

December 15, 2009

BY COURIER (7 COPIES) AND EMAIL

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
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Toronto, Ontario M4P 1E4
Fax: (416) 440-7656
Email: boardsec@oeb.gov.on.ca

Dear Ms. Walli:

**Re: Pollution Probe – Motion for Interrogatory Responses
EB-2009-0139 – Toronto Hydro – 2010 Rates**

Please find enclosed Pollution Probe's motion to the Board for full and adequate interrogatory responses from Toronto Hydro.

Yours truly,



Basil Alexander

BA/ba

Encl.

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

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").

MOTION RECORD

**(Pollution Probe Motion for
Full and Adequate Interrogatory Responses**

December 15, 2009

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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”).

NOTICE OF MOTION

(Pollution Probe Motion for Full and Adequate Interrogatory Responses)

THE INTERVENOR, POLLUTION PROBE, will make a motion to the Board on a date and
time to be set by the Board, at the Board’s Hearing Room, 25th Floor, 2300 Yonge Street,
Toronto, Ontario, M4P 1E4.

PROPOSED METHOD OF HEARING: The motion is to be heard:

- ☐ in writing because it is ;
- ☐ in writing as an opposed motion;
- ☒ orally.

THE MOTION IS FOR:

1. An Order that Toronto Hydro shall provide full and adequate responses to Pollution
Probe Interrogatory Nos. 2, 3, 6, and 7; and

2. Such further and other relief as counsel may request and that seems just to the Board.

THE GROUNDS FOR THE MOTION ARE:

A. Summary

1. Pollution Probe is respectfully seeking that the Board order that Toronto Hydro provide full and adequate interrogatory responses to four Pollution Probe interrogatories relating to combined heat and power (“CHP”).
2. In particular, Toronto Hydro did not provide a full and adequate response to Pollution Probe Interrogatory No. 3 as Toronto Hydro disagreed with Pollution Probe’s requested assumption change in the interrogatory and thus did not conduct the requested recalculations or produce the requested updated graph. However, Pollution Probe submits that such a dispute about which assumptions to use is a question properly left for the hearing, and this dispute is not an acceptable reason for Toronto Hydro to not provide a full and adequate answer. Toronto Hydro should thus be required to answer the interrogatory by providing the requested recalculations and graph in light of the assumption change in the interrogatory.
3. Toronto Hydro also did not provide full and adequate responses to Pollution Probe Interrogatory Nos. 6 and 7 (also relating to CHP) because Toronto Hydro claimed that the interrogatories did not pertain to any approved issue, and that a Board Code prescribes policy regarding the connection of CHP to Toronto Hydro’s distribution grid, thus apparently obviating the need to answer the interrogatory. However, Pollution Probe submits that this response does not take into account the Board’s decision regarding the Issues List in this Application, the wording of the applicable Code, and the recent addition of s. 78(3.0.5) to the *Ontario Energy Board Act, 1998*. Toronto Hydro should thus be required to answer these two interrogatories as well.

4. Finally, with respect to Pollution Probe Interrogatory No. 2, Toronto Hydro indicated as part of its response that it was not in a position to comment on any additional or related materials that Navigant Consulting, Inc. may have prepared for the Ontario Power Authority regarding distributed generation in Toronto. However, Pollution Probe submits that Toronto Hydro ought to make reasonable inquiries of the OPA in this regard in order to provide a full and adequate response to this interrogatory. Such inquiries are appropriate given the general importance of these issues to Toronto (including in light of the potential avoidance of a Third Transmission Line to Toronto) as well as the joint involvement of both Toronto Hydro and the OPA in the distributed generation reports filed by Toronto Hydro in this Application.

B. Detailed Submissions

1. Using Different Assumption to Recalculate and Regraph CHP's Evaluated Costs (Pollution Probe Interrogatory No. 3)

5. As part of the distributed generation reports created by Navigant Consulting, Inc. ("Navigant") and filed by Toronto Hydro in this Application, Navigant calculated the "evaluated cost" for various types of CHP and produced a graph at page 116 to compare the "evaluated costs" of various forms of distributed generation. The calculations assumed that differential seasonal heat rates needed to be accounted for as part of the calculations for CHP (e.g. 5,766 Btu/kWh and 9,100 Btu/kWh for large CHP).
6. Pollution Probe believes that it is more appropriate for the CHP "evaluated cost" calculations to instead use a uniform low heat rate (i.e. likely 5,766 Btu/kWh using the example above, which would then be applicable across all seasons). That is, to minimize its cost of producing electricity, a CHP unit must be sized to equal its minimum annual thermal load in order to minimize its annual average heat rate. As a result, Pollution Probe believes that Navigant's calculated "evaluated cost" for various CHP options is higher than it should be since it has assumed that the CHP units will not be sized to equal

their minimum thermal loads which is necessary to maximize their energy efficiency and minimize their annual cost per MWh of producing electricity.

7. Pollution Probe Interrogatory No. 3 accordingly asked Toronto Hydro to recalculate the “evaluated costs” for the various CHP projects assuming that they are properly sized to equal their minimum thermal loads (which would yield a heat rate of approximately 5,766 Btu/kWh for large CHP) instead of the different seasonal heat rate assumptions used by Navigant. The interrogatory also asked that the corresponding graph be reproduced and that all key input assumptions be provided. However, Toronto Hydro and Navigant did not complete these requests as they do not agree with the above premise of Pollution Probe’s interrogatory. No other reasons were cited.
8. With respect, whether or not Toronto Hydro and Navigant agree with Pollution Probe is irrelevant and immaterial, or at least not determinative, to whether Toronto Hydro should provide an interrogatory response. Pollution Probe is testing the underlying assumptions of the report (as well as the resulting “evaluated cost” calculations), and Pollution Probe is entitled to ask for recalculations and the corresponding graph with reasonable different assumptions for comparison purposes. Pollution Probe is thus properly entitled to a full and adequate interrogatory response as the interrogatory is relevant and the answer can be provided with reasonable effort.
9. For clarity, providing such an interrogatory response does not mean that Toronto Hydro or Navigant necessarily accept Pollution Probe’s assumptions. However, the hearing is the proper place to hear and determine those issues and disputes, not by Toronto Hydro or Navigant peremptorily refusing to provide a full and adequate interrogatory response.

2. Ascertaining Toronto Hydro’s Position on Potential Barriers to Connecting CHP (Pollution Probe Interrogatories Nos. 6 & 7)

10. As the Board will recall, Pollution Probe previously proposed the following issue for this proceeding:

Should Toronto Hydro's policies with respect to recovering its costs of adding CHP generation to its distribution grid be amended to encourage the development of CHP?

11. In response, the Board stated the following in its *Issues List Decision and Procedural Order No. 2*:

The Board finds that it is unnecessary to place this issue on the Issues List. The Board is of the view that to the extent that there are issues identified in the distributed generation report that pertain to barriers to distributed generation connection[,] this issue is also subsumed under issue 1.1 of the Final Issues List and that Pollution Probe and other parties may ask questions related to CHP which legitimately arise from Toronto Hydro's filed distributed generation report. [emphasis added]

12. Pollution Probe accordingly asked interrogatories to Toronto Hydro regarding who should pay the costs of connecting CHP to Toronto Hydro's distribution grid. Pollution Probe Interrogatory No. 6 specifically asked if it was Toronto Hydro's position that CHP facilities should bear 100% of Toronto Hydro's costs of connecting them to its distribution system and to provide further details if Toronto Hydro's position was something different. In response, Toronto Hydro stated that the issue does not pertain to any approved issue and that Toronto Hydro does not set policy in this area, as a Board Code (apparently) prescribes the policy. Pollution Probe Interrogatory No. 7 asked whether Toronto Hydro would be opposed to a Board directive to apply similar cost-sharing principles for CHP as the recently approved changes for renewable generation (and to explain any such opposition). Toronto Hydro simply responded that the question does not pertain to any approved issue.
13. With respect, Pollution Probe submits that these interrogatories are relevant and directly related to Issue 1.1, particularly given the Board's findings in the *Issues List Decision and Procedural Order No. 2* as described above. The interrogatories also legitimately arise from the issues discussed in the Navigant distributed generation reports filed by Toronto Hydro in this Application. For example, the Manager's Report provided by Navigant specifically states in the Summary section that next steps include:

Developing an implementation plan for the preferred solution that could include development of additional CDM programs, working with stakeholders to lower barriers to distributed generation (including incentives as appropriate), reinforcing distribution and transmission system facilities as necessary (leveraging Smart Grid initiatives where possible) and phasing of system upgrades to manage short circuit levels.

14. Pollution Probe also submits that the Board's *Distribution System Code* only provides that distributors "may" (i.e. not "shall") recover such costs from customers. As a result, the *Code* is not prescriptive, as Toronto Hydro claims, since discretion is present. Further, Pollution Probe submits that Toronto Hydro's response does not account for the recently added section 78(3.0.5) of the *Ontario Energy Board Act, 1998*, which specifically provides that:

The Board may, in approving or fixing just and reasonable rates or in exercising the power set out in clause 70 (2) (e), adopt methods that provide,

- (a) incentives to a transmitter or a distributor in relation to the siting, design and construction of an expansion, reinforcement or other upgrade to the transmitter's transmission system or the distributor's distribution system;
or
- (b) for the recovery of costs incurred or to be incurred by a transmitter or distributor in relation to the activities referred to in clause (a). [emphasis added]

15. The Board thus now has explicit statutory authority to make decisions about how such potential connection and expansions costs should be dealt with at a distributor level.
16. Pollution Probe thus submits that Pollution Probe is properly entitled to full and adequate interrogatory responses as the interrogatories are relevant and the answers can be provided with reasonable effort.

3. Toronto Hydro Ought To Make Reasonable Inquiries of the OPA Regarding Any Additional or Related Work on Distributed Generation in Toronto (Pollution Probe Interrogatory No. 2)

17. As part of Pollution Probe Interrogatory No. 2, Pollution Probe asked whether Navigant prepared any related or additional reports or materials regarding distributed generation in Toronto for either Toronto Hydro or the Ontario Power Authority. As part of its response, Toronto Hydro indicated that it was not in a position to “comment” on what additional materials Navigant prepared for the OPA (if any).
18. Pollution Probe respectfully submits that Toronto Hydro ought to be required to make reasonable inquiries of the OPA in order to provide a full and adequate response to this interrogatory. The interrogatory is relevant given the importance of these issues (including the fact that distributed generation may help avoid a potential third transmission line to Toronto). Toronto Hydro’s use of the word “comment” in its response is also confusing as a possible interpretation is that Toronto Hydro may be aware of such work done for the OPA but is choosing not to discuss that work. Regardless, Pollution Probe notes that both Toronto Hydro and the OPA retained Navigant to prepare the distributed generation studies filed by Toronto Hydro in this Application, so it would thus be surprising if the OPA would not provide any such important germane information regarding Toronto Hydro’s service area upon reasonable inquiries from Toronto Hydro. In other words, a full and adequate response can be provided with reasonable effort.

D. Statutory Instruments Relied On

19. Pollution Probe particularly relies on section 78(3.0.5) of the *Ontario Energy Board Act*, 1998, and Rules 28 and 29 of the Board’s *Rules of Practices and Procedure*.

THE FOLLOWING DOCUMENTARY EVIDENCE will be used at the hearing of the motion:

1. Marked copies of Pollution Probe Interrogatory Nos. 2, 3, 6, and 7 (Exhibit R1, Tab 8, Schedules 2, 3, 6, and 7) [Motion Record, Tab 2];
2. Marked excerpt from *Central and Downtown Toronto Distributed Generation – Final Report* (Exhibit Q1, Tab 4, Schedule 1-3) [Motion Record, Tab 3];
3. Marked excerpt from *EB-2007-0680 Decision* dated May 15, 2008 [Motion Record, Tab 4];
4. Marked excerpt from *Issues List Decision and Procedural Order No. 2* [Motion Record, Tab 5];
5. Marked copy of City of Toronto's Submissions dated June 22, 2009 on the Proposed Amendments to the Distribution System Code [Motion Record, Tab 6];
6. Marked excerpt from *Executive Summary: Distributed Generation in Central and Downtown Toronto* (Exhibit Q1, Tab 4, Schedule 1-1) [Motion Record, Tab 7];
7. Marked excerpt from *Manager's Report: Distributed Generation in Central and Downtown Toronto* (Exhibit Q1, Tab 4, Schedule 1-2) [Motion Record, Tab 8];
8. Marked copy of section 78(3.0.5) of the *Ontario Energy Board Act, 1998*, S.O. 1998, c. 15, Schedule B [Motion Record, Tab 9];
9. Marked excerpt from the *Distribution System Code* [Motion Record, Tab 10];
10. Marked copies of Rules 28 and 29 of the Board's *Rules of Practice and Procedure* [Motion Record, Tab 11]; and

11. Such further materials as Pollution Probe may submit.

Date: December 15, 2009

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TO: TORONTO HYDRO-ELECTRIC SYSTEM LIMITED
per Procedural Order No. 1, Appendix A

AND TO: INTERVENORS
per Procedural Order No. 1, Appendix A

INTERROGATORIES OF POLLUTION PROBE

1 **INTERROGATORY 2:**

2 **Reference(s):** Exhibit Q1, Tab 4, Schedules 1-1, 1-2, & 1-3

3

4 In this proceeding, Toronto Hydro filed copies of three sets of materials by Navigant
5 Consulting, Inc. regarding distributed generation in Toronto. Did Navigant Consulting,
6 Inc. prepare any other related reports or materials for Toronto Hydro and/or the Ontario
7 Power Authority (e.g. an Analyst's Report, other additional or more detailed
8 reports/materials, etc.)? If yes, please provide copies of these materials.

9

10 **RESPONSE:**

11 All materials prepared by Navigant Consulting Inc. for THESL regarding distributed
12 generation are contained in the reports filed in Exhibit Q1, Tab 4 Schedules 1-1, 1-2, and
13 1-3. These reports integrate and update material previously provided by Navigant
14 Consulting Inc. at workshops conducted with industry stakeholder groups in Toronto on
15 February 25, 2009 and April 17, 2009. The filed reports are the most complete record of
16 Navigant Consulting's analysis and findings.

17

18 THESL is not in a position to comment on what additional materials, if any, Navigant
19 Consulting Inc. prepared for the Ontario Power Authority.

INTERROGATORIES OF POLLUTION PROBE

1 **INTERROGATORY 3:**

2 **Reference(s):** Exhibit Q1, Tab 4, Schedule 1-3

3

4 Page 116 of Schedule 1-3 includes a graph showing the evaluated costs of various
5 distributed generation technologies. However, according to pages 108 and 110, the costs
6 for the various CHP technologies appear to be calculated based on the assumption that
7 they would not be properly sized to match their minimum thermal loads. Please re-
8 calculate these costs and reproduce the graph on page 116 assuming that the CHP
9 technologies are instead properly sized to meet their minimum thermal loads. Please
10 provide all of the key input assumptions for your revised cost calculations for each of the
11 CHP technologies

12

13 **RESPONSE:**

14 Neither Navigant Consulting nor THESL accept the premise of Pollution Probe's
15 question, which is that the units in question are not properly sized for purposes of the
16 analysis.

17

18 The sizing assumptions for the CHP technologies are given on page 81 of the report
19 provided in Exhibit Q1, Tab 4, Schedule 1-3. The thermal energy duration curves for
20 four buildings provided on this page were used to inform Navigant Consulting's sizing
21 assumptions. Both the sizing and cost methodology were presented to industry
22 stakeholder groups in workshops conducted by Navigant Consulting in Toronto on
23 February 25, 2009 and April 17, 2009.

INTERROGATORIES OF POLLUTION PROBE

1 **INTERROGATORY 6:**

2 **Reference(s):** none

3


4 Is it Toronto Hydro's position that new CHP facilities should reimburse Toronto Hydro
5 for 100% of the costs of connecting such facilities to the Toronto Hydro distribution grid?

6 If not, please clearly describe Toronto Hydro's position on this issue and its supporting
7 rationale.

8

9 **RESPONSE:**

10 This question does not pertain to any approved issue. Furthermore, THESL does not set
11 policy in this area; rather, it is prescribed by way of OEB Code.



INTERROGATORIES OF POLLUTION PROBE

1 INTERROGATORY 7:

2 **Reference(s):** EB-2009-0077, *Notice of Amendment To A Code: Amendments*
 3 *To The Distribution System* dated October 21, 2009
 4

5 On October 21, 2009, the Board amended its *Distribution System Code* with respect to
 6 how the costs of connecting a new renewable generating facility to an electric LDC's
 7 system would be shared between the generating facility and the LDC. Specifically,
 8 according to page 2 of the *Notice of Amendment*:

- 9 • cost responsibility for "expansions" would be assigned as follows:
 - 10 o where the expansion is in a Board-approved plan or is otherwise
 - 11 approved or mandated by the Board, the distributor would be
 - 12 responsible for all costs of the expansion; and
 - 13 o in all other cases, the distributor would be responsible for the costs of
 - 14 the expansion up to a "renewable energy expansion cost cap" (\$90,000
 - 15 per MW of capacity on the connecting generator), and the generator
 - 16 would be responsible for all costs above that amount; and
 - 17 • the distributor would bear all of the costs of "renewable enabling
 - 18 improvements".

19
 20 Would Toronto Hydro be opposed to a directive from the Board to apply the same or
 21 similar cost-sharing principles to new natural gas-fired CHP facilities in its service
 22 territory? If so, please fully explain why.
 23

24 **RESPONSE:**

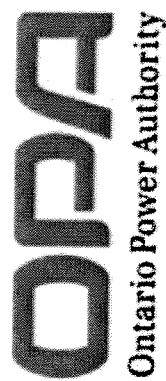
25 This question does not pertain to Issue 1.1 or any other approved issue.

Toronto Hydro-Electric System Limited
EB-2009-0139
Exhibit Q1, Tab 4, Schedule 1-3
ORIGINAL
(212 pages)

Central and Downtown Toronto Distributed Generation

Final Report

Prepared for:



July 28, 2009

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www.navigantconsulting.com

NAVIGANT
CONSULTING

Calculating the evaluated cost for a DG project starts with an estimate of the project's net revenue requirement.

- Evaluation model requires estimate of Net Revenue Requirement (NRR) for each generation type
 - As discussed NRR represents payment required by generation developer to cover fixed cost for plant = annual payment required by proponent to build the facility (ensures desired return on equity and allow payment of interest on debt)
 - Analogous to the annual cost for the 1 million CFLs, but based on a more complex analysis
 - Reflects capital structure of 70/30 debt equity with debt cost = 6.5% and target equity return = 11%
- Table shows estimation of monthly NRR (\$ / kW-month) for large CHP

	Units / Season	Large CHP
Overnight Capital Cost	(\$2008/kW)	\$2,500
Fixed O&M (installed)	(\$/kW-yr)	\$125
Variable O&M	(\$/MWh)	\$8.00
Heat Rate HHV	1	5,766
by	2	9,100
Season(Btu/kWh)	3	9,100
	4	5,766
Nameplate Capacity	(MW)	10.0
Total NRR (Fixed + Indexed)	2008 \$/kW-year	\$399
Monthly NRR	2008 \$/kW-month	\$33

The resulting evaluated cost for large CHP project is \$3.7 million/MW.

- The evaluated cost represents the estimated present value of payments from ratepayers to generation developer to build and operate this project over 20 years.

Evaluation Model Input and Corresponding Output

Input		Season	Base
Commercial Operation Date	(mm/dd/yyyy)	-	1/1/2013
Earliest Restatement Year	(year)	-	N
Earliest Restatement Month	(month)	-	N
Fixed Capacity Payment (FCP)	(\$/year)	-	3,990,000
Percentage of FCP to be Indexed to Specified Index	(%)	-	20%
Seasonal Contract Capacity	(MW)	1	10.0
		2	10.0
		3	10.0
		4	10.0
Seasonal Contract Heat Rate	(MMBTU/MWh)	1	5,766
		2	9,100
		3	9,100
		4	5,766



Year	Indexed Annual Fixed Capacity Payment (\$/year)	Annual Evaluated Cost Discounted to COD (Assuming Mid-Year Payments)
2013	3,989,481	3,301,361
2014	4,005,438	3,238,500
2015	4,021,716	2,843,270
2016	4,038,318	2,733,810
2017	.	.
2018	.	.
2019	.	.
2032	4,353,968	838,994
Present Value of Annual Evaluated Costs (\$)		37,275,296
Average Contract Capacity (MW)		10.00
Present Value of Annual Evaluated Costs (\$) / Average Contract Capacity (MW)		\$3,727,530

Detailed operating and financial assumptions for DG technologies modeled are shown below along with resultant NRRs.

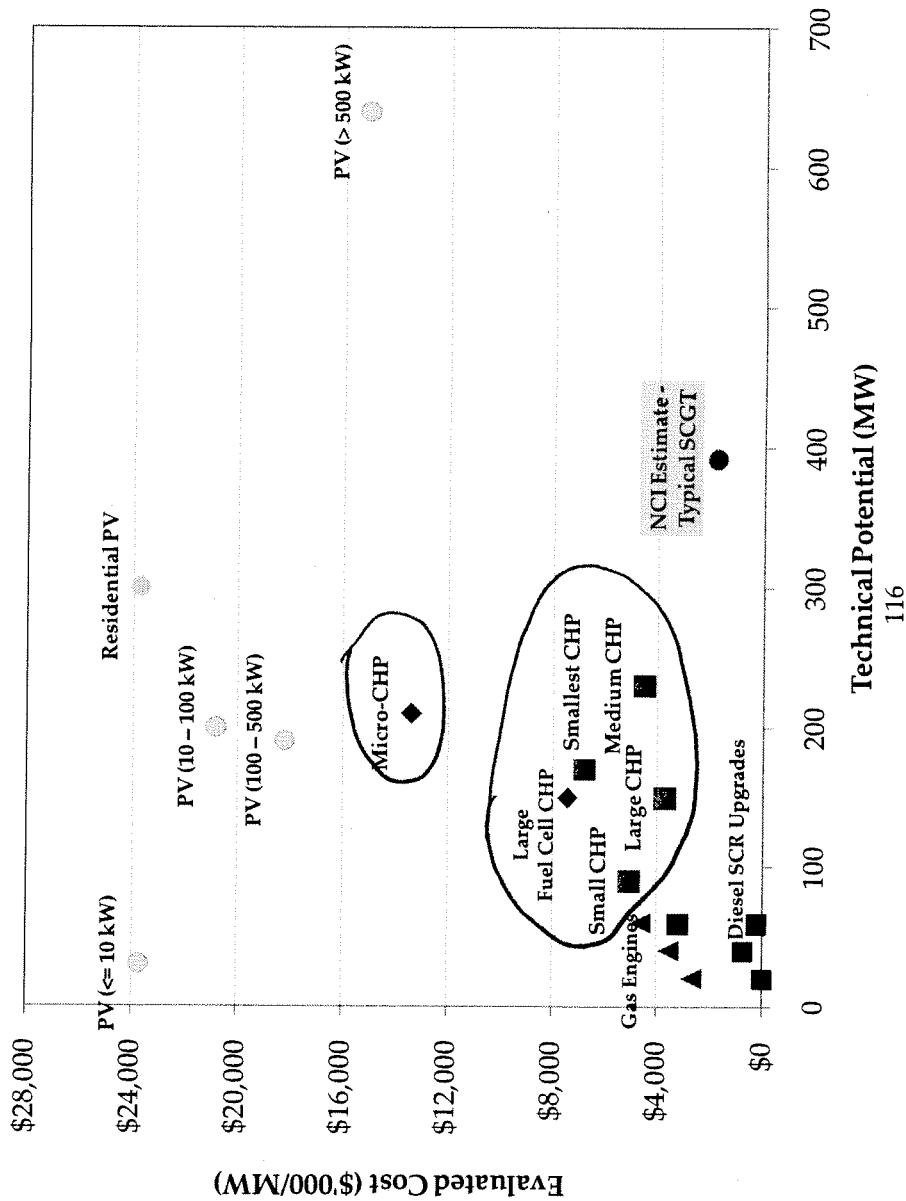
- NRRs range between \$22/kW-month at the low end (large gas capacity) to \$700/kW-month for large fuel cell capacity.
- Based on discussions with project developers and prior NCI analysis, fixed O&M costs by technology are equal to roughly 5% of capital cost. Fixed O&M costs will vary by project; however, the 5% of capital cost serves as a reasonable estimates.

Detailed Operating and Financial Assumptions by Project

	Units / Season	Large CHP	Medium CHP	Small CHP	Smallest CHP	Large Gas Engine	Medium Gas Engine	Small Gas Engine	Smallest Gas Engine	Fuel Cell	Micro-CHP
Overnight Capital Cost	(\$2008/kW)	\$2,500	\$2,900	\$3,200	\$4,000	\$1,700	\$2,000	\$2,200	\$2,800	\$4,500	\$8,300
Fixed O&M (installed)	(\$/kW-yr)	\$125	\$147	\$162	\$200	\$85	\$100	\$110	\$110	\$225	\$415
Variable O&M	(\$/MWh)	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8
Heat Rate HHV by Season(Btu/kWh)	1	5,766	5,766	5,766	5,766					5,500	5,600
	2	9,100	9,100	9,100	9,100			9,100	9,100	8,000	11,100
	3	9,100	9,100	9,100	9,100	9,100				8,000	11,100
	4	5,766	5,766	5,766	5,766					5,500	5,600
Nameplate Capacity	(kW, MW)	5-10 MW	1-5 MW	500kW-1 MW	100-500 kW	5-10 MW	1-5 MW	500kW-1 MW	100-500 kW	100kW-10MW	1.8 kW
Total NRR (Fixed + Indexed)	2008 \$/kW-year	\$399	\$469	\$516	\$638	\$266	\$313	\$344	\$422	\$703	\$1,222
Monthly NRR	2008 \$/kW-month	\$33	\$39	\$43	\$53	\$22	\$26	\$29	\$35	\$59	\$102

A view of the evaluated cost and technical potential by each technology provides a perspective on the relative costs of DG.

- The estimated evaluated cost of peaking gas capacity provides perspective on the relative cost of DG; however, other costs and benefits do exist.



Stakeholders identified critical conditions and possible policies for success of a distributed generation initiative in Central and Downtown Toronto.

- In the second stakeholder consultation session held April 17, stakeholders were asked to identify the critical “non-price” conditions for success of a distributed generation initiative in Central and Downtown Toronto.
 - Specific elements for consideration included market and customer penetration, regulatory, equipment and resource availability, technical and operational performance and market (customer & developer) knowledge
- Several key possible policies and conditions for success were identified. The various conditions can be categorized into the following key themes
 1. The procurement initiative and underlying contracts should be as straightforward and simple as possible.
 2. Supportive rules and regulations for DG installations.
 3. Simplified / Streamlined Design and Engineering
 4. DG must provide a “value-add” for all parties involved.
 5. Sufficient knowledgeable resources are required (and are much higher than currently exist).
 6. Strong marketing and support system is required to ensure awareness and “sell” DG to potential candidate sites.

Supportive rules and regulations will provide a necessary framework for developing DG installations.

- OPA/THESL rules / regulations:
 - Approvals/interconnection process/agreement
 - Treatment of distribution system costs
 - Socialized standby charges
- City of Toronto rules / regulations
 - Codify DG (or redundancy) for new buildings
 - Toronto green development standard(s)
 - Economics/regulatory conditions; emergency backup/environmental
 - Technology champion – sustainable communities
 - Site plan requirement for DG
 - Fast-track new permits with a DG component
 - Safety standards
- Other
 - Income tax treatment

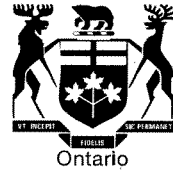
Combined Heat and Power (CHP) can significantly improve the energy efficiency of fuel-fired DG systems.

- CHP systems:
 - Recover thermal energy produced by the power-generation process to satisfy heating loads
 - Can also meet space-cooling loads by using waste heat to drive absorption chillers and/or regenerate (dry out) the desiccant in desiccant dehumidification systems
- Not all heat generated can be recovered and used because:
 - Heat recovered may exceed coincident thermal loads
 - Some heat is radiated to ambient air or lost through exhaust gases
 - Some heat will be at a temperature too low to use
- The economic attractiveness of CHP depends on:
 - Magnitude and uniformity of building thermal loads
 - Complexity of installation
 - Degree to which the need for conventional heating equipment is displaced

||

Ontario Energy
Board

Commission de l'énergie
de l'Ontario



EB-2007-0680

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 or
fixing just and reasonable rates and other charges for the
distribution of electricity to be effective May 1, 2008, May
1, 2009, and May 1, 2010.

BEFORE: Paul Sommerville
Presiding Member

Paul Vlahos
Member

David Balsillie
Member

DECISION

May 15, 2008

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Appendix “A” - Issues List

Appendix “B” – Intervenor

Appendix “C” – Settlement Agreement

initiative in January 2008 to better understand this issue. In the Board's view it would not be appropriate for the Board to direct a different regulatory treatment for the Applicant than for the sector as a whole by eliminating the provision for a true-up. Moreover, while there is always room for improvement in this area, the Applicant's line losses do not appear to be excessive. The Board does not accept Pollution Probe's proposal and accepts the Company's provision for line losses at 3.1%.

5.3 Distributed Generation

Currently, virtually all of the electricity for Downtown Toronto is supplied through two transmission lines. Concern about ability to supply Downtown Toronto in the future has caused the OPA to consider a third line, at a capital cost of \$600 Million.

Pollution Probe noted that neither the Government of Ontario nor Toronto Hydro support a third line. The solution, according to Pollution Probe, is more distributed generation ("DG").

Pollution Probe noted that 300MW of DG would eliminate the supply problem but acknowledged the Applicant's possible limitations as to the size of installation which could be accommodated on the Applicant's distribution system. Pollution Probe therefore proposed that the embedding of thirty 10MW generators within Toronto would be sufficient to avoid the third line.

Pollution Probe also contended that, along with distributed generation, CDM could further reduce the requirement for this additional supply. Pollution Probe compared the budgets for the CDM (\$22Million) and Supply-Side Infrastructure (\$906Million) programs, inferring a lack of strong commitment to CDM by the Applicant.

The Applicant asserted that the issue of whether or not there should be new transmission supply to Toronto is a transmission issue that should be addressed elsewhere, such as in the IPSP proceeding currently before the Board. It also suggested that issues concerning distributed generation, transmission and distribution cost responsibility and rate design are being reviewed by the Board at this time in other generic proceedings.

The Applicant contended that possible solutions examined include connections for DG and self-generation, but that these must make sense from engineering, economic and

DECISION

regulatory perspectives. For example, DG customers are required to fully fund connections to the network since they do not currently pay distribution or use-of-system charges if they do not take load. This system protects load ratepayers from subsidizing the costs for distributed generators to connect to the Applicant's system.

Board Findings

Leaving aside the question of the need for the third transmission line, which the Board acknowledges is best addressed through other proceedings, including the IPSP application currently before the Board, the Board considers that the Applicant should facilitate connections for DG and self-generation, where they can be implemented practically and economically, both from the perspective of the generator and of the Applicant and its load customers.

With regard to conservation and demand management, it would be premature for the Board to comment on the specific suggestions made by Pollution Probe, as the IPSP proceeding has not yet been completed.

The Board observes that the Applicant's study of distributed generation has not been rigorous. Therefore, the Board directs the Applicant to conduct a study into the capability, costs and benefits of incorporating into the Applicant system, a significant (up to 300MW) component of bi-directional distributed generation in Toronto. In this study, the Applicant should also incorporate the outcomes, as they pertain to distributed generation, of two items which are currently being considered by the Board: 1) enabler lines and their connection costs; and 2) the IPSP. The study should also be responsive to any new policy or regulatory developments in these areas. This study shall be filed as part of the Company's next application dealing with rates beyond the test period dealt with in this proceeding.

Ontario Energy
Board

Commission de l'énergie
de l'Ontario



EB-2009-0139

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.

**ISSUES LIST DECISION
and
PROCEDURAL ORDER NO. 2**

Toronto Hydro-Electric System Limited ("Toronto Hydro", the "Company" or the "Applicant") filed an application, dated August 28, 2009, with the Ontario Energy Board under section 78 of the *Ontario Energy Board Act*, S.O. 1998, c.15, Schedule B, seeking approval for changes to the rates that Toronto Hydro charges for electricity distribution, to be effective May 1, 2010.

The Board issued a Notice of Application and Hearing dated September 16, 2009. In Procedural Order No.1, issued on October 19, 2009, the Board approved 10 intervention requests.

Issues List Decision

Procedural Order No. 1 contained a draft issues list. Submissions on the draft issues list were received from the following parties:

Vulnerable Energy Consumers Coalition ("VECC")
Association of Major Power Consumers in Ontario ("AMPCO")
Consumers Council of Canada ("CCC")
Pollution Probe ("PP")
School Energy Coalition ("SEC")
Canadian Union of Public Employees, Local One ("CUPE One")
Building Owners and Managers Association of the Greater Toronto Area ("BOMA")
Smart Sub-metering Working Group ("SSWG")

Toronto Hydro provided two submissions, dated October 26, 2009 and October 30, 2009, respectively.

The Board has considered all submissions in establishing a final issues list which is attached as Appendix A. The parties were generally satisfied with the draft issues list, however several changes and clarifications were requested. These are reviewed below along with the Board's rationale in addressing each of these requests.

1. GENERAL

- 1.1 Has Toronto Hydro responded appropriately to all relevant Board directions from previous proceedings?
- 1.2 Are Toronto Hydro's economic and business planning assumptions for 2010 appropriate?
- 1.3 Is service quality, based on the OEB specified performance indicators, acceptable?
- 1.4 Is the overall increase in the 2010 revenue requirement reasonable given the impact on consumers?

Pollution Probe stated that it supported proposed Issue 1.1 in light of the distributed generation study previously required by the Board. Pollution Probe also proposed two new additional issues related to distributed generation and combined heat and power ("CHP") implementation. The first of these issues was: "Are Toronto Hydro's proposed programmes and budgets to reduce its distribution system constraints to the installation of distributed generation appropriate?"

Pollution Probe argued that this additional issue should be included as it was one of the next logical steps as a result of the Board's previous direction, Toronto Hydro's responding studies, and other recent developments.

Pollution Probe stated that in the alternative to placing this issue on the Issues List, if the Board was of the view that this proposed issue is covered by other issues on the Issues List, it would accept a clear statement by the Board to that effect in lieu of placing this issue on the issues list.

Toronto Hydro opposed the inclusion of this issue, arguing that the Board's issue no. 1 was appropriate and covered Pollution Probe's theme of being permitted to ask questions about Toronto Hydro's pre-filed study on distributed generation. Toronto Hydro also stated that Pollution Probe and others were entitled to ask Toronto Hydro about proposed 2010 budget expenditures in connection with distributed generation.

The Board finds that it is unnecessary to place this issue on the Issues List. The Board is of the view that this issue is subsumed under issue 1.1. Pollution Probe and other parties may raise questions and issues related to distributed generation, legitimately arising from the distributed generation report filed by Toronto Hydro in the present application in compliance with the requirement of the Board in its EB-2007-0680 Decision.

The second issue proposed by Pollution Probe was: "Should Toronto Hydro's policies with respect to recovering its costs of adding CHP generation to its distribution grid be amended to encourage the development of CHP?"

Pollution Probe argued that this additional issue was another logical step as a result of the Board's previous direction and Toronto Hydro's responding studies regarding distributed generation. Pollution Probe added that a key practical question arising as a result is who should pay for the costs of connecting CHP to Toronto Hydro's distribution system.

Pollution Probe stated that, as with the first issue, in the alternative to placing this issue on the Issues List, if the Board was of the view that this proposed issue is covered by other issues on the Issues List, it would accept a clear statement by the Board to that effect in lieu of placing this issue on the issues list.

Toronto Hydro objected to the inclusion of this proposed issue on the grounds that it presupposes a policy change of the Province of Ontario which did not exist to its knowledge, and otherwise constituted a generic issue for the broader Ontario electricity sector.

The Board finds that it is unnecessary to place this issue on the Issues List. The Board is of the view that to the extent that there are issues identified in the distributed generation report that pertain to barriers to distributed generation connection this issue is also subsumed under issue 1.1 of the Final Issues List and that Pollution Probe and other parties may ask questions related to CHP which legitimately arise from Toronto Hydro's filed distributed generation report.

2. LOAD and REVENUE FORECAST

2.1 Is the load forecast and methodology appropriate and have the impacts of Conservation and Demand Management initiatives been suitably reflected?

2.2 Is the proposed amount for 2009 other revenues appropriate?

Toronto Hydro proposed that in Issue 2.2, "2009" should be replaced with "2010". The Board accepts this change.

Pollution Probe proposed that a new issue be added to the Issues List, which was "Are Toronto Hydro's proposed CDM programmes and budgets appropriate?"

Pollution Probe submitted that it was important for the Board to know what CDM is being done now and whether more should be done, particularly in light of various recent developments such as the passage of the *Green Energy and Green Economy Act, 2009*.

Pollution Probe further argued that the fact the OPA may fund some or all of the CDM programs does not determine or preclude the Board's review of a distributor's CDM programs to ensure that they are appropriate and that it is the Board's fundamental role

Richard Butts
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June 22, 2009

Ms. Kirsten Walli, Secretary
Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, Suite 2700
Toronto, ON M4P 1E4

Dear Ms. Walli:

Re: EB-2009-0077 Proposed Amendments to the Distribution System Code

The City of Toronto supports the Board's June 5, 2009 proposed amendments to the Distribution System Code to facilitate the implementation of the Government's policy objectives with respect to renewable generation. Specifically, the City of Toronto supports the Board's proposal to shift, from the generator to the distributor, distribution system costs associated with system expansions and enhancements which support connection of renewable generation. The City of Toronto agrees with the Board that its proposed amendments are consistent with the renewable energy objectives of the *Green Energy and Green Economy Act, 2009*.

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 June 2006, Toronto City Council provided direction on the development of the Energy Plan for Toronto:

"To adopt a "conservation first" energy strategy that positions conservation and demand management as the preferred first action with renewable energy being the next highest priority to meet the energy needs of the City of Toronto's Divisions, Agencies, Boards, Commissions, and Corporations and the city as a whole.

The City of Toronto makes the submission that the proposed DSC amendments should also apply to other forms of distributed generation, including CHP, for the following reasons:

1. According to the preamble of the Green Energy and Green Economy Act, 2009:

"The Government of Ontario is committed to promoting and expanding energy conservation by

all Ontarians and to encouraging all Ontarians to use energy efficiently.”

2. The Board's objectives have been amended to include the promotion of the conservation of electricity as well as the promotion of the use and generation of electricity from renewable energy sources. Similarly, the Board's objectives with respect to gas were amended to include the promotion of energy conservation and energy efficiency.
3. By letter dated June 15, 2005 Ontario's energy minister indicated the Ontario government's support for CHP by directing the Ontario Power Authority to establish a natural gas-fired CHP standard offer program.
4. Therefore to implement Government policy and to assist in achieving the Board's legislative objectives, the Distribution System Code should also be amended to promote the efficient generation, distribution and use of energy, including electricity.
5. The combined production of heat and electricity (conventionally referred to as CHP leverages the efficiency of thermal generation of electricity by capturing excess thermal (heat) energy otherwise wasted. The result is a level of efficiency that simple generation cannot approach. A single-stage gas-fired electrical plant extracts 33% of the energy in fossil fuels as electricity and dumps the rest as waste heat. A combined-cycle generator turns some of the waste heat into more electricity, raising efficiency to 55%. CHP can achieve efficiencies higher than 90% by using the heat directly. As a result, CHP is widely considered to be the preferred choice for energy production from fossil fuel.
6. Distributed generation, including CHP facilities, can be located close to electrical load and thus avoid or significantly reduce energy losses that result in transmission and distribution of electricity. This effectively increases the efficiency of distributed CHP facilities even further.
7. CHP systems can help resolve a number of Toronto energy challenges:
 - 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.
 - Local electrical generation can be used to reduce peak. Peak electricity is expensive and additional incentives can be used to encourage “marginal” cost effective co-gen systems. Natural gas co-gen is cleaner than the coal powered plants that are part of Ontario's energy mix, and increasing their use will help reduce Toronto's contribution to greenhouse gas emissions.

The City of Toronto has a clear policy position and strategy for distributed generation, including CHP, which forms part of the City's climate & energy plan. The City is moving to remove municipal barriers to distributed generation on the one hand, and to incentivize and promote DG

on the other.

Distributed generation and cogeneration, and in particular CHP, are attractive energy resource solutions for Toronto, in the near and particularly the medium and long-term when critical supply and capacity issues must be addressed. They can provide added capacity to meet peak demand, provide additional energy supply, and reduce congestion. Benefits of distributed generation and cogeneration include: increased efficiency and reduced line losses; reduced greenhouse gas emissions; reduced transmission and distribution infrastructure spending; enhanced stability and security; and greater modularity and flexibility.

Yours truly,

A handwritten signature in dark ink, appearing to read 'R Butts', written in a cursive style.

Richard Butts
Deputy City Manager

MS/eh

c: Lawson Oates
 Michael Smith
 Richard Morris
 Ian Mondrow, Macleod Dixon, TD Centre, TD Waterhoiuse Tower

**EXECUTIVE SUMMARY:
DISTRIBUTED GENERATION IN CENTRAL AND
DOWNTOWN TORONTO**

Presented to



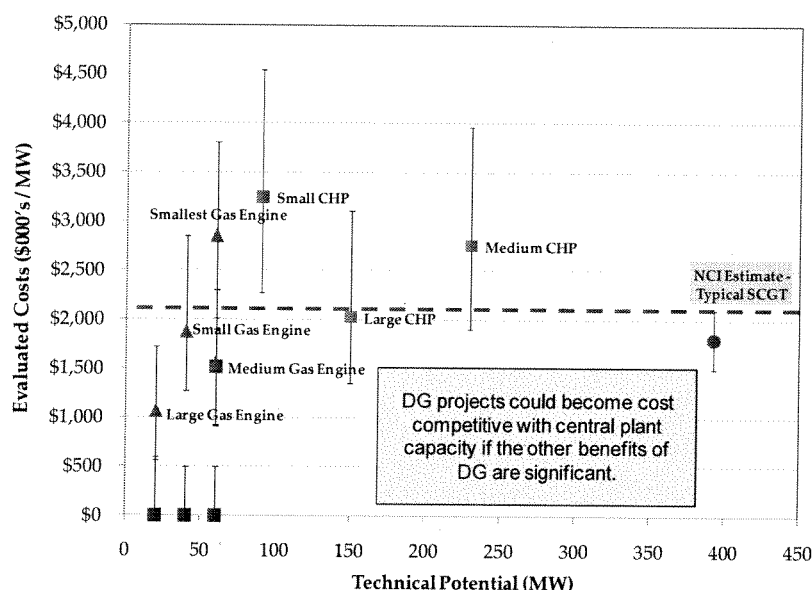
JULY 28, 2009

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Figure 1 on the following page indicates that, if these other benefits of DG are significant, many DG technologies would be economically attractive relative to a large peaking plant. Further analysis is required to determine the magnitude of these other additional benefits.

Figure 1 illustrates the potential impact these other benefits could have on the cost-effectiveness of DG based on the most favourable assumptions regarding these other benefits. The figure shows the combination of evaluated costs and technical potential for the most cost-effective of the DG technologies explored. Many of the DG technologies are further broken out by size category. See for example the green dot labeled "Medium CHP" in the middle of the figure. This "dot" indicates that the medium CHP size category (1 to 5 MW per generator) has a technical potential of approximately 230 MW (shown on the horizontal axis) and an evaluated cost (with the most favourable assumptions regarding the other potential benefits of DG) of just under \$3 million / MW (shown on the vertical axis). The vertical bar through this dot illustrates the range of evaluated cost for this DG technology given uncertainty with respect to capital cost and operating performance.

Figure 1: Relative Evaluated Cost of DG (High Value of Other Benefits)



Net of the other benefits described above and based on the most favourable assumptions regarding these other benefits, the evaluated cost are more than \$13 million / MW for non-residential PV and more than \$20 million / MW for residential PV. Hence, these technologies are not shown in Figure 1.

Potential Market Penetration for Distributed Generation in Central & Downtown Toronto

Navigant Consulting estimated the market penetration for various DG technologies based on expected customer willingness to install DG at various "price" points. In essence, customers'

willingness to develop a DG project will increase as the payback period for their investment decreases. The payback acceptance curves utilized by Navigant Consulting have proven to be accurate forecasting tools in many previous industry studies.

The expected market penetration ranges from 140 MW in the medium term to more than 550 MW in the long-term. Table 2 provides specific details on the expected market penetration of each DG technology in the medium term (~5 years) represented by the lower number in the expected range and the long term (~10 years) represented by the higher number in the expected range. Note that the penetration rate for non-residential and residential PV given in Table 2 is based on the feed-in-tariffs as proposed by the government. These proposed tariffs provide a payback on the initial investment of ten years or more. As a result, the expected penetration of the PV technologies as a percentage of the technical potential is very low. Conversely, the penetration rates for the non-PV technologies shown in Table 2 reflect a payment structure to customers that yields a very short (eg, 2 to 4 year) payback period so the expected penetration as a percentage of the technical potential is much higher than for the PV technologies.

Table 2: Expected Range of DG Penetration in Central & Downtown Toronto

Project Size	Technical Potential (MW)							
	Diesel Backup w/ SCR	Gas Engine	CHP	Fuel Cell CHP	Multi-Residential CHP	Micro-CHP	Non-Residential PV	Residential PV
100-500 kW	60	60	170	-	84	210	1,000	300
0.5 - 1 MW	40	40	90	-	-			
1-5 MW	60	60	230	150	-			
5-10 MW	20	20	150		-			
Total	180	180	640	150	84	210	1,000	300
Expected Range on Market Penetration (MW)	36-90	12-70	31-224	4-35	5-19	3-84	2-27	1-3

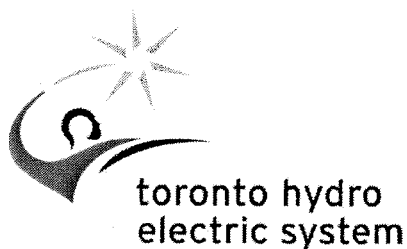
If the assumed payments underlying the non-PV penetration rates shown in Table 2 were to continue over a twenty year contract period, the evaluated costs for these DG technologies would be much higher than shown previously in Figure 1. Alternative contract and payment structures with lower evaluated costs may still satisfy customer desire for short payback periods. One option would be to offer higher initial payments to enable a short payback period on the initial investment, and then revert to lower payments over the remaining contract term.

Next Steps

The results of this study suggest that DG may be able serve some of the future electricity supply for Central and Downtown Toronto. However, this study is only a first step and further analysis is required by Toronto Hydro and the OPA to more fully understand how DG could serve the needs of Central and Downtown Toronto and how it could serve the

**MANAGER'S REPORT:
DISTRIBUTED GENERATION IN
CENTRAL AND DOWNTOWN TORONTO**

Presented to



JULY 28, 2009

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SUMMARY

Navigant Consulting estimates the potential market penetration for customer-connected distributed generation in Central and Downtown Toronto ranges from 140 MW in the medium term to more than 550 MW in the long-term. Table 1 provides specific details on the expected technical potential and market penetration of various distributed generation technologies in the medium and long term.

Table 1: Expected Range of Distributed Generation Penetration in Central & Downtown Toronto

Project Size	Technical Potential (MW)							
	Diesel Backup w/ SCR	Gas Engine	CHP	Fuel Cell CHP	Multi-Residential CHP	Micro-CHP	Non-Residential PV	Residential PV
100-500 kW	60	60	170	-	84	210	1,000	300
0.5 - 1 MW	40	40	90	-	-			
1-5 MW	60	60	230	150	-			
5-10 MW	20	20	150		-			
Total	180	180	640	150	84	210	1,000	300
Expected Range on Market Penetration (MW)	36-90	12-70	31-224	4-35	5-19	3-84	2-27	1-3

The penetration rate for non-residential and residential PV is based on the feed-in-tariffs as proposed by the government, which provide a payback on the initial investment of ten years or more. Conversely, the penetration rates for the non-PV technologies reflect an assumed payment structure to customers that yields very short (eg, 2 to 4 year) payback period so the expected penetration as a percentage of the technical potential is much higher than for the PV technologies.

The results of this study suggest that distributed generation may be able serve some of the future electricity supply for Central and Downtown Toronto. However, this study is only a first step and further analysis is required to more fully understand how distributed generation could serve the needs of Central and Downtown Toronto and how it could serve the provincial government's policy objectives. These next steps for Toronto Hydro and/or the OPA include:

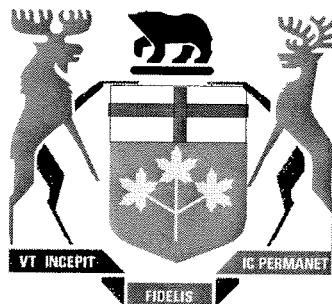
1. Information gathering with respect to the options and costs for upgrading the short-circuit capabilities of the distribution and transmission system in this area, the effects of Toronto Hydro's and the City of Toronto's aggressive CDM efforts, and an evaluation of the End of Life Asset Replacement plan for the transmission system serving this area.
2. Further analysis to identify the preferred Local Area Integrated Electrical Service solution that would serve as a long term plan for the local subsystem that meets the unique issues facing Central and Downtown Toronto. This analysis would assess local system impacts and examine the short-term, mid-term and long-term benefits and costs for each option.
3. Developing an implementation plan for the preferred solution that could include development of additional CDM programs, working with stakeholders to lower barriers to

distributed generation (including incentives as appropriate), reinforcing distribution and transmission system facilities as necessary (leveraging Smart Grid initiatives where possible) and phasing of system upgrades to manage short circuit levels.

Methods re incentives or recovery of costs

78 (3.0.5) The Board may, in approving or fixing just and reasonable rates or in exercising the power set out in clause 70 (2) (e), adopt methods that provide,

- (a) incentives to a transmitter or a distributor in relation to the siting, design and construction of an expansion, reinforcement or other upgrade to the transmitter's transmission system or the distributor's distribution system; or
- (b) for the recovery of costs incurred or to be incurred by a transmitter or distributor in relation to the activities referred to in clause (a). 2009, c. 12, Sched. D, s. 12 (2).



Ontario

ONTARIO ENERGY BOARD

Distribution System Code

Last revised on October 21, 2009
(Originally Issued on July 14, 2000)

Distribution System Code

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- APPENDIX H – Farm Stray Voltage Distributor Investigation Procedure

Distribution System Code

- 3.1.5 For non-residential customers, a distributor may define a basic connection by rate class and recover the cost of connection either as part of its revenue requirement, or through a basic connection charge to the customer.
- 3.1.6 All customer classes shall be subject to a variable connection charge to be calculated as the costs associated with the installation of connection assets above and beyond the basic connection. A distributor may recover this amount from a customer through a connection charge or equivalent payment.

3.2 Expansions

- 3.2.1 If a distributor must construct new facilities to its main distribution system or increase the capacity of existing distribution system facilities in order to be able to connect a specific customer or group of customers, the distributor shall perform an initial economic evaluation based on estimated costs and forecasted revenues, as described in Appendix B, of the expansion project to determine if the future revenue from the customer(s) will pay for the capital cost and on-going maintenance costs of the expansion project.
- 3.2.2 If the distributor's offer was an estimate, the distributor shall carry out a final economic evaluation once the facilities are energized. The final economic evaluation shall be based on forecasted revenues, actual costs incurred (including, but not limited to, the costs for the uncontestable work, and any transfer price paid by the distributor to the customer) and the methodology described in Appendix B.
- 3.2.3 If the distributor's offer was a firm offer, and if the alternative bid option was chosen and the facilities are transferred to the distributor, the distributor shall carry out a final economic evaluation once the facilities are energized. The final economic evaluation shall be based on the amounts used in the firm offer for costs and forecasted revenues, any transfer price paid by the distributor to the customer, and the methodology described in Appendix B.
- 3.2.4 The capital contribution that a distributor may charge a customer other than a generator or distributor to construct an expansion shall not exceed that customer's share of the difference between the present value of the projected capital costs and on-going maintenance costs for the facilities and the present value of the projected revenue for distribution services provided by those

Distribution System Code

facilities. The methodology and inputs that a distributor shall use to calculate this amount are described in Appendix B.

- 3.2.5 The capital contribution that a distributor may charge a generator to construct an expansion to connect a generation facility to the distributor's distribution system shall not exceed the generator's share of the present value of the projected capital costs and on-going maintenance costs for the facilities. Projected revenue and avoided costs from the generation facility shall be assumed to be zero, unless otherwise determined by rates approved by the Board. The methodology and inputs that a distributor shall use to calculate this amount are described in Appendix B.

3.2.5A Notwithstanding section 3.2.5 but subject to section 3.2.5B, a distributor shall not charge a generator to construct an expansion to connect a renewable energy generation facility:

- (a) if the expansion is in a Board-approved plan filed with the Board by the distributor pursuant to the deemed condition of the distributor's licence referred to in paragraph 2 of subsection 70(2.1) of the Act, or is otherwise approved or mandated by the Board; or
- (b) in any other case, for any costs of the expansion that are at or below the renewable energy generation facility's renewable energy expansion cost cap.

For greater clarity, the distributor shall bear all costs of constructing an expansion referred to in (a) and, in the case of (b), shall bear all costs of constructing the expansion that are at or below the renewable energy generation facility's renewable energy expansion cost cap.

3.2.5B Where an expansion is undertaken in response to a request for the connection of more than one renewable energy generation facility, a distributor shall not charge any of the requesting generators to construct the expansion:

- (a) if the expansion is in a Board-approved plan filed with the Board by the distributor pursuant to the deemed condition of the distributor's licence referred to in paragraph 2 of subsection 70(2.1) of the Act, or is otherwise approved or mandated by the Board; or
- (b) in any other case, for any costs of the expansion that are at or below the amount that results from adding the total name-plate rated capacity of each renewable energy generation facility referred to in section 6.2.9(a) (in MW) and then multiplying that number by \$90,000.

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For greater clarity, the distributor shall bear all costs of constructing an expansion referred to in (a) and, in the case of (b), shall bear all costs of constructing the expansion that are at or below the number that results from the calculation referred to in (b).

- 3.2.5C Where, in accordance with the calculation referred to in section 3.2.5B(b), a capital contribution is payable by the requesting generators, the distributor shall apportion the amount of the capital contribution among the requesting generators on a pro-rata basis based on the total name-plate rated capacity of the renewable energy generation facility referred to in section 6.2.9(a) (in MW).
- 3.2.6 If a shortfall between the present value of the projected costs and revenues is calculated under section 3.2.1, the distributor may propose to collect all or a portion of that amount from the customer in the form of a capital contribution, in accordance with the distributor's documented policy on capital contributions by customer class.
- 3.2.7 If the capital contribution amount resulting from the final economic evaluation provided for in section 3.2.2 or 3.2.3 differs from the capital contribution amount resulting from the initial economic evaluation calculation, the distributor shall obtain from the customer, or credit the customer for, any difference between the two calculations.
- 3.2.8 If an expansion is needed in order for a distributor to connect a customer, the distributor shall make an initial offer to connect the customer and build the expansion. A distributor's initial offer shall include, at no cost to the customer:
- (a) a statement as to whether the offer is a firm offer or is an estimate of the costs that would be revised in the future to reflect actual costs incurred;
 - (b) a reference to the distributor's Conditions of Service and information on how the customer requesting the connection may obtain a copy of them;
 - (c) a statement as to whether a capital contribution will be required from the customer;
 - (d) a statement as to whether an expansion deposit will be required from the customer and if the distributor will require an expansion deposit from the customer, the amount of the expansion deposit that the customer will have to provide; and
 - (e) a statement as to whether the connection charges referred to in sections 3.1.5 and 3.1.6 will be charged separately from the capital contribution

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referred to in section 3.2.8(c), and a description of, and if known, the amount for, those connection charges.

- 3.2.9 (b) If the distributor will require a customer to pay a capital contribution, the distributor must, in addition to complying with section 3.2.8, also include in its initial offer, at no cost to the customer:
- (a) the amount of the capital contribution that the customer will have to pay for the expansion;
 - (b) the calculation used to determine the amount of the capital contribution to be paid by the customer including all of the assumptions and inputs used to produce the economic evaluation as described in Appendix B;
 - (c) a statement as to whether the offer includes work for which the customer may obtain an alternative bid and, if so, the process by which the customer may obtain the alternative bid;
 - (d) a description of, and costs for, the contestable work and the uncontestable work associated with the expansion broken down into the following categories:
 - (i) labour (including design, engineering and construction);
 - (ii) materials;
 - (iii) equipment; and
 - (iv) overhead (including administration);
 - (e) an amount for any additional costs that will occur as a result of the alternative bid option being chosen (including, but not limited to, inspection costs);
 - (f) if the offer is for a residential customer, a description of, and the amount for, the cost of the basic connection referred to in section 3.1.4 that has been factored into the economic evaluation; and
 - (g) if the offer is for a non-residential customer and if the distributor has chosen to recover the non-residential basic connection charge as part of its revenue requirement, a description of, and the amount for, the connection charges referred to in section 3.1.5 that have been factored into the economic evaluation.
- 3.2.10 Once the customer has accepted the distributor's offer, and if the customer requests it, the distributor shall provide to the customer, at cost, an itemized list

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3.2.16 If a customer chooses to pursue an alternative bid and uses the services of a qualified contractor for the contestable work, the distributor shall:

- (a) require the customer to complete all of the contestable work;
- (b) require the customer to:
 - (i) select and hire the contractor;
 - (ii) pay the contractor's costs for the contestable work; and
 - (iii) assume full responsibility for the construction of that aspect of the expansion;
- (c) require the customer to be responsible for administering the contract (including the acquisition of all required permissions, permits and easements) or have the customer pay the distributor to do this activity;
- (d) require the customer to ensure that the contestable work is done in accordance with the distributor's design and technical standards and specifications; and
- (e) inspect and approve, at cost, all aspects of the constructed facilities as part of a system commissioning activity, prior to connecting the constructed facilities to the existing distribution system.

3.2.17 In addition to the capital contribution amounts in sections 3.2.4 and 3.2.5, the distributor may also charge a customer that chooses to pursue an alternative bid any costs incurred by the distributor associated with the expansion including, but not limited to, the following:

- (a) costs for additional design, engineering, or installation of facilities required to complete the project;
- (b) costs for administering the contract between the customer and the contractor hired by the customer if the distributor is asked to do so by the customer and the distributor agrees to do it; and
- (c) costs for inspection or approval of the work performed by the contractor hired by the customer.

When the customer transfers the expansion facilities to the distributor in accordance with section 3.2.18 and 3.2.19, the charges referred to above shall be included as part of the customer's costs for the purposes of determining the transfer price.

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- 3.2.27 Unforecasted customers that connect to the distribution system during the customer connection horizon as defined in Appendix B will benefit from the earlier expansion and should contribute their share. In such an event, the initial contributors shall be entitled to a rebate from the distributor. A distributor shall collect from the unforecasted customers an amount equal to the rebate the distributor shall pay to the initial contributors. The amount of the rebate shall be determined as follows:
- (a) for a period of up to the customer connection horizon as defined in Appendix B, the initial contributor shall be entitled to a rebate without interest, based on apportioned benefit for the remaining period; and
 - (b) the apportioned benefit shall be determined by considering such factors as the relative load level and the relative line length (in proportion to the line length being shared by both parties).
- 3.2.27A Notwithstanding section 3.2.27, when the unforecasted customer is a renewable energy generation facility to which section 3.2.5A or 3.2.5B applies and the customer entitled to a rebate under section 3.2.27 is a load customer or a generation customer to which neither section 3.2.5A nor 3.2.5B applies, the initial contributors shall be entitled to a rebate from the distributor in an amount determined in accordance with section 3.2.27. The distributor shall reduce the connecting renewable energy generation facility's renewable energy expansion cost cap by an amount equal to the rebate. If the amount of the rebate exceeds the connecting renewable generation facility's renewable energy expansion cost cap, the distributor shall also collect the difference from the connecting renewable energy generation customer.
- 3.2.28 A distributor shall prepare all estimates and offers required by section 3.2 in accordance with good utility practice and industry standards.
- 3.2.29 The distributor shall perform all of its responsibilities and obligations under section 3.2 in a timely manner.
- 3.2.30 An expansion of the main distribution system includes:
- (a) building a new line to serve the connecting customer;
 - (b) rebuilding a single-phase line to three-phase to serve the connecting customer;

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- (c) rebuilding an existing line with a larger size conductor to serve the connecting customer;
- (d) rebuilding or overbuilding an existing line to provide an additional circuit to serve the connecting customer;
- (e) converting a lower voltage line to operate at higher voltage;
- (f) replacing a transformer to a larger MVA size;
- (g) upgrading a voltage regulating transformer or station to a larger MVA size; and
- (h) adding or upgrading capacitor banks to accommodate the connection of the connecting customer.

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3.3 Enhancements

- 3.3.1 A distributor shall continue to plan and build the distribution system for reasonable forecast load growth. A distributor may perform enhancements to its distribution system for purposes of improving system operating characteristics or for relieving system capacity constraints. In determining system enhancements to be performed on its distribution system, a distributor shall consider the following:
- (a) good utility practice;
 - (b) improvement of the system to either meet or maintain required performance-based indices;
 - (c) current levels of customer service and reliability and potential improvement from the enhancement; and
 - (d) costs to customers associated with distribution reliability and potential improvement from the enhancement.
- 3.3.2 Renewable enabling improvements to the main distribution system to accommodate the connection of renewable energy generation facilities are limited to the following:
- (a) modifications to, or the addition of, electrical protection equipment;
 - (b) modifications to, or the addition of, voltage regulating transformer controls or station controls;
 - (c) the provision of protection against islanding (transfer trip or equivalent);
 - (d) bidirectional reclosers;
 - (e) tap-changer controls or relays;
 - (f) replacing breaker protection relays;
 - (g) Supervisory Control and Data Acquisition system design, construction and connection;
 - (h) any other modifications or additions to allow for and accommodate 2-way electrical flows or reverse flows; and

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- (i) communication systems to facilitate the connection of renewable energy generation facilities.
- 3.3.3 Subject to section 3.3.4, the distributor shall bear the cost of constructing an enhancement or making a renewable enabling improvement, and therefore shall not charge:
 - (a) a customer a capital contribution to construct an enhancement; or
 - (b) a customer that is connecting a renewable energy generation facility a capital contribution to make a renewable enabling improvement.
- 3.3.4 Section 3.3.3(a) shall not apply to a distributor until the distributor's rates are set based on a cost of service application for the first time following the 2010 rate year.

3.4 Relocation of Plant

- 3.4.1 When requested to relocate distribution plant, a distributor shall exercise its rights and discharge its obligations in accordance with existing legislation such as the *Public Service Works on Highways Act*, regulations, formal agreements, easements and common law. In the absence of existing arrangements, a distributor is not obligated to relocate the plant. However, the distributor shall resolve the issue in a fair and reasonable manner. Resolution in a fair and reasonable manner shall include a response to the requesting party that explains the feasibility or infeasibility of the relocation and a fair and reasonable charge for relocation based on cost recovery principles.

ONTARIO ENERGY BOARD**Rules of Practice and Procedure
(Revised November 16, 2006 and July 14, 2008)****28. Interrogatories**

28.01 In any proceeding, the Board may establish an interrogatory procedure to:

- (a) clarify evidence filed by a party;
- (b) simplify the issues;
- (c) permit a full and satisfactory understanding of the matters to be considered; or
- (d) expedite the proceeding.

28.02 Interrogatories shall:

- (a) be directed to the party from whom the response is sought;
- (b) be numbered consecutively, or as otherwise directed by the Board, in respect of each item of information requested, and should contain a specific reference to the evidence;
- (c) be grouped together according to the issues to which they relate;
- (d) contain specific requests for clarification of a party's evidence, documents or other information in the possession of the party and relevant to the proceeding;
- (e) be filed and served as directed by the Board; and
- (f) set out the date on which they are filed and served.

29. Responses to Interrogatories

29.01 Subject to **Rule 29.02**, where interrogatories have been directed and served on a party, that party shall:

- (a) provide a full and adequate response to each interrogatory;
- (b) group the responses together according to the issue to which they relate;

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- (c) repeat the question at the beginning of its response;
- (d) respond to each interrogatory on a separate page or pages;
- (e) number each response to correspond with each item of information requested or with the relevant exhibit or evidence;
- (f) specify the intended witness, witnesses or witness panel who prepared the response, if applicable;
- (g) file and serve the response as directed by the Board; and
- (h) set out the date on which the response is filed and served.

29.02 A party who is unable or unwilling to provide a full and adequate response to an interrogatory shall file and serve a response:

- (a) where the party contends that the interrogatory is not relevant, setting out specific reasons in support of that contention;
- (b) where the party contends that the information necessary to provide an answer is not available or cannot be provided with reasonable effort, setting out the reasons for the unavailability of such information, as well as any alternative available information in support of the response; or
- (c) otherwise explaining why such a response cannot be given.

A party may request that all or any part of a response to an interrogatory be held in confidence by the Board in accordance with **Rule 10**.

29.03 Where a party is not satisfied with the response provided, the party may bring a motion seeking direction from the Board.

29.04 Where a party fails to respond to an interrogatory made by Board staff, the matter may be referred to the Board.

30. Identification of Issues

30.01 The Board may identify issues that it will consider in a proceeding if, in the opinion of the Board: