

October 1, 2007

BY COURIER (10 COPIES) AND EMAIL

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
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Dear Ms. Walli:

**Re: Pollution Probe – Questions for Technical Conference
EB-2007-0050 – Hydro One – Bruce-Milton Transmission
Reinforcement Project**

Pursuant to Procedural Order #3, please find enclosed Pollution Probe's written questions in advance of and for the technical conference for this matter.

Yours truly,



Basil Alexander

BA/ba

Encl.

cc: Applicant and Intervenors per Procedural Order #3

Hydro One – Bruce-Milton Transmission Line – Leave to Construct

Pollution Probe – Questions for Technical Conference

October 1, 2007

1. (Reference: Ex. B, Tab 1, Sch. 1)

For each month from January 1984 to the present, please state:

- a. the installed capacity at the Bruce Nuclear Station;
- b. the total monthly output (MWh) of the Bruce Nuclear Station;
- c. the peak hour output (MW) of the Bruce Nuclear Station.

2. (Reference: Ex. B, Tab 3, Sch. 1, p. 2; Figure 1 and Ex. B, Tab 6, Sch. 5, p. 52, Figure 2.31)

According to Hydro One's Figure 1 (referenced above), interim measures will increase the capacity of the existing Bruce-Milton Line by approximately 400 MW. However, according to the OPA's Figure 2.31 (referenced above), interim measures will increase the capacity of the existing Bruce-Milton Line by approximately 2300 MW.

- a. Please reconcile these two figures.
- b. Is Hydro One planning to implement all of the OPA's proposed interim measures? If no, why not?
- c. By how many MW does the existing Bruce Line need to be increased to meet all the safety and reliability requirements of the Transmission System Code, NPCC and NERC?
- d. If all of the OPA's proposed interim measures are implemented, will Hydro One's transmission system meet all the safety and reliability requirements of the Transmission System Code, NPCC and NERC? If no, why not? And if no, what additional measures would be needed to meet these standards if the proposed new Bruce-Milton Line is not built?
- e. If all of Hydro One's proposed interim measures are implemented, will Hydro One's transmission system meet all the safety and reliability requirements of the Transmission System Code, NPCC and NERC? If no, why not? And if no, what additional measures would be needed to meet these standards if the proposed new Bruce-Milton Line is not built?

3. (References: Ex. B, Tab 4, Sch. 4 and Ex. B, Tab 3, Sch. 1)

Hydro One's discounted cash flow analysis assumes that its proposed new Bruce-Milton Line will have zero impact on the number of MW delivered to the Ontario grid. Is this estimate based on the assumption that the capacity of the existing Bruce transmission system will be approximately 5400 MW? If not, what is the basis for this estimate?

4. (Reference: Ex. B, Tab 4, Sch. 4)

Please provide Hydro One's estimate of the marginal increase in electricity (i.e. in MWh) that will be delivered from the Bruce Nuclear Station and Bruce area wind generation to the Ontario grid for each year from 2012 to 2036 as a result of the construction of the new Bruce-Milton Line.

5. (Reference: Ex. B, Tab 3, Sch. 1, p. 3)

Please provide copies of all Government of Ontario policy statements and directives that Hydro One believes support its assertion that its proposed new line is a non-discretionary project.

6. (Reference: Ex. B, Tab 3, Sch. 1)

For each of the five alternative transmission routes described on pages 4 to 6 of the referenced materials, please provide:

- a. maps showing their locations;
- b. Hydro One's best estimates of their capital costs; and
- c. their impacts on Hydro One's transmission losses relative to Hydro One's proposed route.

7. (Reference: Ex. B, Tab 3, Sch. 1)

For each of the five alternative transmission routes described on pages 4 to 6 of the referenced materials and for Hydro One's proposed route, please provide qualitative and quantitative comparisons of their impacts with respect to reliability and quality of electricity service, including stability and transient stability levels, voltage performance and Loss of Load Expectation projections under normal and post-contingency conditions. Please include as part of these comparisons analyses assuming that:

- a. Hydro One's proposed upgrades to the existing Bruce-Milton Line are in place; and
- b. The OPA's proposed upgrades to the existing Bruce Line are in place.

8. (Reference: Ex. B, Tab 3, Sch. 1)

With respect to transmission alternatives #2 and #3, please provide copies of the provincial land use policies that support Hydro One's claim that it is not consistent with "provincial land use policy to optimize the use of existing corridors".

9. (Reference: Ex. B, Tab 3, Sch. 1)

Does Hydro One or the OPA believe that the more aggressive promotion of demand response and local distributed generation in southern Ontario is a potential alternative option to meet the safety and reliability requirements of the Transmission System Code, the NPCC and NERC? If no, please explain why not.

10. In Exhibit B, Tab 1, Schedule 1, page 2 of 5, there is Table 1 titled "Generation, Load and Interconnection Capacities in SW Ontario" (2005):

- a. For each of the generation resources listed, please provide the name of each generating unit that is included in each generation resource listed, its in-service date, its projected shut-down date (if any), its summer peak generating capacity, its winter peak generating capacity, its minimum generating level, its primary fuel, its net generation in each of the last three years, and its per-MWH fuel and variable operating cost in each of the last three years.
- b. For each of the loads listed, please provide the summer peak load and the winter peak load in each of the past three years, and provide the annual energy consumed by each of the loads in each of the past three years.
- c. For each of the interconnections listed: please provide net summer MW and MWH supplied over the interconnection and the direction of the net

- supply; please provide net winter MW and MWH supplied over the interconnection and the direction of the net supply; and please explain how winter and summer are defined.
- d. What level of generation reserve margin is considered adequate to provide reliable supply in the Province?
 - e. Please provide a copy of any planning criteria used in the Province to plan for reliable electric generation supply.
11. In Exhibit B, Tab 1, Schedule 1, page 3 of 5, there is a reference, starting on line 5, to the fact that the transmission facilities in this area are designed and placed to support this concentration of generation capacity, respecting physical constraints such as system and voltage stability, and thermal limits. Please provide a copy of all reliability planning criteria that is used in the planning of the transmission system in the Province.
12. In Exhibit B, Tab 1, Schedule 1, page 3 of 5, there is a reference, starting on line 15, to 725 MW of wind generation expected to be in service by 2009:
- a. If this MW figure reflects something other than nameplate ratings, please describe what it reflects and how it was determined.
 - b. What capacity value will be attributed to this 725 MW for purposes of determining generation supply adequacy.
 - c. What annual MWH generation is expected from this 725 MW of wind generation, and how does this generation break down between summer and winter, and between on-peak and off-peak periods? Please include an explanation as to how summer, winter, on-peak, and off-peak are defined.
13. In Exhibit B, Tab 1, Schedule 1, page 3 of 5, there is a reference, starting on line 27, to 1,000 MW of additional wind generation expected to be in service in the Bruce area:
- a. If this MW figure reflects something other than nameplate ratings, please describe what it reflects and how it was determined.
 - b. What capacity value will be attributed to this 1,000 MW for purposes of determining generation supply adequacy.
 - c. What annual MWH generation is expected from this 1,000 MW of wind generation, and how does this generation break down between summer and winter, and between on-peak and off-peak periods? Please include an explanation as to how summer, winter, on-peak, and off-peak are defined.
14. In Exhibit B, Tab 1, Schedule 1, page 5 of 5, there are references, starting on line 12, to applicable reliability standards. Please provide a copy of these standards.

15. In Exhibit B, Tab 1, Schedule 1, page 5 of 5, there is a reference, starting on line 14, to “the planning assumption that with all remaining circuits in-service, the power system performance should satisfy required criteria and guidelines following the loss of any of the double-circuit lines (first contingency).”
 - a. For a double circuit transmission line (two circuits on one set of poles or towers), please confirm that the “loss of any of the double circuit lines” refers to the loss of two circuits?
 - b. How long has this planning assumption been used to plan the transmission system in the Province?
 - c. Please provide a copy of any available documentation regarding the use of this planning assumption.
 - d. Please explain how considering the loss of two transmission lines as a first contingency is consistent with NERC reliability criteria.
16. In Exhibit B, Tab 1, Schedule 3, page 1 of 2, there is a reference, starting on line 5, to Hydro One’s Transmission License. Please provide a copy of this License.
17. In Exhibit B, Tab 1, Schedule 3, page 1 of 2, there is a reference, starting on line 5, to the requirements of the Transmission System Code. Please provide a copy of this Code. (Note: If the Transmission System Code is the same Transmission System Code dated July 25, 2005 that is currently available online on the Ontario Energy Board’s website through “http://www.oeb.gov.on.ca/html/en/industryrelations/rulesguidesandforms_regulatory.htm” and there are no modifications or additions to the Code, it is sufficient to confirm that this Code is the referenced Code.)
18. In Exhibit B, Tab 1, Schedule 3, page 1 of 2, there is a reference, starting on line 5, to the requirements of various regulatory bodies. Please provide a copy of any such requirements that affect electric transmission system planning, operation, and reliability.
19. In Exhibit B, Tab 6, Schedule 3, Appendix 5, page 16 of 141, there is a reference to rules, criteria, standards, and guidelines established by the IESO, NPCC, and NERC. Please provide a copy of all such rules, criteria, standards, and guidelines that affect electric transmission system planning, operation, and reliability.
20. Please identify the electric load flow model or models used by the OPA to evaluate the need for transmission system reinforcement and used by the OPA to

evaluate the alternatives referenced in Exhibit B, Tab 3, Schedule 1. Please include the version number of any such model.

21. Please identify and discuss any reliability-based limitations in use by the OPA regarding how many electric transmission circuits may be placed within a common right-of-way corridor.
22. Please identify and discuss any reliability-based limitations in use by the OPA regarding how many electric transmission circuits may be placed on a common set of transmission towers.
23. Please specify the actual hourly MW (net) output of each of the Bruce A and Bruce B nuclear power plants during each of the hours during the years 2005, 2006 and 2007.
24. Please provide copies of any assessments of the generation or power levels of any of the Bruce A or Bruce B nuclear power plants during any part or all of the period 2007-2027.
25. Please specify the currently scheduled retirement dates for each of the Bruce A and Bruce B nuclear power plants.
26.
 - a. Please discuss any plans to extend the operating lives of any of the Bruce A or Bruce B nuclear power plants. If there are plans to extend the operating lives of any of these nuclear power plants, please specify which plants and how long the extended operating life is currently planned or expected to be.
 - b. Please provide copies of the correspondence between Hydro One and the OPA and Bruce Power, including but not limited to e-mails, concerning the possible extension of the operating lives of any of the Bruce A or Bruce B nuclear power plants or plans for the extension of the operating lives of any of the Bruce A or the Bruce B nuclear power plants.
27. Please provide copies of any studies, assessments or analyses of extending the operating lives of any of the Bruce A or Bruce B beyond their currently scheduled retirement dates that have been prepared by or for Bruce Power, the OPA, or Hydro One.

28.
 - a. Please state whether there are currently any plans to build any new nuclear or non-nuclear power plants at the Bruce A or Bruce B sites or at other locations in the Bruce area. If there plans to build such power plants, please identify the planned new unit(s) and their expected net MW output(s) and scheduled commercial operation dates.
 - b. Please provide copies of the correspondence between Hydro One and the OPA and Bruce Power, including but not limited to e-mails, which address or discuss the construction of new generating units at the Bruce A or the Bruce B sites or at other locations in the Bruce Area.
29. Please provide copies of any studies, assessments or analyses of building any new nuclear or non-nuclear power plants at the Bruce A or Bruce B sites or at other locations in the Bruce area that were prepared by or for Hydro One, the OPA or Bruce Power.
30. Referring to page 1 of the November 15, 2006 OPA IPSP Discussion Paper “Integrating the Elements”, please provide a copy of the recommended plan that the OPA filed with the Ontario Energy Board in the spring of 2007. (Note: If this plan is the same IPSP filed on August 29, 2007 with the Ontario Energy Board that is currently available online on the OPA’s website through “<http://www.powerauthority.on.ca/ipsp/Page.asp?PageID=924&SiteNodeID=320>” and there are no modifications or additions, it is sufficient to confirm that this IPSP is the referenced plan, although a CD copy would be appreciated.)
31. Please provide the operating licenses for each of the Bruce A and Bruce B nuclear power plants.
32. Referring to page 45 of the OPA IPSP Discussion Paper “Transmission”, please provide a copy of the recent study conducted by the OPA for the IPSP that identified a significant wind generation potential in the Bruce area.
33. Please provide the hourly wind profiles for the Bruce area.
34. Please provide a list of the planned outages of the Bruce A and Bruce B nuclear power plants for the years 2007-2027.
35. Please provide the two most recent Loss of Load Probability (LOLP) or Loss of Load Expectation studies prepared by or for the Ontario Power Authority.

36. Please provide the two most recent Loss of Load Probability (LOLP) or Loss of Load Expectation studies, if any, prepared by or for Hydro One.
37. Referring to Figure 1 at page 4 of 5 of Exhibit B, Tab 1, Schedule 1, and page 2 of 5 of Exhibit B, Tab 6, Schedule 5, Appendix 2, please provide the expected Bruce Area Generation for each month of the years 2015-2027. Please show this information for future wind generation, committed wind generation, and Bruce Power.
38. Referring to page 3 of 5 of Exhibit B, Tab 6, Schedule 5, Appendix 2, please provide the analyses in which the IESO “assessed these interim measures.”
39. Please provide the workpapers and source documents for the discounted cash flow analysis presented in Exhibit B, Tab 4, Schedule 4, pages 1-2.
40. Please provide the workpapers and source documents for the economic analyses presented in Exhibit B, Tab 4, Schedule 4, at pages 3 of 7 through 7 of 7.
41. Please provide a useable electronic copy of the analysis presented in Exhibit B, Tab 4, Schedule 4, pages 1-2.
42. Referring to Exhibit B, Tab 4, Schedule 3, please provide the project economic analyses prepared for each of the alternatives to the Bruce to Milton transmission reinforcement project that have been prepared by or for Hydro One, the IESO, Bruce Power, or the Ontario Power Authority.
43. Please provide copies of all correspondence, including but not limited to e-mails, between Hydro One and the OPA concerning the proposed Bruce to Milton Transmission Reinforcement Project.
44. Please provide copies of all correspondence, including but not limited to e-mails, between Hydro One and the OPA and/or Bruce Power concerning the proposed Bruce to Milton Transmission Reinforcement Project.