

ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act*,
1998, S.O. 1998, c. 15, (Schedule B), (the “Act”)

AND IN THE MATTER OF an Application by Hydro
One Networks Inc. pursuant to section 92 of the Act, for an
Order or Orders granting leave to construct a transmission
reinforcement Project between the Bruce Power Facility
and Milton Switching Station, all in the Province of Ontario
(the “Leave to Construct Application”)

**INDEPENDENT ELECTRICITY SYSTEM OPERATOR
ARGUMENT
July 4th, 2008**

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Introduction

The Independent Electricity System Operator (“IESO”) supports the application of Hydro One Networks Inc. (“Hydro One”) to the Ontario Energy Board (“Board”) for leave to construct a 500 kV electricity transmission line, beginning at the Bruce Power complex in Kincardine and terminating at the Hydro One switching station in Milton, pursuant to section 92 of the *Ontario Energy Board Act, 1998* (the “Project”). The IESO adopts and relies upon the evidence adduced by and the submissions of Hydro One as set out in its argument in chief.

The IESO will not repeat the submissions of Hydro One but will review the unique role played by the IESO in this proceeding, the limitations of the evidence of the consultants retained to oppose the application, and certain of the issues identified by Board Staff in their submissions of July 2nd.

Role of the IESO

The IESO is neither a hired consultant, nor a representative of private interests. In its capacity as the independent system operator in Ontario the IESO exercises a legislative and regulatory mandate to:

- Direct the operation and maintain the reliability of the IESO-controlled grid to promote the purposes of the *Electricity Act, 1998* (the “Act”);
- Work with the responsible authorities outside Ontario to co-ordinate the IESO’s activities with their activities;
- Operate the IESO-administered markets to promote the purposes of the Act; and;
- Establish and enforce standards and criteria relating to the reliability of transmission systems.¹

The purposes of the Act are set out in section 1 (1). In relation to the IESO, two of the key purposes are:

¹ Section 5 of *Electricity Act, 1998* as amended and O.Reg.452/06

“(a) to ensure the adequacy, safety, sustainability and reliability of electricity supply in Ontario through responsible planning and management of electricity resources, supply and demand; and

(f) to protect the interests of consumers with respect to prices and the adequacy, reliability and quality of electricity service”.

The IESO has, therefore, a duty to protect the public interest regarding the adequacy, reliability and quality of electricity service. This duty has informed the IESO reports filed as evidence, the testimony of Mr. Falvo, and these submissions.

In assessing the evidence of the witnesses and the arguments of the parties it is important to note that the independent expert role played by the IESO in fulfilling its legislative mandate was not seriously challenged during the hearing. As set out in the record, the IESO, in conjunction with Hydro One and the OPA, provided evidence regarding the *actual conditions and system requirements in Ontario relevant to this application* including: system operation, power flows, loop flows, Ontario market design, Ontario transmission practice, Ontario reliability standards, Ontario government directives, and the operational complexities associated with the day to day operation of the IESO – administered market, and the IESO - controlled grid including outages and maintenance.

The limitations of the evidence of the consultants retained to oppose the application

In contrast, the evidence of the witnesses called by those intervenors opposing the application was subject to significant limitations based on their lack of experience and understanding of this *Ontario context* including the design of the Ontario market and underpinning rules, procedures and requirement relating to such matters as dispatch, congestion, and the allocation of transmission capacity. In numerous exchanges these witnesses readily acknowledged the limitations of their evidence and in other instances the witnesses became evasive in their testimony, adopting the role of advocate, rather than that of independent, objective advisor to the Board. It is submitted that little weight should be accorded to the evidence of these foreign consultants whose testimony was critically influenced by and based on a fundamentally different paradigm.

Mr. Lanzalotta on behalf of Pollution Probe acknowledged his very limited operational work experience on high voltage transmission systems, and that this limited operational work experience was in relation to very small systems (both in number of miles of transmission lines and customers), and excluded 500 kV systems.² He also conceded that he had no experience with CANDU nuclear reactors; no prior testimony or operational experience regarding type 1 SPS; and no prior involvement in SPS review and approval processes at NPCC.³ Rather the bulk of his experience has been as a consultant hired to oppose transmission facility applications, having confirmed his prior testimony that he had only filed evidence in support of the construction of a new transmission line once.⁴

Mr. Fagan acknowledged that he lacked the skill set, the experience and the qualifications to work as a transmission planner; notwithstanding these admissions in an exchange with Mr. Nettleton, Mr. Fagan argued that nonetheless he had previously been recognized in a U.S. proceeding as an “expert” in such matters.⁵ He confirmed that he had neither experience in designing SPS, nor any experience in testifying as an expert about SPS.⁶ Similarly he had no experience in testifying as an expert about the need for and construction of 500kV transmission systems, nor had he any experience with the use of series capacitors on 500kV transmission lines.⁷

As a panel, Messrs. Lanzalotta and Fagan conceded that they had no reason to dispute the independent role of the IESO, the functionality of its independence and its role as an independent system operator.⁸ In a similar manner they had no reason to doubt NPCC’s concerns regarding generation rejection which like series compensation “is a complex technical operating system and it’s one that you have to consider very carefully”.⁹ Nor did they dispute the need for studies regarding the potential use of series compensation;

² Transcript, volume 13, pp. 44 -46

³ Transcript, volume 13, p.55 and 125

⁴ Transcript, volume 13, p. 47

⁵ Transcript, volume 13, pp.58-59

⁶ Transcript, volume 13, pp.64-65

⁷ Transcript, volume 13, pp.64-65

⁸ Transcript, volume 13, p.73

⁹ Transcript, volume 13, p.127

acknowledging that there are technical concerns and complications with implementing series compensation which must be considered.¹⁰ Ultimately they agreed with the IESO's expressed concern regarding the increased operational complexity; "[i]t, of course, is a valid concern".¹¹

In relation to the issue of need, as identified by the Board Staff submission, Messrs. Lanzalotta and Fagan said that though they wanted to create a reasonable estimate of what the demand for transmission might be and get a sense of the benefit¹² they did not look province wide as to where wind may be able to come on line to comply with the government directive,¹³ nor did they analyze the location specific renewable potential around the province¹⁴ and had no firsthand knowledge of whether or not the congestion management structure applies to wind developers.¹⁵ In relation to the determination of the need they took no position on the OPA assumption that nuclear output at the Bruce will be maintained into the future¹⁶ and they were "not familiar enough with the details" to be able to comment on whether or not the recent change over of the operational control of the Bruce Site to Bruce Power will impact performance.¹⁷

Mr. Russell, who was retained by the Saugeen Ojibway Nation, also had very limited operational experience with a utility; in his case it was limited to just two years (1969 – 1971) as associate engineer.¹⁸ As with Mr. Lanzalotta, the vast majority of Mr. Russell's experience has been as a consultant with extensive experience testifying in the US¹⁹ which has significantly coloured his evidence. By way of example, his position on the need for "certainty" is reflective of his general experience in the US with firm and non firm transmission; concepts which are not applicable in Ontario. Moreover, his position on certainty is not uniformly applied in the U.S. For example, in relation to transmission

¹⁰ Transcript, volume 13, pp. 118 and 120

¹¹ Transcript, volume 13, p. 129

¹² Transcript, volume 13, p. 98

¹³ Transcript, volume 13, p. 81

¹⁴ Transcript, volume 13, p. 82

¹⁵ Transcript, volume 13, p. 103

¹⁶ Transcript, volume 13, p.106

¹⁷ Transcript, volume 13, p. 110

¹⁸ Transcript, volume 14, pp. 6-7

¹⁹ Transcript, volume 14, pp. 8-9

development proposals in California he acknowledged that government policy mandated a “very much more relaxed standard” than in the other jurisdictions under FERC such that transmission lines lacking clear and certain need may be approved in order to achieve RPS goals.²⁰ He conceded that approval may be granted to meet public policy objectives.²¹

Though his concept of certainty is not uniformly applied in the U.S., Mr. Russell would have us adopt it in Ontario as the new threshold for the approval of transmission projects. In so doing he glosses over government directives, which he has not considered in detail, and assumes the need for further approvals of OPA contracts – by whom it is not clear – which approvals are already provided by the selfsame government directives.

A further example of the lack of understanding of the Ontario context is reflected in Mr. Russell’s report in which he commented, incorrectly, on the need to install expensive phase angle regulators (“PARs”) to regulate an alleged adverse impact the proposed transmission line would have on loop flows.²² He had not familiarized himself with the IESO-controlled grid and Hydro One’s transmission system which has already installed PARs to regulate such flows.²³

In relation to need Mr. Russell has claimed that reliance on series capacitors and generation rejection is sufficient to meet required needs, buying time until a firm decision on need can be made once his threshold test of certainty has been met. The IESO relies upon and will not repeat the evidence adduced by and the arguments of Hydro One which support the conclusion that the interim measures would not meet the required need and would not be more cost effective for the province.

The IESO does, however, offer specific comment on the reliability aspects raised by the proposed interim measures. As addressed in a response to a Pollution Probe

²⁰ Transcript, volume 14, p. 168

²¹ Transcript, volume 14, p. 169

²² Saugeen Ojibway Nation evidence, tab B1, paragraph 73 (d)

²³ Transcript, volume 7, p. 106

interrogatory, the proposed use of series compensation and generation rejection under normal conditions does not meet the required capability and the proposed long term use of the more limited capability which would be provided by such measures is “not consistent with the NPCC and IESO reliability standards”.²⁴ Mr. Russell’s long term interim measures would require, to adopt the highway analogy used in the hearing, planning to contravene the rules of the road and drive on the shoulder at all times - including rush hour - at highway speeds without any margin for error. In the exercise of its statutory and regulatory responsibilities the IESO cannot countenance such a practice. Even Mr. Russell himself conceded that the use of generation rejection out to the cross over point of his graph, the 2024- 2026 time period, would be a long –term time period and would not fit within requirements of the Ontario Resource and Assessment criteria.²⁵

Notwithstanding the above concession, Mr. Russell attempted to justify his claim that continued reliance on generation rejection would be acceptable under the Ontario Resource and Assessment criteria by referencing the IESO’s SIA of certain proposed projects on the North –South interface as being an acceptable type 1 SPS because transmission reinforcements are in the works though no specific planning and in-service dates were provided.²⁶ Mr. Russell stated that there is a gap between the IESO’s stated reliability standard and its practice.²⁷ In so doing Mr. Russell again indicated his lack of understanding of the Ontario context and misconstrued the status of the North-South projects.

The SIA report Mr. Russell referenced had concluded that, with the use of generation rejection, the proposed new facilities would allow the transfer across the Flow South Interface to be increased to a maximum 2150MW.²⁸ It also stated that until the Flow South transfer exceeded approximately 2000MW, a failure of the SPS would not be expected to have an adverse impact on the systems of our neighbouring utilities.²⁹

²⁴ Exhibit C, Tab 2, Schedule 16, p.3

²⁵ Transcript, volume 14, pp. 227-228

²⁶ Transcript, volume 14, p.62

²⁷ Transcript, volume 14, p.224

²⁸ EB-2007-0707, Exhibit E-3-1, Attachment 1, p.4; and Exhibit E-3-1, p.10

²⁹ EB-2007-0707, Exhibit E-3-1, Attachment 1, p.5

Consequently, the SPS would not be classified as Type 1 until new resources are committed to cause the Flow South transfer to exceed the 2000MW threshold.

The SIA also identified further, additional transmission facilities that would be required to increase the Flow South transfer limit beyond 2150MW, but there are currently no plans to install these facilities.

The SIA in question references a possible future classification of the SPS as a type 1 should further generating facilities be developed in the north-east. It also anticipates the reinforcement of the transmission system between Barrie and the GTA to accommodate the new generating resources, as referenced in the OPA's IPSP. In the event that any new generating resources should materialise before the new transmission facilities can be brought into service, temporary reliance on the SPS during this period would be consistent with the Ontario Resource and Assessment criteria.³⁰

In contrast the Bruce SPS is and, based on IESO analysis and NPCC's comments, will continue to be a type 1 SPS while the necessary transmission reinforcements are implemented.³¹

Mr. Brill, based on his field of expertise, experience and limited review of the *Ontario context*, was not able to meaningfully assist the Board and parties with respect to this application. For example, Mr. Brill candidly acknowledged that he had not reviewed the SPS system and could not comment on it.³² The use of one right of way for a large percentage of power flows "is just something that needs to be considered"³³ (the evidence on the record confirms that the IESO has done just that)³⁴ and that the actual impact would depend on so many variables that he could not answer specific questions.³⁵

³⁰ EB-2007-0707, Exhibit E-3-1, Attachment 1 p. 40

³¹ Transcript, volume 5, pp.177-182, exchange between Ms. Chaplin and Mr. Falvo

³² Transcript, volume 14, p.311

³³ Transcript, volume 14, p.305

³⁴ Transcript, volume 1, p. 173, and Exhibit C, Tab 1, Schedule 2.10

³⁵ Transcript, volume 14, p.312

Comments on Board Staff Submissions

Establishing Need

In the IESO's view, not only will the project permit full deployment of committed generating resources and the development of new renewable resources consistent with Government policy and directives, it will also comply with applicable reliability standards, reduce the risk to neighbouring interconnected transmission systems, and in so doing satisfy the legislative objective of ensuring the adequate, safe, sustainable and reliable supply of electricity through responsible planning.

In setting out the three questions to be answered:

1. What is the likelihood of the construction of the 700 MW of Committed Wind and Refurbishment Completion of the 4 Bruce A units?
2. What is the likelihood of implementing the Bruce B Refurbishment and development of the 1000 MW of Projected Wind?
3. Should the transmission need be based on the Name-Plate Rating versus Operating Capacity Factor assumptions for the wind generators?

it is submitted that Board Staff have inadvertently mischaracterized the second question. It is not a question of whether Bruce B will be refurbished, but whether it is a reasonable planning assumption that the Bruce Site will continue to provide approximately 6,300 MW of baseload electricity through either refurbishment of Bruce B units or new units at Bruce C. The IESO adopts and supports the submissions of Hydro One and the OPA that it is reasonable to assume the continuation of generation at the Bruce Site of approximately 6,300 MW. It is also noted that should the decision be made to not refurbish the Bruce B units the life of those units could be extended beyond the conservatively assumed end of life of 2015 to 2020.

Board Staff have also noted that the funding responsibilities for new radial transmission lines – an issue currently being considered by the Board - may influence the likelihood of wind generation being constructed in the Bruce area. This concern, which is not supported by the record, is speculative in relation to a possible policy decision, and even more so in relation to possible influences on the construction of the targeted 700 MW of wind generation in the Bruce area. Such a policy decision – which presumably would be province wide in its application – could result in even more wind generation in the Bruce area, particularly given that it is acknowledged to be the most electrically proximate renewable resource to the GTA³⁶ and the OPA has assessed its all in cost – transmission included – as being very favourable in comparison to other regions offering significant renewable resource generation opportunities.³⁷ Moreover, as set out in Exhibit K10.2, the list of wind projects in the Bruce area, the identified points of connection for the existing projects in the queue for which no radial transmission line is required exceeds 790 MW.³⁸

Mr. Russell testified that “if you have some diversity I would say less than 100 % would do”.³⁹ Significantly in cross Mr. Russell confirmed that he “had not run a study to track the reasonableness of Mr. Chow’s assumptions or the reasonableness of the 700 megawatts” of large wind.⁴⁰ Moreover, when questioned about his views on diversity of wind in the Bruce area rather than his view on wind diversity in general, Mr. Russell confirmed that he had not studied “the diversity of wind, air sheds or diversity of wind generators within the Bruce vicinity”.⁴¹

Board staff referenced data filed by the Ross and Fallis Group in relation to historical data regarding the Bruce Site. This data was based on averages which understated actual coincident peaks and more significantly this data does not address the change in operation of the facility to Bruce Power. As noted above, Messrs. Lanzalotta and Fagan

³⁶ Transcript, volume 14, p.141

³⁷ Transcript, volume 8, pp. 47-48

³⁸ Exhibit K10.2

³⁹ Transcript, volume 14, p.146

⁴⁰ Transcript, volume 14, p.140

⁴¹ Transcript, volume 14, p. 150

were unable to comment meaningfully on the implications of this change in operators at the Bruce Site.

Cost Benefit Analysis and The Implication Of Construction Delay

Both the cost benefit issue and the implication of construction delay of the proposed project as framed by Board staff raise concerns with respect to reliability. As stated by Hydro One the interim measures, if adopted notwithstanding the cost consequences of doing so, are only temporary measures. They do not satisfy the established need nor, more significantly from the IESO's perspective, do they comply with the IESO's mandatory reliability standards as discussed above.

Summary

As noted by Mr. Stephenson in submissions to the Board at a much earlier stage of this proceeding, there is nothing inherently unique about this project that distinguishes it from the review that the Board undertakes of all leave to construct applications. The applicable standard of review employed by the Board is not to require absolute certainty as suggested by certain consultants and intervenors, nor does it authorize the Board, in the context of this application, to recast the IESO's mandatory reliability standards and market design. Rather the Board is to exercise its discretion, review the evidence and make a determination on the merits. Based on the evidence applicable to Ontario, the submissions of the parties and the appropriate standard of review, the project as applied for should be approved.

All of which is respectfully submitted this 4th day of July 2008.

Independent Electricity System Operator

By its counsel,

John M. Rattray