Ross - INTERROGATORY #1 List 1

Interrogatory

Ref. Exh. B / T 6/ S5 / Appendices 1, 2, 5, (and October 15 Technical Conference)
Issue Number: 1 Project Need and Justification
1.1. Issue: Has the need for the proposed project been established?
Request:

1. The 1985 Ontario Hydro Transmission System was designed to be sufficiently scalable for eight units at the Bruce Generation Complex.

i. Please provide the reports and data prepared, referred to or relied upon to support the position that the Transmission System was sufficiently scalable to support eight units at the Bruce.

ii. Please provide reports prepared, referred to, or relied upon for the current project which substantiates the need for increased transmission capacity from the Bruce.

2. (A) For each month, from January 1984 to the present, please provide the data listed below for each of the transmission circuits evacuating power from the Bruce stations (A & B) which includes the six 230 kV lines[B27S, B28S, B4V, B5V, B22D, B23D] and the four 500 kV lines [B560M, B561M, B562L, B563L]:

(i) Monthly Thermal Capacity in MW
(ii) Monthly Capacity Permissible (Capability) in MW;
(iii) Monthly Peak in MW
(iv) Monthly Capacity Factor

(B) For each year from January 1984 to the present, please provide the data listed below for each of the transmission circuits evacuating power from the Bruce stations (A & B) which includes the six 230 kV lines[B27S, B28S, B4V, B5V, B22D, B23D] and the four 500 kV lines [B560M, B561M, B562L, B563L]:

(i) Annual Peak in MW;
(ii) Annual Capacity Factor

Response

1.

i) Hydro One has declined to respond to this Interrogatory. Please refer to correspondence on behalf of Hydro One dated March 13, 2008.

ii) The information that has been relied upon is that which has been filed in this proceeding. For example, please refer to the updated evidence, Exhibit B Tab 6 Schedule 5 Appendix 1 for the OPA's Analysis of Need for Proposed Facilities.

2.

(A)(i) The thermal capacities for transmission system planning purposes of each of the enumerated transmission circuits are provided below. These capacities are expressed as single values as they do not change over time.

Note that the thermal capacity values below are slightly different from those provided in Response to Fallis Interrogatory #6 List 1 (EB-2007-0050 C/T3/S6). The difference is explained by the assumptions made with each request. In the Fallis Interrogatory Response, the requested capacity values were assumed to relate to individual two-circuit lines operating in isolation. In this Response, the assumption made is that the thermal capacity values are based on the circuits operating together and connecting multiple stations.

Circuit	Thermal Capacity (MW)*
B27S	344
B28S	344
B4V	408
B5V	408
B22D	397
B23D	397
B560V	2352
B561M	2352
B562L	2352
B563L	2352

* Calculated for 35˚C, 4 km/h windspeed, daytime sheltered conditions, 240 kV or 535 kV voltage and 0.9 power factor

(A)(ii) The capability of each of the four double-circuit tower lines evacuating power from the Bruce complex was provided in Response to Fallis Interrogatory #6 List 1 (EB-2007-0050 C/T3/S6). These values assume the individual tower lines operate in isolation of one another and as such

the capability does not change over time. Also, the capability of each individual circuit on the double circuit tower lines was not provided in the response to this interrogatory.

Neither Hydro One nor OPG, Bruce Power, IESO nor OPA have located historical data which indicates individual circuit capability with all circuits operating together.

Please note that for system planning purposes it is the network capability and not the capability or capacity of individual circuits that is the relevant criterion. The capability of individual transmission circuits is neither calculated on a minute-by minute basis nor stored. For the Bruce area, the overall network capability is a parameter known as the "flow away from the Bruce complex' or FABC transfer limit. This transfer limit changes minute by minute as system conditions throughout southern Ontario change. To recreate this transfer limit would require detailed knowledge of conditions on the entire power system of southern Ontario that existed at each particular moment in time. The main factors that affect the FABC transfer limit include the status of individual major generating units throughout southwestern Ontario including the Bruce units and the Nanticoke units, the status of individual transmission circuits throughout southern Ontario, the status of selections made on the Bruce Special Protection System and the voltage levels at key points including those of the individual Bruce generating units. Historic records of all of these parameters for the requested time period do not exist.

Hydro One has been advised by the IESO (see A (iii) below) that actual historic hourly transmission data regarding FABC has been located dating back to the period of 1985. [Note: the actual FABC flow is not the same as the FABC transfer limit discussed in the paragraph above.] The actual data is for the entire transmission path out of the Bruce Complex to the system load centre. Although not part of the information requested in this Interrogatory, the FABC flow data is being provided in response to parts (A)(iii) and (iv) to be helpful, as the data provides an indication of the Bruce area's network flows. As noted above, network flows are a better indicator than individual circuit flows for network analysis and transmission system planning purposes.

(A)(iii) and (iv), (B) (i) and (ii) Hydro One has been advised that the IESO has reviewed its computer records going back to 1984 and it is able to provide the following information, which is included in Attachment A, in the time available:

- For each of the circuits requested, the hourly average circuit flow in MW, from January 1991 to December 2007.
- The hourly average Flow Away from the Bruce Complex, known as FABC, for the period January 1985 to December 2007. The FABC is the coincident sum of the individual circuit flows.

The IESO records are raw telemetry records, and are likely to include some periods of missing or corrupted data due to computer system or telemetry outages. As a result, the FABC may not always exactly match a manual summation of the individual circuit flows. There was also a replacement of IESO's computer systems in 2002, so the data is split into two groups, before 2003, and after 2002, with some overlap. Due to the size of the files, the information is being provided in CD form.

The IESO did not calculate a monthly peak flow or capacity factor for individual circuits, as they have advised that this is not a calculation they normally perform or use.

Hydro One has also reviewed its records and can confirm that it does not have in its possession any of the requested data for the period prior to January 1, 2003. Beyond January 1, 2003, "raw" data for individual circuits similar to the data which the IESO has provided is available. However, it is not readily accessible and would require development of custom software to extract and manipulate it in order to put it into the requested form. Given the time required (estimated to be one month) to do this, and the fact that the data is similar to what the IESO has provided, Hydro One submits that the IESO data is sufficient for the purposes of responding to this Interrogatory.

Attachment A

(Available on CD only)