alexmonem barrister and solicitor B.A. LL.B. Bar of Ontario

Harbord House
546 Euclid Avenue
Toronto ON M6G 2T2

(t) 416.916.2989 x6
(c) 416.877.3000
(f) 416.916.3726

(e) alex@monem.ca

TO: Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge St., Suite 2700
Toronto, ON M4P 1E4
Email: boardsec@oeb.gov.on.ca

CC: Applicant and Intervenors

BY EMAIL AND COURIER

February 26, 2008

Dear Ms Walli,

RE: EB-2007- 0050 – Saugeen Ojibway Nations Interrogatories for Hydro One

Please find enclosed Saugeen Ojibway Nations' interrogatories for Hydro One in this matter.

Yours truly,

Alex Monem

EB-2007-0050

Saugeen Ojibway Nations Interrogatories for Hydro One Networks

February 26, 2008

Interrogatory No. 1

Ref. Exh. B/T 6/S 6/Appendices 1, 2, 5 [and 10/15/07 Tech. Conference at 22:4 – 24:2]
Issue Number: 1.1

1.1 Issue: Has the need for the proposed project been established?

Request

In 1985, the Hydro One transmission system was designed to be adequate for eight units at Bruce for the condition of the study at that time. Please state why today's transmission system is only adequate to deliver the output of six Bruce units.

Interrogatory No. 2

Ref. Exh. B/T 6/S 6/Appendices 1, 2, 5 [and 10/15/07 Tech. Conference at 22:4 – 24:2]
Issue Number: 1.1

1.1 Issue: Has the need for the proposed project been established?

Request

Please state the transfer capability away from the Bruce Complex by use of both (i) NPCC Operating Procedures (loss of one circuit on a double circuit tower) and (ii) planning criteria (loss of both circuits on a double circuit tower) for each of the following conditions:

a. The existing transmission system.
b. The existing transmission system with near-term upgrades.
c. The existing transmission system with interim term upgrades.
d. The existing transmission system with the existing generation rejection scheme, near-term upgrades and series capacitors.
e. The existing transmission system with an ENHANCED generation rejection scheme (of up to two Bruce Units), near-term upgrades and series capacitors.

Interrogatory No. 3

Ref. Exh. B/T 6/S 6/Appendices 1, 2, 5 [and 10/15/07 Tech. Conference at 22:4 – 24:2]
Issue Number: 1.1

1.1 Issue: Has the need for the proposed project been established?

Request

When the two Bruce units were shut down, were any provisions made to maintain the right to recall the transmission capacity in the event the Bruce units were reactivated? If so, please provide all documents related to, arising from or used in connection with making such provisions.

Interrogatory No. 4

Ref. Exh. B/T 6/S 6/Appendices 1, 2, 5 [and 10/15/07 Tech. Conference at 22:4 – 24:2]
Issue Number: 1.1

1.1 Issue: Has the need for the proposed project been established?

Request

Please state whether, when interconnection studies were performed for new generation planned to enter service after the Bruce units were shut down, interconnection and/or related transmission service were provided conditionally such that transfer capacity could be recalled in order to provide for delivering the output of the Bruce units if, as and when those units were brought back into service. If not, please state why not.

Interrogatory No. 5

Ref. Exh. B/T 1/S 1/ and Exh. B/T 6/S 4/S 5/Appendices 1, 2, 5
Issue Number: 1.1

1.1 Issue: Has the need for the proposed project been established?

Request

Please provide the winter and summer continuous rated capacity of existing generation in the Bruce area, listing each facility and its individual capacities. Please include the identification of each existing generator, the rated capacity used in each relevant period, and the basis for the ratings employed.

Interrogatory No. 6

Ref. Exh. B/T 6/S 2 and other studies performed by the IESO
Issue Number: 1.1
1.1 Issue: Has the need for the proposed project been established?

Request

Please state whether the studies that allegedly demonstrate the need for additional transmission for the reactivated Bruce units, upgrades of Bruce units and committed and planned wind generation include the effect of planned new transmission facilities in the New York ISO, Mid West ISO and expanded PJM region in a West to East direction.

a. If so, please state how Hydro One ensures that its studies reflect all committed and/or potential transmission system upgrades in the United States.
b. Please list those major planned transmission facility upgrades and state the MW impact of those planned upgrades on circulating loop flow through the Bruce 500 kV and 230 kV facilities.
c. Please state whether the base case load flows used in studying the proposed Bruce-Milton double circuit 500 kV line reflect all planned upgrades in the United States.
d. If any such planned, committed and/or potential upgrades were not modeled in Hydro One's studies, please indicate the reasons for the exclusion of each planned upgrade.

Interrogatory No. 7

Ref. Exh. B/T 6/S 2 and other studies performed by the IESO
Issue Number: 1.1
1.1 Issue: Has the need for the proposed project been established?

Request

Please state the forecast amount and direction of circulating loop flow on the 500 kV and 230 kV lines emanating from the Bruce Complex during peak summer conditions for (i) each hour of the historical period since January 1, 2006 and (ii) peak summer conditions projected for the years 2008 through 2014.

a. Please include loop flow data for each other condition to the extent that such circulating loop flow has been, or is expected to be, limiting.
b. Please indicate the amount and duration of generation backdowns at the Bruce Complex attributable to circulating loop flows for the historical period since. Please indicate the extent to which such backdowns were attributable to forced or scheduled outages of transmission system equipment.

Interrogatory No. 8

Ref. Exh. B/T 6/S 2 and other studies performed by the IESO
Issue Number: 1.1

1.1 Issue: Has the need for the proposed project been established?

Request

Please state whether studies have been conducted of the feasibility of limiting circulating loop flow over the transmission facilities out of the Bruce generation area so as to free up transmission capacity for use by the Bruce units and the committed and potential wind generation in the vicinity of the Bruce Complex. Please provide a copy of all documents related to, arising from or used in connection with such studies.

Interrogatory No. 9

Ref. Exh. B/T 6/S 2, Exh. B/T 6/S 5/Appendix 5, other studies performed by the IESO
Issue Number: 3.3

3.3 Issue: If these proposed near term and interim measures could be utilized for a longer period than proposed, could they (or some combination of similar measures) be considered an alternative to the double circuit 500 kV transmission line for which Hydro One has applied?

Request

Please provide all studies (by the IESO or others) that support the claim that generation rejection ("GR") of up to two Bruce units will increase the effective transfer capability out of Bruce to about 6,700 MW, as stated in Exhibit B, Tab 6, Schedule 5, Appendix 5 at page 51 (Ontario IPSP, Discussion Paper 5: Transmission).

Interrogatory No. 10

Ref. Exh. B/T 6/S 2, Exh. B/T 6/S 5/Appendix 5, other studies performed by the IESO
Issue Number: 3.3

3.3 Issue: If these proposed near term and interim measures could be utilized for a longer period than proposed, could they (or some combination of similar measures) be considered an alternative to the double circuit 500 kV transmission line for which Hydro One has applied?

Request

Please indicate whether IESO (or any other party) has modeled the impact upon the effective transfer capability out of Bruce using a GR of up to two Bruce Units in addition to series compensation. If such studies have been conducted, please provide the results of

such studies and the load flow input data in computer readable form. If no such studies were conducted, please indicate the reason for not conducting such studies.

Interrogatory No. 11

Ref. Exh. B/T 6/S 2, Exh. B/T 6/S 5/Appendix 5, other studies performed by the IESO
Issue Number: 3.3

> **3.3 Issue**: If these proposed near term and interim measures could be utilized for a longer period than proposed, could they (or some combination of similar measures) be considered an alternative to the double circuit 500 kV transmission line for which Hydro One has applied?

Request

Please provide detailed descriptions and studies of the existing GR scheme that exists at the Bruce substation and all enhancements of the existing GR scheme that have been considered by IESO, Hydro One or OPA. Please provide a copy of all documents related to, arising from or used in connection with implementing the existing GR scheme and all enhancements to that GR scheme that have been considered, including, but not limited to, all communications with the Northeast Power Coordinating Council ("NPCC") with respect to the GR Schemes compliance with NPCC's SPS procedures and requirements.

Interrogatory No. 12

Ref. Exh. B/T 6/S 5/Appendix 5, Exh. B/T 6/S 2, other studies performed by the IESO
Issue Number: 3.3

> **3.3 Issue**: If these proposed near term and interim measures could be utilized for a longer period than proposed, could they (or some combination of similar measures) be considered an alternative to the double circuit 500 kV transmission line for which Hydro One has applied?

Request

Please provide all studies (by the IESO or others) that support the claim that series compensation is effective in increasing the Bruce transfer capability to about 6,300 MW without the need for GR, as stated in Exhibit B, Tab 6, Schedule 5, Appendix 5 at page 51 (Ontario IPSP, Discussion Paper 5: Transmission).

Interrogatory No. 13

Ref. Exh. B/T 6/S 5/Appendix 5
Issue Number: 3.3

3.3 Issue: If these proposed near term and interim measures could be utilized for a longer period than proposed, could they (or some combination of similar measures) be considered an alternative to the double circuit 500 kV transmission line for which Hydro One has applied?

Request

Please explain whether the need for new transmission and/or generation capacity in West GTA is one of the main reasons for choosing the Bruce-Milton 500 kV line. See Exhibit B, Tab 6, Schedule 5, Appendix 5 at pp. 101-104 (Ontario IPSP, Discussion Paper 5: Transmission).

Interrogatory No. 14

Ref. Exh. B/T 6/S 2 and other studies performed by the IESO
Issue Number: 1.1

1.1 Issue: Has the need for the proposed project been established?

Request

It appears that the interconnection studies for wind power consider the fact that when wind power is most likely to occur (i.e., under wind velocities beyond specified levels) that level of wind velocity will also allow higher thermal ratings of the transmission lines within a specified radius of the wind generation.

a. Please state whether the studies for determining needed transmission upgrades for the repowering of the Bruce units also consider such increased thermal ratings?
b. Has Hydro One conducted any studies of the correlation of wind velocities in the vicinity of committed and potential wind generation near the Bruce Complex with wind velocities along the Bruce-Milton corridor and the Bruce-Longwood-Nanticoke corridor? If so, please provide all documents related to, arising from or used in connection with such studies.
c. Please state whether Hydro One, IESO or OPA has considered use of dynamic ratings on the transmission facilities emanating from the Bruce Complex (ratings that vary with the ambient temperature, radiant energy and/or wind velocity along the transmission lines). If so, please provide all documents related to, arising from or used in connection with such consideration.

Interrogatory No. 15

Ref. Exh. B/T 6/S 2 and other studies performed by the IESO
Issue Number: 2.2

2.2 Issue: Has an appropriate evaluation methodology been applied to all the alternatives considered?

Request

Please state all the reasons underlying Hydro One's determination that it must develop 230 kV and 500 kV upgrades that will enable Hydro One to deliver the output of existing and planned wind generation in the vicinity of the Bruce Complex on a firm basis (i.e., so that deliveries of full rated wind capacity can continue after the outage of a double circuit 500 kV line).

a. Please provide all documents related to, arising from or used in connection with that determination, including, but not limited to, documents analyzing the cost/benefit ratio of upgrades necessary to provide firm transmission service to wind generators.
b. Please state the incremental cost of providing firm transmission service by means of 500 kV transmission upgrades (per kW and per kWh) for each planned block of wind generation.

Interrogatory No. 16

Ref. Exh. B/T 6/S 5/Appendix 5, Exh. B/T 6/S 2, other studies performed by the IESO
Issue Number: 3.3

3.3 Issue: If these proposed near term and interim measures could be utilized for a longer period than proposed, could they (or some combination of similar measures) be considered an alternative to the double circuit 500 kV transmission line for which Hydro One has applied?

Request

Please state what amount of kW and kWh of committed 700 MW of wind generation and 1,000 MW of potential wind generation planned for the vicinity of the Bruce Complex that Hydro One projects could not be delivered if Hydro One did not build the planned Bruce-Milton 500 kV line but instead installed series capacitors and increased the amount of Bruce and wind generation that could be rejected upon the loss of critical transmission facilities.

Interrogatory No. 17

Ref. Exh. B/T 6/S 5/Appendix 5, Exh. B/T 6/S 2, other studies performed by the IESO
Issue Number: 3.3

3.3 Issue: If these proposed near term and interim measures could be utilized for a longer period than proposed, could they (or some combination of similar measures) be considered an alternative to the double circuit 500 kV transmission line for which Hydro One has applied?

Request

Please state what diversity assumptions underlie the asserted need for transmission additions (e.g., the fact that wind power has limited capacity value due to both its intermittent nature and the fact that peak output is likely to occur during off-peak periods).

Interrogatory No. 18

Ref. Exh. B/T 6/S 2 and other studies performed by the IESO
Issue Number: 1.1
1.1 Issue: Has the need for the proposed project been established?

Request

Please state what amount of the committed and potential installed wind generation planned for the vicinity of the Bruce Complex would be deemed firm (or dependable) generation for purposes of meeting Ontario's peak demand requirements assuming that the Bruce Milton 500 kV line were added.

Interrogatory No. 19

Ref. Exh. B/T 6/S 2 and other studies performed by the IESO
Issue Number: 1.1
1.1 Issue: Has the need for the proposed project been established?

Request

Please state whether cost-benefit studies have been conducted to show the ability to back down the Bruce units to allow additional wind power to be transmitted when available without the need to build additional transmission facilities. If so, please provide all documents related to, arising from or used in connection with such studies.

Interrogatory No. 20

Ref. Exh. B/T 6/S 2 and other studies performed by the IESO
Issue Number: 1.1
1.1 Issue: Has the need for the proposed project been established?

Request

Please state the extent to which the reactive power needs of committed and potential wind generation under steady state and dynamic conditions affect the transfer capability away from the Bruce Complex. Please provide all documents related to, arising from or used

in connection Hydro One's consideration of the reactive power needs of that committed and potential wind generation.

a. Please state the extent to which committed and potential wind generators will utilize existing transfer capability and the extent to which they or Hydro One will be required to create new transfer capability (or some combination) to ship their power to market.
b. Please state the extent to which any such additional transfer capability is expected to be limited by (i) stability, (ii) voltage/reactive, and/or (iii) thermal limits.
c. To the extent such additional transfer capability is expected to be limited by voltage/reactive considerations, please state whether the committed and potential wind generation is expected to rely on existing available voltage/reactive capability.
d. If not, please state whether the committed and potential wind generation will be required to contribute new voltage/reactive support in order to cover their own needs for transfer capability to and away from Bruce.
e. Please state whether the committed and potential wind generation will be expected and/or required to provide new voltage/reactive support needs going beyond that required to increase transfer capability beyond their own needs.

Interrogatory No. 21

Ref. Exh. B/T 6/S 2 and other studies performed by the IESO
Issue Number: 1.1
1.1 Issue: Has the need for the proposed project been established?

Request

Please state whether Hydro One, IESO or OPA has mandated that wind generators provide specific levels of reactive power both in terms of quantity and responsiveness (e.g., mechanically switched capacitors versus Static VAR Compensation or an equivalent dynamic source integrated into the wind machines). If so, please provide all documents related to, arising from or used in connection with such mandates and specifications.

Interrogatory No. 22

Ref. Exh. B/T 6/S 2 and other studies performed by the IESO
Issue Number: 1.1
1.1 Issue: Has the need for the proposed project been established?

Request

Please state whether Hydro One, IESO or OPA has mandated that wind generators provide the ability to ride through faults. If so, please provide all documents related to, arising from or used in connection with such mandates and specifications.

Interrogatory No. 23

Ref. Exh. B/T 6/S 2 and other studies performed by the IESO
Issue Number: 1.1

1.1 Issue: Has the need for the proposed project been established?

Request

Please state what portion of the existing and committed wind generation is expected and/or permitted to be dropped upon the occurrence of nearby single line-to-ground faults under Hydro One's policies.

Interrogatory No. 24

Ref. Exh. B/T 6/S 2 and other studies performed by the IESO
Issue Number: 2.1

2.1 Issue: Have all reasonable alternatives to the project been identified and considered?

Request

Please state whether Hydro One, IESO or OPA has considered the use of dynamic braking resistors in connection with its plans to increase the transfer capability from Bruce to Hydro One's load centers. If so, please provide all documents related to, arising from or used in connection with such consideration. If not, please explain why no such consideration has been given to dynamic braking resistors.

Interrogatory No. 25

Ref. Exh. B/T 6/S 2
Issue Number: 2.2

2.2 Issue: Has an appropriate evaluation methodology been applied to all the alternatives considered?

Request

Please provide the most recent load flow model used by Hydro One in conducting its studies of the proposed Bruce-Milton 500 kV line in computer-readable form showing the

existing system, and the system with the proposed Bruce-Milton transmission line. Please provide in PTI format.

Interrogatory No. 26

Ref. Exh. B/T 6/S 2 and other studies performed by the IESO
Issue Number: 1.1
1.1 Issue: Has the need for the proposed project been established?

Request

Please explain why the IESO performs system impact studies assuming imports from Michigan and New York in the thousands of MW range, while OPA is attempting to show that Ontario can serve its own loads with its own, internal, mostly clean generation. Has any investigation been made of the portion of Hydro One's imports that are nuclear and renewable? If so, please provide all documents related to, arising from or used in connection with such investigations.

Interrogatory No. 27

Ref. Exh. B/T 6/S 2 and other studies performed by the IESO
Issue Number: 1.1
1.1 Issue: Has the need for the proposed project been established?

Request

What would be the impact on need for a new Bruce-Milton transmission line if all imports from the U.S. are removed?

Interrogatory No. 28

Ref. Exh. B/T 3/S 1 and other studies performed by the IESO
Issue Number: 2.1
2.1 Issue: Have all reasonable alternatives to the project been identified and considered?

Request

Please state whether Hydro One, IESO or OPA has considered converting the existing Bruce-to-Milton 500 kV transmission line from AC to DC? If not, is Hydro One Networks aware that such a conversion is possible and potentially feasible?