Fax: (416) 598-9520

Counsel for Pollution Probe

Introduction

The City of Toronto is exposed to two serious electricity security of supply challenges. First, the loss of the Leaside electricity supply path will lead to a 300 megawatt (MW) power shortage for downtown and central Toronto. Second, in the event of a provincial or eastern North American blackout Toronto's hospitals will not be able to operate at full capacity.

Loss of Leaside Electricity Supply Path

According to the Navigant Consulting Report prepared for Toronto Hydro and the Ontario Power Authority (OPA), downtown and central Toronto receives virtually all of its electricity supply from three sources:

a) a high-voltage electricity transmission path which brings electricity from the east to the Leaside Transformer Station;
b) the Portlands natural gas-fired power plant on the Toronto waterfront; and
c) a high-voltage electricity transmission path which brings electricity from the west to the Manby Transformer Station in Etobicoke. [Ex. K5, Tab 1]

According to Mr. Williams of Navigant Consulting and Mr. Jutla of Toronto Hydro, loss of the Leaside supply path would lead to a 300 MW power outage. [Transcript Volume 2, pages 12 to 15]

According to the OPA's *Integrated Power System Plan*:

> History has shown that extreme events do happen, leading to widespread blackouts and loss of power for prolonged periods ranging from days to weeks. This is evidenced by the number of large scale blackouts in the last ten years (California 1996, Midwest Canada and U.S. 1998, Northeast Ice Storm 1998, Northeast Canada and U.S. 2003, Italy 2003, and European Union 2006). There are also numerous examples of extreme events in major urban centres, with significant impacts to residents and commerce (New York City 1997, 1999, 2006;

Chicago 1998; Auckland 1998; San Francisco 1998; Detroit 2000; and Athens 2004)." [EB-2007-0707, Ex. E, Tab 5, Schedule 5, pages 18 & 19]

Toronto's Hospitals Cannot Operate at Full Capacity During a Blackout

Toronto's hospitals cannot operate at full capacity during a blackout for two reasons. First, the capacity of their emergency diesel generators is significantly lower than their peak electricity demand. Second, in the event of a prolonged blackout they may not be able to obtain a continuous supply of diesel fuel. [Transcript Volume 2, pages 28, 29 & 30]

For example, the average summer peak demand (21 MW) of the University Health Network (Toronto General, Toronto Western and Princess Margaret) is 7 MW greater than its on-site diesel generation capacity (14 MW). [Ex. K5, Tab 5]

Security of Supply Solutions

There are two potential solutions to keep Toronto's lights on if the Leaside supply path is lost:

1. Build a third transmission line to serve downtown and central Toronto at an estimated cost of approximately $600 million. [Ex. K5, Tab 2, page 6; Transcript Volume 2, page 19]
2. Install 300 MW of small-scale combined heat and power plants in downtown and central Toronto.

Most buildings and factories in Ontario use natural gas to produce just one service, namely, heat. It is much more efficient to use these same molecules of natural gas to simultaneously produce heat and electricity. Combined heat and power (CHP) plants can have energy efficiencies of 80 to 90%. [Ex. K5, Tab 4, page 13]

CHP plants can be installed in apartment buildings, condominiums, shopping centres, hospitals, schools, airports and factories. The University of Toronto, the Senator David Croll Apartments (at Bloor and Huron Streets) and the Pearson Airport have CHP plants. In addition, a number of Ontario hospitals (e.g., Kingston General Hospital, London's Victoria Hospital, Ottawa's Queensway-Carleton Hospital and the Sudbury Regional Hospital) have CHP plants which allow them to continue to operate at full capacity during a blackout. [www.HealthPower.ca/facilities.php]

While building a third line to provide power to the Hearn Transformer Station on the Toronto waterfront will ensure that Toronto's lights stay on if Leaside supply path is lost, it will *not* enable Toronto's hospitals to continue to operate at full capacity in the event of a provincial or North American blackout. Therefore the best option to meet Toronto's dual security of supply challenges is to install numerous small-scale, high-efficiency CHP plants in Toronto's hospitals, buildings and factories.

Barriers to CHP in Downtown and Central Toronto

There are four barriers to the installation of small-scale, high-efficiency CHP plants in downtown and central Toronto.

First Barrier

Ontario's wholesale spot market price for electricity is substantially less than the total cost of building a new power plant. As a result, the only new electricity generation projects that are proceeding in Ontario are ones that have long-term supply contracts with the Ontario Power Authority that guarantee them a fair price for their electricity supply.

In June 2007 Ontario's then Minister of Energy directed the OPA to establish a natural gas-fired CHP standard offer program – a program that would pay a fixed price for each kWh of electricity produced by CHP plants. [Letter from the Honourable Dwight

Duncan, Minister of Energy to Dr. Jan Carr, CEO, OPA, June 14, 2007. Available online at http://www.powerauthority.on.ca/Page.asp?PageID=122&ContentID=6268.]

It is Pollution Probe's expectation that the Ontario Power Authority will establish a CHP standard offer program within the next few months.

Paying hospitals, multi-residential, commercial, institutional and industrial customers to build CHP plants will benefit *all* of Ontario's electricity consumers since new CHP plants can help the province meet its electricity needs at a much lower cost than new nuclear reactors. [Transcript Volume 2, pages 41 & 42]

Second Barrier

At the present, as a result of short circuit constraints at Hydro One's Leaside, Manby and Hearn Transformer Stations only 80 MW of CHP can be installed in downtown and central Toronto. [Ex. K5, Tab 7, page 19; and Transcript Volume 2, pages 46 & 47]

Last year, Hydro One told the Board that "it is in the process of producing a plan and priorities for dealing with the short circuit issues in Toronto and will have it completed by the end of 2009". In its *EB-2008-0272 Decision With Reasons*, the Board said that it "expects that Hydro One will move expeditiously to obtain any approvals it requires to implement the plan". [*EB-2008-0272 Decision With Reasons*, (May 28, 2009), page 49]

It is Pollution Probe's expectation that Hydro One will file its plan to address the short circuit issues at its Leaside, Manby and Hearn Transformer Stations in March as part of its 2011-2012 Transmission Cost of Service Application.

Third Barrier

The third barrier to the installation of CHP in downtown and central Toronto is Toronto Hydro's policy of requiring CHP customers to compensate it for 100% of its costs of

connecting them to its distribution grid. [Transcript Volume 2, page 85] This policy creates a financial barrier to CHP by lengthening the pay-back period for CHP projects. [Ex. K5, Tab 10; and Transcript Volume 2, pages 81 to 85]

According to Toronto Hydro, its charges for connecting the following prospective CHP projects to its distribution grid would be:

1. $10,000 to $500,000 for a 5.7 MW CHP project at the Sunnybrook Health Sciences Centre;
2. $50,000 to $500,000 for a 6 MW CHP project at St. Michael's Hospital;
3. $10,000 to $500,000 for a 6 MW CHP project at Regent Park; and
4. $4 million to $6 million for a 20 MW CHP project for the MARs Discovery District (Sick Kids, Toronto General, Mt. Sinai, Princess Margaret etc.) [Transcript Volume 2, pages 87 to 97]

Toronto Hydro's policy of requiring Toronto's great teaching hospitals, the Toronto Community Housing Corporation and its other customers to compensate it for 100% of its costs of connecting their prospective CHP projects to its antiquated distribution system is contrary to the public interest for the following reasons.

First, all of Toronto Hydro's customers will benefit from the installation of 300 MW of CHP in downtown and central Toronto since it will ensure that the lights will stay on in Toronto if the Leaside supply path is lost; and it will avoid the need for Toronto Hydro's customers to pay $600 million for a third transmission line to serve downtown Toronto. [Transcript Volume 2, page 20]

Second, all Toronto Hydro and all Ontario electricity consumers will benefit from the installation of new CHP plants which will reduce the need for new, higher cost nuclear reactors.

The Ontario Energy Board recently amended its *Distribution System Code* to require new *renewable* energy generators to compensate Toronto Hydro for only a small fraction of its costs of connecting them to its distribution grid.

Furthermore, on June 22, 2009 the City of Toronto asked the Ontario Energy Board to amend its *Distribution System Code* to ensure that Toronto Hydro's charges for connecting natural gas-fired CHP power plants to its distribution grid are the same as its charges for connecting renewable power plants:

> It is the City of Toronto's submission that the Board's proposed amendments to the Distribution System Code should also apply with respect to other forms of distributed generation, including natural gas-fired combined heat and power (CHP) generation projects.

In addition, according to the City's submission to the OEB:

> Local electrical generation is critical to reduce stress on Toronto's electrical infrastructure and increase energy security. Toronto's downtown core is only served by two transmission lines. A single line would be unable to carry the entire load if there was a transmission failure. [Letter from Richard Butts, Deputy City Manager, City of Toronto to Kirsten Walli, Secretary, Ontario Energy Board, June 22, 2009. Available online at http://www.oeb.gov.on.ca//webdrawer/webdrawer.dll/webdrawer/search/rec?sm_udf10=*EB-2009-0077*&sortd1=rs_dateregistered&rows=200]

Given the urgent electricity security of supply need for the installation of natural gas-fired CHP plants at Toronto's great teaching hospitals and for the installation of a total of 300 MW of CHP throughout downtown and central Toronto, it is Pollution Probe's submission that the Board should direct Toronto Hydro to:

1. Ensure that its charges for connecting CHP plants to its distribution grid are identical to its charges for connecting renewable power plants to its distribution grid; and

2. Establish a deferral account to permit it to recover its CHP connection costs from all of its customers.

Fourth Barrier

The fourth barrier to installing 300 MW of CHP is the fact that Toronto Hydro's distribution system has short circuit issues that impede the installation of more than approximately 200 MW of CHP in downtown and central Toronto. According to Vice President Labricciosa of Toronto Hydro:

> As you heard us explain previously, in using some general rules of thumb, 10 percent of the load should be scattered and accommodated if it was CHP, which would give you a quick 200 megawatts on a 2,000 megawatt base for our system, when you look at the synchronous CHP solution." [Transcript Volume 2, page 65, see also page 60; and Ex. K5, Tab 8]

Therefore it is Pollution Probe's submission that the Board should direct Toronto Hydro to file, within six months, a plan and budget to upgrade its distribution system to permit the installation of at least 300 MW of natural gas-fired CHP in downtown and central Toronto as soon as practically possible.

Costs

It is Pollution Probe's request that it be awarded 100% of its reasonably incurred costs of participating in this proceeding. Pollution Probe is a registered charity with no pecuniary interest in the outcome of this proceeding.

ALL OF WHICH IS RESPECTFULLY SUBMITTED

Murray Klippenstein

Basil Alexander

Counsel to Pollution Probe