

**Hydro One Leave to Construct Application  
(Bruce – Milton) Transmission Reinforcement Project  
(EB-2007-0050)**

**Board Staff  
Interrogatory Set No. 2  
March 10, 2008**

Note: The number of questions for each of the main “Issues” are:

- 3 Questions covering 1.0 Project Need and Justification
- 1 Questions covering 2.0 Project Alternatives & 3.0 Near Term and Interim Measures  
**(4 Questions (for Interrogatory Set No. 2))**

**1.0 Project Need and Justification**  
**( 2 Questions)**

**Question No. 1.1(Set No. 2)**

Issue Number: 1.1

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

Ref.(a) Exh. B/T 1/S 3/p. 2 and 3

Ref.(b) Exh. B/T 6/S 5/Appendix 1/Section 2.2/p. 4/lines 14-17

Ref.(c) Exh. B/T 6/S 5/Appendix 5/Discussion Paper 5(Nov 13, 2006)  
(IPSP)/page 60-61

Preamble:

- (i) In Ref.(a) and Ref.(b), the Applicant states that the project is needed in order to accommodate additional Bruce area generation and to satisfy IESO reliability requirements and indicate that beyond year 2013 there is additional 1, 000 MW identified by OPA in the area.
- (ii) In Ref.(c), page 60 shows two maps (Figure 240 for East Lake Huron and Figure 241 for Bruce Peninsula), and page 61 it states that there are 400 MW potential wind for Bruce Peninsula, and 600 MW located north and south of Goderich.

Questions:

- 1) Please confirm that the 1,000 MW of additional potential wind resources identified in in Ref. (a) and Ref.(b) comprise the projects identified in Ref.(c) which indicate that there are 400 MW potential wind for Bruce Peninsula, and 600 MW located north and south of Goderich.
- 2) If the response to 1) above is negative, please list the locations and for each such location the potential amount of MW of wind power
- 3) Please provide supporting evidence to show the portion of the power output in MW from all these wind resources (total potential installed capacity of 1000 MW) during system peak time, which will end up flowing

east on the existing and proposed 500 kV circuits. This can be simplified by choosing a typical day in winter and summer seasons

**Question No. 1.2 (Set No.2)**

Issue Number: 1.1

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

- Ref.(a) Exh. B/T 1/S 3/p. 2 and 3  
Ref.(b) Exh. B/T 6/S 5/Appendix 1/Section 2.2/p. 4/lines 14-17  
Ref.(c) Exh. B/T 6/S 5/Appendix 5/Discussion Paper 5(Nov 13, 2006)  
(IPSP)/page 60-61  
Ref.(d) Integrated Power System Plan (IPSP) Review  
Exh. D/Tab 5/S 1/p. 21/ Table 10

Preamble:

- (i) In Ref.(a) and Ref.(b), the Applicant states that the project is needed in order to accommodate additional Bruce area generation and to satisfy IESO reliability requirements and indicate that beyond year 2013 there is additional 1, 000 MW identified by OPA in the area.
- (ii) In Ref.(c), page 60 shows two maps (Figure 240 for East Lake Huron and Figure 241 for Bruce Peninsula), and page 61 it states that there are 400 MW potential wind for Bruce Peninsula, and 600 MW located north and south of Goderich.
- (iii) In Ref. (d), ten "Large Sites" for potential wind resources in the "Region" of Bruce are listed as follows:

S 36	Bruce	177
S 5	Bruce Peninsula	188
S 46	Bruce Peninsula	192 (total Bruce Penin.=380 MW)
D 37	Goderich	75
D 38	Goderich	75
S 58	Goderich	79
D 32	Goderich	200 (total Goderich=429 MW)
S 59	Stratford	60
S 60	Stratford	123 (total Stratford=183 MW)
D 22	Wingham	36

Questions:

Comparing the amounts reported on the potential wind resources in Ref.(c) and Ref.(d) please:

- 1) Using the table in Ref. (d) please indicate the sites and corresponding MW that add up to approximately 1000 MW which is the amount referred to in Ref.(a) as the potential wind farm resource capacity that increases the generation capacity in the Bruce area which in turn need transmission capability to accommodate the increasing power flow east from the Bruce area toward the GTA.
- 2) indicate whether the 400 MW of potential in the Bruce Peninsula in Ref. (c) is an approximation to the more detailed potential in Ref.(d) of 380 MW;
- 3) please explain the 600 MW of potential in the Goderich area in Ref. (c) with the amounts shown in the Table of Ref.(d) where the total MW for Goderich is only 429 MW.
- 4) In Ref.(d), is the amounts shown for Stratford of 183 MW is then added to the Goderich total of 429 MW to a total of 612 MW, which would be comparable to the 600 MW of Ref.(c)?
- 5) If the answer to Question (c) above is affirmative, please provide supporting evidence to show the portion of the power output in MW from all the wind resources from the 183 MW located in the Stratford area during system peak time, which will end up flowing east on the existing and proposed 500 kV circuits. This can be simplified by choosing a typical day in winter and summer seasons.
- 6) Using the table in Ref. (d) please indicate the sites and corresponding MW that add up to approximately 1000 MW shown in Ref.(a).

**Question No. 1.3 (Set No.2)**

Issue Number: 1.1

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

- Ref.(a) Technical Conference (Oct. 15, 2007)  
Panel 1 Presentation  
Covering Existing Facilities & Grid Operations, Need, Alternatives & Evaluation and Near-term & Interim Terms
- Ref.(b) Integrated Power System Plan (IPSP) Review  
Exh. D/Tab 5/S 1/p. 22/ Table 11: Wind Resource Potential – Small Sites (Installed MW)

Preamble:

- (i) In Ref. (a), a graph titled "Near-term and Interim Measure Improvements" show four profiles of generation from 2007 to 2014:
  - Bruce Generation (blue);
  - Committed Wind Generation (pink);
  - Future Wind Generation (green);
  - Stranded SOP (Standard Offer Program) Wind Potential ("Orange Zone")The amount of generation in that Orange Zone appears to be approximately 300 MW;
- (ii) In Ref.(b), Table 11 indicate that there are potential of 753 MW of Small Sites for Wind generation in the Bruce area.

Questions:

- 1) Please indicate whether or not the 300 MW in the Orange Zone in Ref.(a) is the portion of the potential 753 MW shown in Ref.(b) that would be the "Stranded SOP"? if not please provide the amount in MW of potential small wind resources in the Bruce area.
- 2) Please identify the transformer station names and the 115 kV or 230 kV transmission lines connecting these stations to the power system. The assumption is that these transformer stations would be interfacing with the distribution systems through which the power flow would occur from the small wind generation sites and would contribute to that Orange Zone.
- 3) Please provide explanation as to the expected power flow from each of the identified transformer stations (from the response to Question 2) above) during a typical system peak day in the winter and during a typical system peak day in the summer. In providing the explanation in this question, please also list assumptions in regard to:
  - a) The total installed capacity of the wind generation sites connected via the distribution system to each of the identified transformer stations;
  - b) The capacity factors (two numbers are expected - one applicable for typical system peak day in the Summer and a second for typical system peak day in the Winter) to be applied to the amount provided in responding to a) above, which essentially contribute to the Orange Zone.

**2.0 Project Alternatives & 3.0 Near Term and Interim Measures**  
( 1 Question)

**Question No. 2.1 (Set No.2)**

Issue Number: 2.1

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

Issue Number: 3.1

Issue: Are the proposed near term and interim measures as outlined in the application appropriate?

Ref.(a) Exh.B/T 3/S 1/pp. 1-6

Ref.(b) Technical Conference (Oct. 15, 2007)

Panel 1 Presentation

Covering Existing Facilities & Grid Operations, Need, Alternatives & Evaluation and Near-term & Interim Terms

Ref.(c) Technical Conference Transcripts(Oct. 15, 2007/pp. 197 to 201

Preamble:

- (i) In Ref.(a) the updated evidence of November 30, 2007 show the same five alternatives that were presented in the original evidence of March 29, 2007;

- (ii) Ref. (b) show:
  - a table with 8 options including one titled “Series Capacitors on 500 kV lines” which is judged to be inadequate in regard to “Provide required capability” and is also judged inadequate in regard to having “Limited effect on other paths”;
  - a graph for “Near –term and Interim Measures Improvements” which excludes “Series Compensation” and show that these two measures increase the capability of the system from about 5000 MW to about 6500 MW
- (iii) In Ref.(c) OPA staff stated that “At that time, series compensation is a possibility. I am indicating here it is still a possibility, with those considerations. So it is always looked at as a back-pocket solution that we would put in if certain conditions are met.”

Questions/Requests:

- 1) What is the estimated increase in the system capability in MW attributed to use of series Compensation?;
- 2) If Series Compensation is considered part of the interim measures, please indicate the total capability of the near term plus the interim measures comprising both generation rejection and Series Compensation.
- 3) If the view of the Applicant, Hydro One, is that of the OPA as expressed in Ref.(b) and Ref.(c), please provide clarification in regard to:
  - a. What are the exact triggers for revisiting that option;
  - b. Who will make that decision;
  - c. More detailed criteria which would be used to justify the investment;
  - d. What is the process the applicant foresee to secure approval from the OEB