Ontario Energy Board

Commission de l'énergie de l'Ontario

Ontario

EB-2007-0050

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 Nuclear Generating Station and Milton Switching Station, all in the Province of Ontario.

BEFORE: Pamela Nowina
Presiding Member and Vice-Chair

Cynthia Chaplin
Member

Ken Quesnelle
Member

DECISION AND ORDER
September 15, 2008

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APPENDICES

1. SUMMARY OF FINDINGS

Hydro One Networks Inc. ("Hydro One" or the "Applicant") is seeking an Order of the Board for leave to construct approximately 180 kilometres of double-circuit 500 Kilovolt ("kV") electricity transmission line adjacent to the existing transmission corridor (500 kV and/or 230 kV) extending from the Bruce Nuclear Generating Station ("NGS") in Kincardine Township to Hydro One's Milton Switching Station in the town of Milton. Hydro One also proposes to make modifications at the Milton, Bruce A and Bruce B transmission stations to accommodate the new transmission lines.

In examining whether or not a leave to construct application is in the public interest, the Ontario Energy Board (the "Board") is governed by Section 96(2) of *Ontario Energy Board Act*, 1998, S.O. 1998, c.15, Schedule B (the "OEB Act") which states that:

> *In an application under section 92, the Board shall only consider the interest of consumers with respect to prices and the reliability and quality of electricity service when, under subsection (1), it considers whether the construction, expansion or reinforcement of the electricity transmission line or electricity distribution line, or the making of the interconnection, is in the public interest.*

While the Board considers alternatives to the project, those alternatives are assessed in the context of the specific factors listed in Section 96(2) of the OEB Act. These factors do not include the impact on individual landowners, except to the extent that the impact could materially affect the prices, reliability and quality of electricity service to consumers generally. The environmental and socio-economic impacts of alternative routes are considered in the Environmental Assessment ("EA") process required under the *Environmental Assessment Act*. Individual land rights are considered in the context of a proceeding under the expropriations process.[1]

Given the outline of the Board's test and in the context of this application, the main issues for the Board are as follows:

[1] OEB Act, Section 99

I. Is the proposed project needed?

- What is the likelihood of the construction of the 700 MW of committed wind generation and completion of the refurbishment of the 4 Bruce A Units?
- What is the likelihood that Bruce B will be refurbished and that 1000 MW of planned wind generation will be developed?
- Should the transmission need be based on the maximum capacity rating of the generation or on some other level related to the expected operating capacity factor?

II. Is the proposed project economically superior to the alternatives and are the potential rate impacts reasonable?

III. What is the impact on system reliability related to the project? How does this compare to the alternatives?

IV. If the proposed project is approved, what are the appropriate conditions of approval?[2]

V. Are the Forms of agreements offered by Hydro One to the landowners appropriate?

VI. Have appropriate consultation and if necessary, accommodation been made with affected Aboriginal peoples?

The Board examines each of these issues in detail in this Decision and Order.

In summary, the Board approves Hydro One's application for leave to construct approximately 180 kilometres of double-circuit 500 Kilovolt ("kV") electricity transmission extending from the Bruce NGS in Kincardine Township to Hydro One's Milton Switching Station in the town of Milton with conditions.

The need for the project was diligently contested by the intervenors. In particular, the Ontario Power Authority's ("OPA")'s forecast of wind generation and nuclear generation which would be served by the new line was challenged. The Board finds that the forecast for wind generation is reasonable. The Board also finds that the Project is

[2] Draft Conditions of Approval were filed by Board staff during the proceeding, Exhibit K9.10, May 13, 2008

economic whether or not the Bruce B units at the Bruce NGS are refurbished or new nuclear development at the Bruce NGS occurs. The Board finds that the Project is economic over the long term when compared with the primary alternative put forward by intervenors, namely the installation of series capacitors, and use of generation rejection.

The Project also meets the reliability standards of the industry and is consistent with the government's policy on land use.

The Board approves the Forms of agreement as provided by Hydro One.

For the purpose of this application, the Board finds that consultation with Aboriginal groups has been sufficient.

The Board's approval is subject to a number of conditions (see Appendix C). Most notable among these is compliance with the *Environmental Assessment Act*.

The Board's detailed reasons follow in this document.

2. INTRODUCTION

This section provides an overview of the application, the stages of the proceeding and a background to the project

2.1 The Application

Hydro One is seeking an Order of the Board for leave to construct approximately 180 kilometres of double-circuit 500 Kilovolt ("kV") electricity transmission line adjacent to the existing transmission corridor (500 kV and/or 230 kV) extending from the Bruce NGS in Kincardine Township to Hydro One's Milton Switching Station in the town of Milton. Hydro One also proposes to make modifications at the Milton, Bruce A and Bruce B transmission stations to accommodate the new transmission lines.

The original application was filed on March 29, 2007; an amended application was filed on November 30, 2007. The Application was given Board file No. EB-2007-0050. A map filed by Hydro One on November 30, 2007 as part of their amended application showing the location of the project is shown in Figure 1.

Hydro One submitted that the project is required to meet the increased need for transmission capacity associated with the development of wind power in the Bruce area and the return to service of nuclear units at the Bruce NGS. Hydro One proposed an in-service date of Fall 2011 for the new 500 kV transmission line and related facilities. The estimated cost of the transmission project is $635 million.

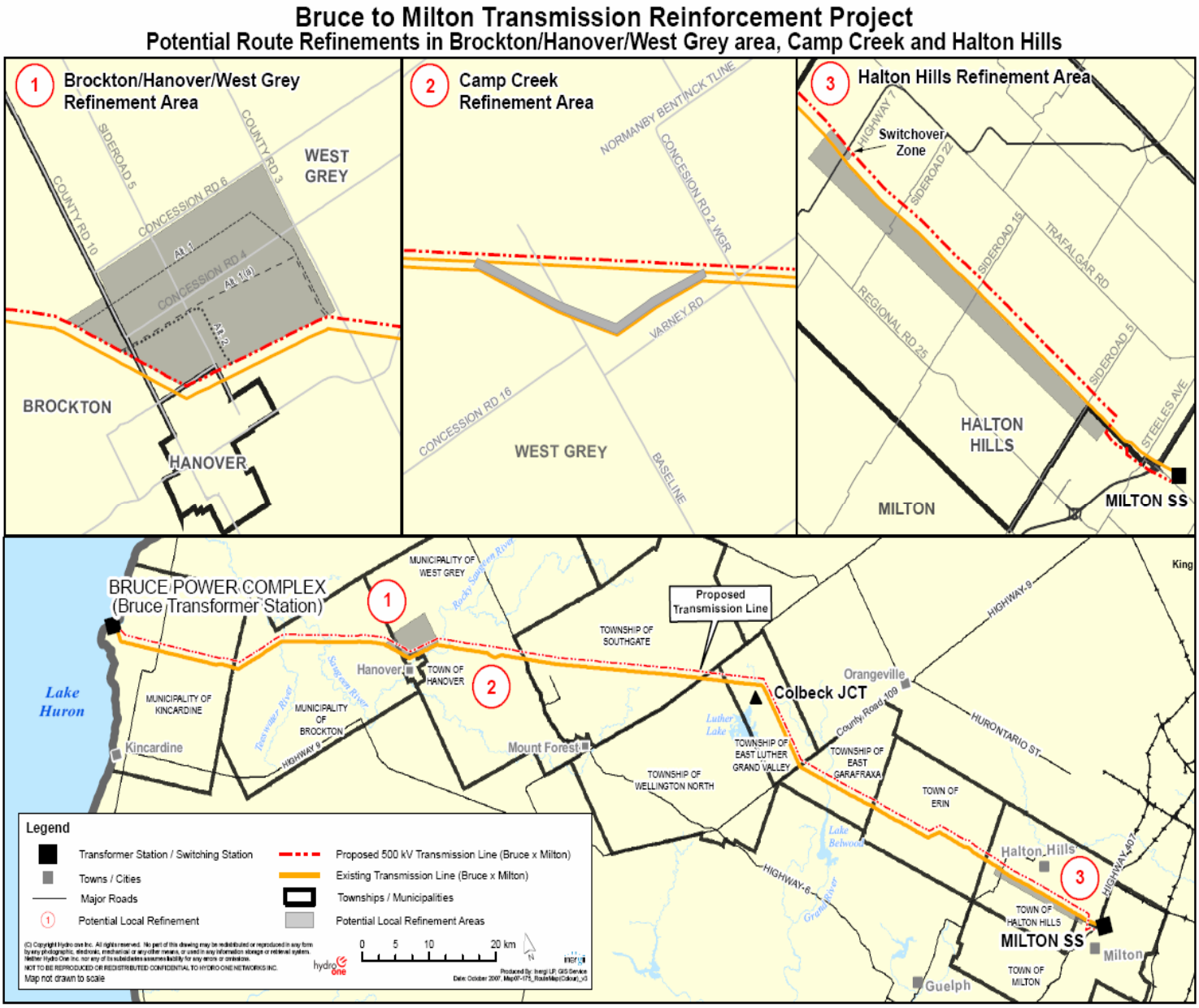
Bruce to Milton Transmission Reinforcement Project
Potential Route Refinements in Brockton/Hanover/West Grey area, Camp Creek and Halton Hills
1 Brockton/Hanover/West Grey Refinement Area
2 Camp Creek Refinement Area
3 Halton Hills Refinement Area
WEST GREY
BROCKTON
HANOVER
NORMANBY BENTINCK TLINE
CONCESSION RD 2 WGR
VARNEY RD
CONCESSION RD 16
BASELINE
Switchover Zone
HIGHWAY 7
SIDEROAD 22
SIDEROAD 15
TRAFALGAR RD
REGIONAL RD 25
SIDEROAD 5
STEELES AVE
HALTON HILLS
MILTON
MILTON SS
BRUCE POWER COMPLEX
(Bruce Transformer Station)
Proposed Transmission Line
Lake Huron
Kincardine
Hanover
Mount Forest
Colbeck JCT
Orangeville
Halton Hills
Milton
Guelph
King
HIGHWAY 9
HURONTARIO ST
HIGHWAY 6
HIGHWAY 407
County Road 109
TOWNSHIP OF SOUTHGATE
TOWNSHIP OF WELLINGTON NORTH
TOWNSHIP OF EAST LUTHER GRAND VALLEY
TOWNSHIP OF EAST GARAFRAXA
TOWN OF ERIN
TOWN OF HALTON HILLS
TOWN OF MILTON
MUNICIPALITY OF WEST GREY
MUNICIPALITY OF KINCARDINE
MUNICIPALITY OF BROCKTON
TOWN OF HANOVER
Legend
Transformer Station / Switching Station
Towns / Cities
Major Roads
Potential Local Refinement
Proposed 500 kV Transmission Line (Bruce x Milton)
Existing Transmission Line (Bruce x Milton)
Townships / Municipalities
Potential Local Refinement Areas
0 5 10 20 km
Map not drawn to scale

Figure1

2.2 The Proceeding

The Notice of Application for the Leave to Construct Application and the Notice of Amended Application were published in various newspapers and were served on all directly affected landowners. A complete list of participants, including registered intervenors, is attached as Appendix A to this decision.

The Board issued eleven procedural orders in this proceeding. Appendix B of this decision provides details on procedural matters, including list of witnesses, in the hearing.

The oral hearing commenced on May 1, 2008, and concluded on June 11, 2008.

Hydro One filed its argument in chief on June 23, 2008. Board staff filed its submissions on July 2, 2008. Intervenors filed their arguments by July 4, 2008. On July 17, 2008, the record of the proceeding was completed with the Applicant's filing of reply argument.

2.3 Background

2.3.1 Description of the existing Power System – Transmission and Generation

The existing transmission system consists of six 230 kV circuits and four 500 kV circuits, all of which transmit the generation output from the currently in service nuclear units at Bruce NGS, in addition to existing wind farms in the Bruce Area. The six 230 kV circuits transmit power to load centres including Hanover, Orangeville and Owen Sound. Two of the four 500 kV circuits connect the Bruce NGS to the Milton Switching Station, near the town of Milton, and the other two 500 kV circuits connect the Bruce NGS to the Longwood Transformer Station near the city of London.

The existing transmission system presently has a transfer capability of approximately 5,000 MW, which is less than its historic capability because the load flow has changed along the 500 kV system which connects the Bruce Area to the provincial transmission system. The power flow pattern is now from South-Western Ontario towards the Greater Toronto Area ("GTA") i.e. west to east. In the past at the time that the Ontario

transmission system was enhanced for the Bruce NGS, there was significant local load in the Bruce Area and the power flow in Ontario was typically from GTA to the west in support of power exports. This change in power flow is attributed to an existing predominant pattern of importing electricity from Michigan and New York during peak demand in Ontario and the increasing demand, in the GTA during the peak summer season.

2.3.2 Project Description - near term, interim measures and proposed Project

To meet the total electricity generation expected to be in the Bruce area by 2015, Hydro One proposed near-term measures, interim measures, and the proposed Bruce to Milton 500 kV double-circuit transmission line to meet the noted system requirements.

The near-term measures are currently being implemented and include installation of dynamic and static reactive resources at various transformer stations and upgrading the 230 kV transmission line from Hanover to Orangeville.

The interim measures consist of generation rejection and, if needed, series capacitors. The generation rejection is provided by a proposed expansion of the Bruce special protection system ("BSPS") to increase the transfer capability out of the Bruce area until the proposed project is in service. Hydro One indicated that if the Project does not go into service and the use of the BSPS accordingly intensifies, then the reliability of the system will be compromised.

The proposed project is approximately 180 kilometres of double-circuit 500 kV transmission line adjacent to the existing transmission corridor (500 kV and/or 230 kV) extending from the Bruce NGS to the Milton Switching Station in the town of Milton. Hydro One proposes an in-service date of Fall, 2011 for the new 500 kV transmission line and related facilities.

2.3.3 Roles of Hydro One, OPA and IESO

Hydro One was responsible for the pre-filed evidence including evidence prepared by the Ontario Power Authority ("OPA"), and the Independent Electricity System Operator ("IESO"). The pre-filed evidence included the need for the project, the proposed alternatives, and the economic benefits of the project.

OPA's mandate under the Electricity Act, 1998 (the "Electricity Act") requires it to perform long-term power system planning for the Province. The OPA provided evidence in this case addressing various key areas including the forecast of generation resources over a study horizon up to 2030, and developed an economic model to evaluate the cost of bottled energy under various scenario assumptions during the proceeding.

The IESO's role includes directing the operation and maintaining the reliability of the IESO-controlled grid; working with the responsible authorities outside Ontario to co-ordinate the IESO's activities with their activities; and establishing and enforcing standards and criteria relating to the reliability of transmission systems. The IESO provided evidence in this case addressing key areas including comprehensive "System Impact Assessment" reports dealing with the proposed project and responding to interrogatories by simulating alternative scenarios during the proceeding.

2.3.4 Application in relation to Environmental Assessment and other permitting processes

The Board recognizes that in addition to this Leave to Construct approval, an approval pursuant to the EA approval is required before the project may proceed. The Board,[3] has already decided in interlocutory proceedings that neither process is completely dependent upon the other.

Hydro One has acknowledged that the Board's leave to construct orders are conditional on the procurement of all necessary permits and authorizations including a completed EA. In this way, the Board ensures that the project cannot proceed without regard to requirements of the EA process, while it considers the matters falling within its jurisdiction in a timely fashion.

The Board, however, satisfied itself that the two processes were not significantly out of step, by ensuring that the approved Terms of Reference for the EA were in place[4], prior to commencement of the oral phase of the hearing which started on May 1, 2008[5]. This is relevant as the Board's mandate is to assess the proposal in terms of prices,

[3] Board Decision and Order on Motion, issued on July 4, 2007, page 5
[4] On April 4, 2008 the Ministry of Environment issued Approval of the Terms of Reference for the EA
[5] Letter from Hydro One to the Board and circulated to all parties, dated April 10, 2008, page 2, advising that on April 4, 2008 the Minister of Environment issued its "Terms of Reference – Notice of Approval".

reliability and quality of electricity service and part of that assessment involves an analysis of alternatives. It was therefore important to ensure that to the extent that alternatives raised in the EA process are relevant and material to the comparison of alternatives in terms of prices, reliability and quality of electricity service, that those alternatives are appropriately considered in the Leave to Construct application.

It should be noted that environmental and socio-economic impacts of alternative routes are considered in the EA process. Individual land rights are considered in the context of a proceeding under the expropriations process as outlined in section 99 of the Act.

3. PROJECT NEED AND JUSTIFICATION

3.1 Introduction

Hydro One submitted that the current transmission system has a transfer capability of 5,000 MW, and the forecast requirement for the year 2015 is 8,100 MW. This increase of 3,100[6] MW is driven by a generation forecast with the following components:

- 1,500 MW of refurbished nuclear generation – when all Bruce NGS units are in service in 2013
- 700 MW of committed wind generation
- 1,000 MW of planned wind generation (700 MW from large wind projects, 300 MW from the Standard Offer Program)
- Refurbishment of Bruce B (or new build) such that generation from the Bruce NGS is maintained at about 6,300 MW over the long-term.

Hydro One provided the following chart to show the generation profile over time and the level of transmission capability provided by the proposed Bruce to Milton line.

[6] Incremental requirements are about 3200 MW, but the current capability of 5000 MW exceed current requirements. The net incremental requirements are 3100 MW

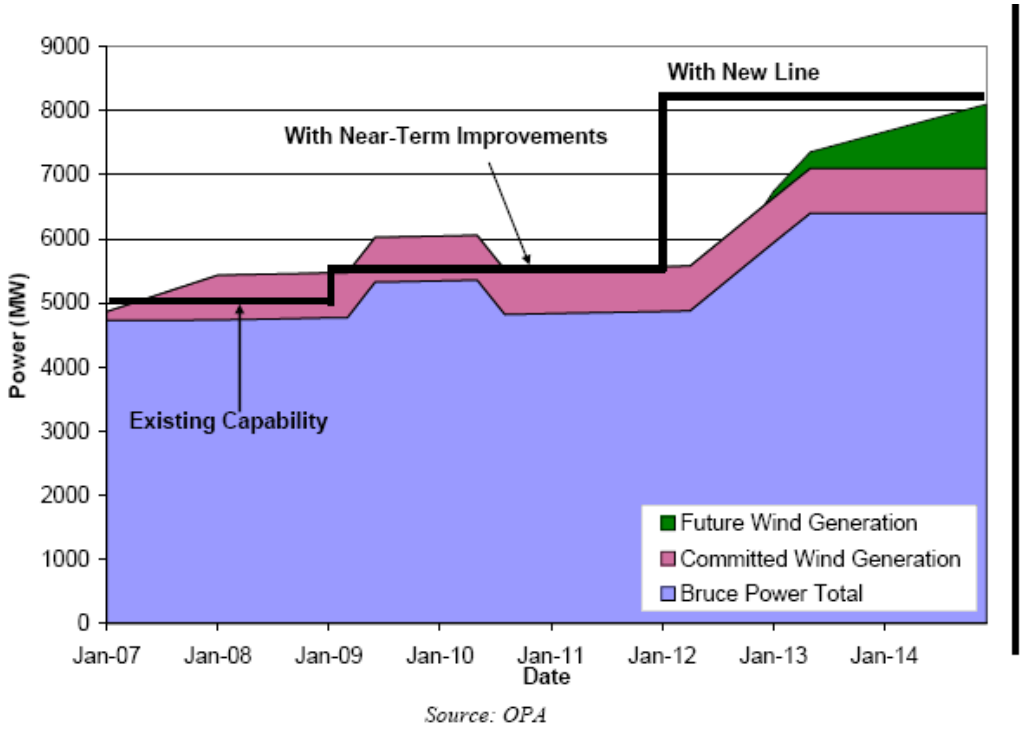

Figure 2 Source: Exhibit B/Tab 3/Schedule 1/p.2, depicting "Bruce Area Available Generation and Transmission Capacity (2007-2014)"

Hydro One submitted that including the committed wind (700 MW) and committed Bruce A (1,500 MW) amounts in the forecast were not controversial. Board staff agreed with this characterization. No intervenor took issue with these components of the generation forecast. With respect to the 1,000 MW of planned wind, the 300 MW from the SOP was not challenged given the evidence that the program is already oversubscribed.

Two components of the generation forecast were contentious: the 700 MW from planned large wind projects and the forecast generation of 6,300 MW from the Bruce NGS. Another area of dispute was the practice of planning transmission capability to meet the simultaneous Maximum Capacity Rating ("MCR") of all generation, the so-called "planning to nameplate capacity".

Some intervenors, particularly the Saugeen Ojibway Nations ("SON"), raised broader questions with respect to the generation forecast, and specifically the relationship between the generation forecast (and the project generally) and the IPSP.

This section is organized as follows:

- The forecast of planned large wind generation
- The forecast of generation from Bruce NGS
- Planning transmission for total nameplate generation capacity
- The relationship between the application and the IPSP

3.2 The Forecast of Planned Large Wind Generation

Hydro One argued that the current IESO queue for wind generation (which includes 813 MW in projects which have their System Impact Assessment ("SIA") on hold and almost 1,500 MW in additional projects) supports the generation forecast. Hydro One also submitted that the generation forecast was reasonable in light of the August 27, 2007 Ministerial Directive[7] which requires 2,000 MW of renewable generation in Ontario by 2015 and the OPA's intention to satisfy one-third of that requirement from large wind in the Bruce area given its relative proximity to the Province's major load centre and the amount of wind potential in that area. That procurement must be done by 2011 to meet the 2015 date.

Hydro One argued that the 700 MW was a conservative forecast from several perspectives: it represents 50% of the wind potential in the area, 60% of the wind generation in the IESO queue for the area, and 35% of the renewable generation the OPA has been directed to procure. The SON position was that there was uncertainty related to the wind development in the Bruce area. Hydro One argued that the Board must determine whether the OPA's forecast is more credible than SON's views regarding the risk that projects in the queue will result in less than 700 MW being installed.

We address two sub-issues:

1. The August 2007 Ministerial Directive

2. The level of certainty

[7] Exhibit C/Tab 11/Sch. 1/Attachment 1

3.2.1 The August 2007 Ministerial Directive

Hydro One submitted that no further approval is required for the contracts entered into under the August 27, 2007 Ministerial Directive in advance of the IPSP and that the Ministerial Directive is unambiguous and is not a guideline. In Hydro One's view, it is sensible to source 35% of this requirement from the abundant wind source in the Bruce area, given this is an accessible area, especially given the queue.

The OPA noted that its forecast for large wind projects was not dependent upon any Board approval, including approval of the IPSP. The OPA is directed and authorized to acquire 2,000 MW of renewable generation under the August 2007 Ministerial Directive.

The Ross Firm Group ("Ross Group") argued that Hydro One was relying on a very narrow reading of the directive and noted that the directive calls for renewable generation, not just wind generation and that it indicates the generation is to be sourced province wide, not just in the Bruce area. The Fallis Group of Landowners ("Fallis Group") made similar submissions.

3.2.2 Board Findings

The Board concludes that the question of the interpretation of the August 2007 Ministerial Directive is not a consideration in our determination of the reasonableness of the wind generation forecast. It is true the directive refers to renewable generation and does not specify wind generation, but it is a pre-IPSP Directive and the OPA has the authority to decide how the requirements of the directive are to be met. It is not the Board's role to assess the OPA's plans for how to meet the requirement specified in the directive. The Board accepts the OPA's testimony that it intends to acquire an additional 700 MW of wind generation in the Bruce area to meet the requirements of the August 2007 Ministerial Directive.

3.2.3 Level of Certainty

SON submitted that there was substantial uncertainty about the amount and timing of the planned wind generation with respect to:

- willingness of developers to participate in bidding

- qualifications of wind developers
- the actual signing of contracts
- delays and challenges around site acquisition, environmental assessments, financing, equipment acquisition, and the need for additional facilities.

Hydro One submitted that the OPA has the authority to plan in the absence of certainty and to act as counter-party for procurement. Therefore certainty is not required before approval is given to transmission reinforcement. Hydro One summarized its view as follows:

> *What more indicators of certainty should the OPA reasonably require before allocating 700 MW of the directed 2,000 MW renewable energy procurement to Bruce Area wind generation? It has government direction to procure the wind without further authorization; a short deadline; a rich wind resource; proximity to load and strong commercial interest already as shown by the IESO queue.*[8]

The OPA submitted that by only including 50% of the Bruce area large wind potential in the generation forecast, it has substantially mitigated any development uncertainties. Power Workers Union ("PWU") and Canadian Wind Energy Association ("CanWEA") took the same position. The OPA also noted that it has taken steps to procure 500 MW through its June 5, 2008 draft Request for Proposal.

Board staff noted that no contracts have been executed for the planned large wind projects; no formal discussions appear to be underway with potential developers; and no counterparties have been identified. Board staff suggested that, depending upon the level of uncertainty, the Board could approve the application, but condition the approval in a way which addresses the level of uncertainty.

Hydro One responded that it would be inappropriate to impose conditions of approval that had not been put to the witnesses. Hydro One argued that to require any greater certainty would be unreasonable and does not recognize the urgency of the project.

[8] Hydro One, Argument in Chief, p. 15

3.2.4 Board Findings

The OPA's intentions are clear and unequivocal: it intends to procure 700 MW of wind generation from large projects in the Bruce area. The evidence in support of this forecast is strong:

- The OPA has the authority, under the August 2007 Ministerial Directive, to procure wind generation in the short term.
- The studies of wind potential in the area indicate a potential of 1,400 MW – twice the level of the forecast.
- The IESO already has projects in its queue which, in total, exceed the 700 MW forecast.

The uncertainty arises from the fact that the OPA has not yet entered into contracts to procure this wind generation.

In natural gas transmission system reinforcement projects, the Board generally expects to see contractual commitments related to the usage of the capacity if the growth is related to demand beyond the distribution area. In electricity transmission reinforcement applications, however, the Board has not typically required that there be signed contracts to substantiate the need forecast. However, this application is the first instance of a major generation-driven network reinforcement and as such can be distinguished from other recent transmission expansion applications.[9]

The issue is whether the generation forecast is sufficiently certain to support a project of this magnitude in the absence of signed contracts. The total wind generation forecast is 1,700 MW, of which 1,000 MW is effectively committed and therefore there is little risk with respect to that amount. The Board concludes that there is also little risk associated with the wind generation forecast for the remaining 700 MW: the OPA has already begun the procurement process with its draft Request for Proposal and there are a substantial number of projects in the IESO queue. The Board notes that 400 MW of the 1,400 MW Bruce area wind potential is located north of Owen Sound, and that there is likely higher uncertainty associated with this generation for a number of reasons,

[9] EB-2006-0215 and EB-2006-0242 both related to load growth on the system. EB-2004-0476 related to congestion relief and increased imports (but was not related to specific generation projects) and the Board noted in its final decision that the determination of whether Hydro One should be permitted to recover the project costs from customers would take place in a rates application at which time Hydro One would have to demonstrate the financial benefits of the project.

including environmental issues. However, the Board is satisfied that the OPA has mitigated the risks involved by assuming that only 50% of the potential in the Bruce area will be developed. The Board also notes that the forecast covers a broad geographic region and that there are many potential wind developers. This further reduces the risk of the forecast as compared to a forecast that was based on a narrow area or a single generation developer. The Board concludes that the forecast of large wind generation is reasonable and that therefore the need for 1,700 MW of incremental transmission capability to serve wind generation in the Bruce area has been substantiated.

3.3 The Forecast of Generation from Bruce Nuclear Generating Station

There was no substantive dispute amongst the parties regarding the forecast of generation from the Bruce NGS between now and 2018/2019. The issue is with respect to generation from Bruce NGS beyond 2018/2019, the year in which Bruce B units begin to reach their projected end of life. The OPA's forecast is that generation from Bruce NGS will remain at the level of 6,300 MW beyond 2018, either through refurbishment of Bruce B or the building of new nuclear capacity.

Hydro One submitted that absolute certainty was not an appropriate standard by which to assess the forecast. According to Hydro One, the standard should be whether the forecast is reasonable. Hydro One submitted that the OPA's nuclear generation forecast is reasonable because:

- The Supply Mix Directive includes nuclear base-load at 14,000 MW.
- There is existing grid access and infrastructure at the Bruce NGS
- There is support in the Bruce community for continued generation.
- The Bruce operator has expressed interest in continuing to operate in the context of refurbishment or new build.

Energy Probe submitted that if the line is built and Bruce B is not refurbished, then the line will only be useful for 5 years, after which time it will be stranded because the

existing network would be capable of carrying all of the remaining nuclear capacity. Energy Probe submitted that if a lower cost alternative is available, it should be implemented at least until a decision is made on the future refurbishment of Bruce B.

The Ross Group submitted that there is no evidence the refurbishment will take place; no directive for OPA to enter into negotiations with Bruce Power; no evidence of discussions on an official level. Pollution Probe made similar submissions and concluded that only a binding directive or contract would justify an analysis of the project which ignored the otherwise certain decline in generation with the retirement o Bruce B.

IESO submitted even if Bruce B is not refurbished, the units could be extended beyond the current assumed end of life of 2015-2020.

SON and Pollution Probe submitted that the Supply Mix Directive clearly stipulates that the *maximum* generation from nuclear is to be 14,000 MW and that the OPA was misinterpreting or misconstructing the directive. The Ross Group made similar submissions and noted that the directive does not identify the location of the nuclear generation. Hydro One responded that the OPA had not misinterpreted the Supply Mix Directive; in Hydro One's view, the OPA testimony is that maintaining nuclear generation at 14,000 MW is the most reasonable assumption.

Board staff noted a recent Government announcement, which contained the following statement:

> *As part of Ontario's energy plan to maintain 14,000 MW of nuclear generation capacity, the Bruce site will continue to provide approximately 6,300 MW of base-load electricity through either refurbishment of the Bruce B units or new units at Bruce C. A joint assessment will be undertaken to determine which option delivers the best value for Ontarians.*[10]

Bruce Power submitted that the Board, as an expert panel, is entitled to take notice of this announcement without further evidence. Bruce Power argued that, as with the Supply Mix Directive, the announcement regarding 6,300 MW at Bruce reflects

[10] June 16, 2008 Announcement by Infrastructure Ontario "Phase 2 of Nuclear Replacement Step in Ontario's 20-year plan to bring clean, affordable and reliable electricity to Ontario"

government policy and is not dependent upon approval of the IPSP. APPrO supported Bruce Power's submissions.

Pollution Probe submitted that the Board should give very limited or no weight to the recent announcement as it is in no way binding nor refers to anything which is binding. In Pollution Probe's view it is, at best, a signal of an intention by the government to negotiate with Bruce Power.

Board staff suggested that there were two options to address the uncertainty:

- The Board could find that there was some uncertainty regarding the refurbishment of Bruce B, in which case the Board could deny the application or could approve the application conditional on some demonstration of a commitment to refurbishment.
- The Board could find that, as Hydro One argued, the need for the project is not affected by the decision to refurbish Bruce B.

Energy Probe concluded that the Board should approve the application subject to two conditions (in addition to those proposed by staff):

- The Ontario government ordering either the refurbishment of Bruce B or the construction of new units at Bruce C
- Bruce Power successfully completing the Environmental Assessment and licensing process

Hydro One responded that it would be inappropriate for the Board to impose conditions that were not put to its witnesses but argued that conditions were unnecessary in any event given the robustness of the OPA's generation forecast.

3.3.1 Board Findings

Hydro One maintained that the OPA forecast was more robust than any put forth by an opposing party. The Board notes, however, that there is no requirement for an intervenor to put forth a "better" forecast. The onus is on Hydro One to substantiate the forecast it relied upon. The Board was greatly assisted by the intervenors' thorough testing of the OPA forecast.

The Board concludes that there is significant uncertainty regarding the future level of generation from the Bruce NGS. In some respects, the evidence indicates that the OPA forecast is reasonable:

- Bruce Power has indicated its interest in refurbishment or new build and it has initiated the environmental assessment process associated with new build on the site.
- The Supply Mix Directive calls for nuclear generation for base-load purposes up to 14,000 MW.
- If Bruce B is not refurbished, the units would likely be run beyond 2018.

However, other evidence points to substantial uncertainty:

- There is no contract in place for the generation in question, nor a directive to enter into a contract.
- Unlike for wind generation, the OPA does not have authority currently to procure the generation in question.
- The IPSP proceeding will examine the plan to use nuclear generation to meet base-load requirements for economic prudence and cost effectiveness.
- While the recent press announcement may be an indication of the government's intentions it is not a formal expression of government policy.

The Board's conclusion is that given the level of uncertainty related to nuclear generation at Bruce NGS, the Board must evaluate the Bruce to Milton project in terms of price and reliability impacts under two scenarios:

1. Assuming nuclear generation continues at a level equivalent to eight units in operation
2. Assuming Bruce B is retired and there is no new build

The results of that analysis will determine how significant the uncertainty regarding future generation levels at Bruce NGS is to the Board's determination of this application and whether the Board should consider conditioning any approval of the project as proposed by Energy Probe. The Board addresses these issues in detail in as part of Financial Evaluation in Section 5.

3.4 Planning Transmission For Total Nameplate Generation Capacity

Hydro One argued that it was appropriate to conduct transmission planning on the basis of nameplate capacity for a number of reasons:

- Planning for less than nameplate generation capacity (e.g. planning based on operating history or forecast capacity) would be contrary to government policy to promote renewables and reduce congestion and puts the system at greater risk with respect to reliability; it would also be contrary to the goal of cleaner generation if the constrained generation is replaced with gas-fired peak generation.
- Planning for maximum output is a longstanding practice, and is in line with design standards; planning for less than maximum output would be planning for congestion.
- Planning for congestion would stifle wind development by asking wind developers to bear the diversity risk.
- Congestion reduction is cost effective because the OPA analysis shows that over time the project is the preferred option on an economic basis.

There are two components to this issue:

1. Congestion and the Supply Mix Directive
2. Planning Standards and related Planning alternatives (using historical or forecast capacity factors)

3.4.1 Congestion and the Supply Mix Directive

The OPA argued:

> *…it is not a valid objection for intervenors to argue that the OPA should plan transmission to constrain some wind and nuclear resources in the Bruce area because it would be cost effective to do so; in fact, it would not be as shown by the OPA financial evaluation comparing the project to the proposed alternatives. But, more importantly, to do this would be antithetical to the government policy directives which the OPA is bound to follow in planning Ontario's power system. Specifically, it would contravene the spirit of these policy directives if the OPA were to plan transmission in a*

> *manner that would constrain the clean and emission-free wind (and nuclear) resources that the government directed the OPA to procure.*[11]

The PWU made similar submissions.

Pollution Probe submitted that cost effectiveness is a key part of the meaning of the Supply Mix Directive in respect of congestion reduction. The directive reads:

> *6. Strengthen the transmission system to:*
>
> *Promote system efficiency and congestion reduction and facilitate the integration of new supply, all in a manner consistent with the need to cost effectively maintain system reliability.*[12]

Pollution Probe submitted that system reliability would be maintained under the alternative using series capacitors and the Bruce Special Protection System ("BSPS"), and given that it would be lower cost, the option is the more consistent with the Supply Mix Directive and is in the interests of electricity ratepayers.

SON submitted that the directive is clear that congestion reduction is to be done within the context of cost effectiveness. In SON's view, "building transmission capacity to meet 100% of installed generation capacity will always act to reduce congestion, but may risk dramatic and costly overbuild."[13]

3.4.2 Board Findings

The Board finds that government policy (in the form of the Supply Mix Directive) in support of renewable generation and congestion reduction does not in and of itself automatically justify the planning of a transmission project to meet nameplate generation capacity. Considerations of cost effectiveness are relevant, and indeed are specifically referenced in the Supply Mix Directive. With respect to strengthening the transmission system, the requirement is to "promote system efficiency and congestion reduction and facilitate the integration of new supply, all in a manner consistent with the

[11] OPA, Argument, p. 15.
[12] June 13, 2006 Directive (Ex. B, tab 6, schedule 5, appendix 7)
[13] SON, Argument, p. 18.

need to cost effectively maintain system reliability."[14] Therefore the Board must consider the appropriateness of the planning standard in the context of this application.

3.4.3 Planning Standards and related Planning alternatives (using forecast or actual capacity factors)

Pollution Probe submitted that just because nameplate capacity was the planning assumption in the past does not mean that it continues to be a good practice, particularly since this application is the first major instance of including wind generation in network transmission planning.

Hydro One responded that planning to nameplate capacity is appropriate because it is consistent with standard planning practices of the OPA and IESO and the generation mix reflects policy choices by the province, and recognizes the particular characteristics of the supply mix in the Bruce area.

Pollution Probe argued that given the low likelihood of the simultaneous operation of all generation at full nameplate capacity, planning the line to meet that requirement would overstate the actual need. With respect to wind, Pollution Probe argued that due to spatial diversity it was unlikely that all wind generation units would be running at full capacity at the same time. With respect to nuclear generation, Pollution Probe noted that Bruce NGS' historic operation has been in the range of 60-80%. In Pollution Probe's view,

> *it may be more efficient from a societal perspective to simply pay for any locked-in energy during those odd times when the transmission system is running at full capacity than to build an expensive transmission line that would not be needed most of the time.*[15]

Pollution Probe argued that if the more realistic capacity factors of 95% for nuclear and 50% for wind are used, then the proposed line provides substantial additional capacity that would not be needed if the series capacitor/BSPS alternative were used instead – whether or not Bruce B is refurbished. Pollution Probe provided the following chart to demonstrate this point.

[14] Exhibit B/Tab 6/Sch. 5/Appendix 7(Directive-Integrated Supply Plan)/page 2/Item 6
[15] Pollution Probe, Argument, p. 14.

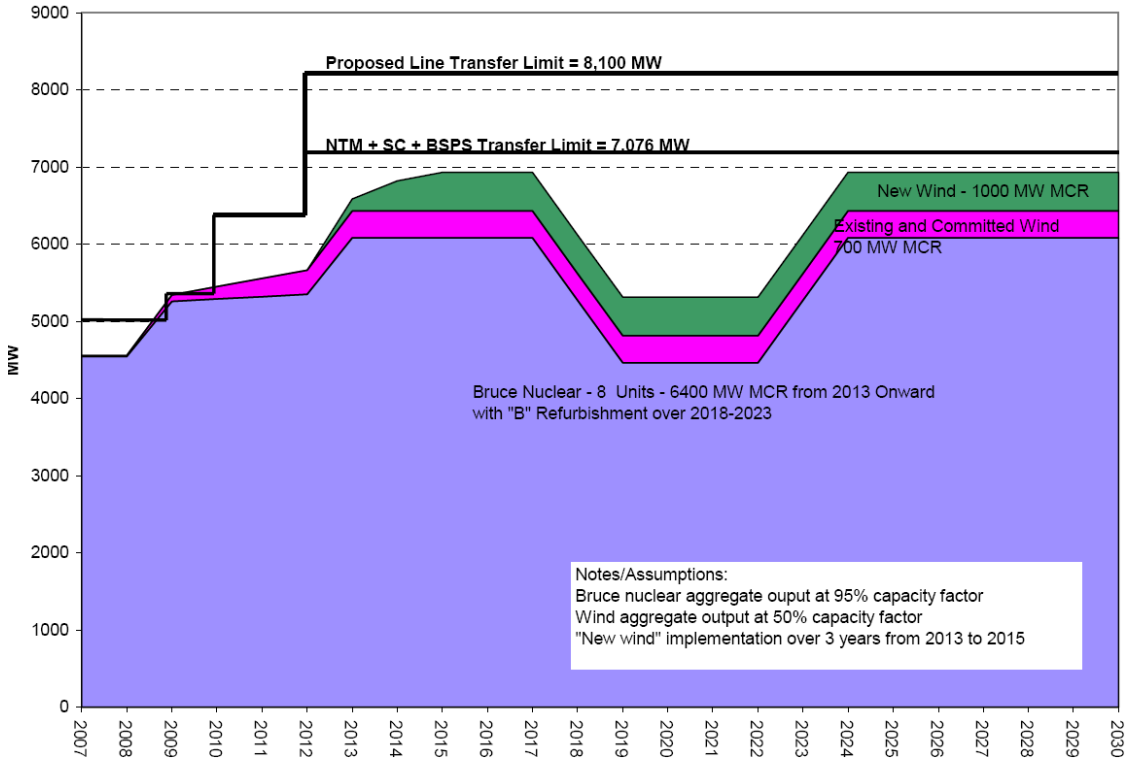

Figure 3 Alternative Assumptions: Depiction of Need for Bruce Area Line Using Bruce Nuclear Station Aggregate CF = 95% and Wind Aggregate CF = 50%

SON noted that the substantive issue of how to treat intermittent wind and other renewable resources from a transmission system planning perspective will be investigated in the IPSP. A decision to approve the project based on the assumption of planning for full wind capacity will influence the nature and scope of investigation of this issue in the IPSP.

The Ross Group submitted that there was no evidence about international standards of planning for wind generation or the reasonableness of Hydro One's reliance on nameplate capacity for transmission planning purposes. Hydro One replied that none of the intervenor witnesses could offer evidence that different planning standards for wind were applied in Texas, Alberta or California.

Pollution Probe questioned the IESO's reliance on the NPCC criterion as the basis for justifying planning to nameplate capacity. The criterion reads: "Transfer capability

studies shall be based on the load and generation conditions expected to exist for the period under study".[16] In Pollution Probe's view, the phrase "generation conditions expected to exist for the period under study" is inadequate justification for expensive capacity which will be unused most of the time.

Hydro One agreed that it is relying on the reference to "generation conditions expected to exist for the period" and submitted that given the Supply Mix Directive the OPA plans to obtain the full capacity of the wind generation. Hydro One maintained that the plan to accommodate wind generation, despite its intermittent nature, was based on clear government policy, and that

> *Once the choice is made to plan to accommodate all available generation, the applicable NPCC standard requires that transmission capable of transferring the planned-for generation be put in place.*[17]

3.4.4 Board Findings

Planning transmission capability to meet nameplate capacity for an intermittent resource is potentially costly. The Board notes that there was simultaneous peak generation from 6 Bruce units and 3 large wind projects on 37 days in 2007. While this represents about 10% of the year when expressed in days, the incidence of simultaneous peaks in terms of hours was presumably substantially less as it is unlikely that there was simultaneous peak wind generation over the entire day for those 37 days. This is reflected in the evidence which was filed showing hourly production on two separate days[18]. There is no evidence to suggest that the incidence of simultaneous peak generation will be higher with the addition of more nuclear and wind generation; indeed the incidence may well be lower.

The OPA's witness agreed that in some circumstances it might not be economic to plan the system to deliver all generation. However, Hydro One testified that the policy framework (which calls for congestion reduction and additional renewable generation) underpins the planning assumption for this application and that the financial impact is only one consideration and is not necessarily the most important consideration. The

[16] Exhibit K5.6/Page 2/section 2.1/Paragraph 2/Second sentence
[17] Hydro One, Reply Argument, p. 14.
[18] Exhibit K1.1

Supply Mix Directive does call for the strengthening of the transmission system, and the Board accepts that planning for an amount less than nameplate capacity is planning for some level of potential congestion.

The Board notes that the evidence is not that the NPCC standard explicitly requires planning to full nameplate capacity; rather, the NPCC standard is that the system meets the planned generation capacity. The evidence is unclear whether the standard would be met if the OPA *planned* for less than 100% of the nameplate wind generation, and planned the transmission system accordingly.

The Board would have been assisted had Hydro One provided more evidence regarding wind generation and system planning in other jurisdictions. While Hydro One argued that the intervenor witnesses did not provide evidence of different planning practices, Mr. Brill (on behalf of the Fallis Group) testified that Florida Light & Power does not plan the transmission system to nameplate wind capacity

The Board does not consider the evidence to be sufficient to make a determination on the appropriateness of planning to full nameplate capacity. The question is whether it must do so in order to decide this application. The Board concludes it does not. Consideration of this issue is connected to the financial evaluation of the project. The financial evaluation is based on a net present value determination of transmission losses and Locked-In Energy. The Locked-In Energy costs are derived from reliability and generation production projections. The question of whether or not to plan for full nameplate capacity is not a determinative factor in the comparative financial analysis. If the conclusion of the financial evaluation was that an alternative was superior from a financial perspective, then the Board would need to assess the merits of the planning approach to determine what weight to give that factor in the overall assessment of the project. As set out later in this decision, however, the Board finds that the project is the preferred alternative from a financial perspective, and therefore an assessment of the planning approach is not necessary.

The IPSP may well examine the planning methodology. The Board's determinations in this application do not pre-judge that examination.

3.5 The Relationship between this Application and the IPSP

SON submitted that the project should not be approved in advance of the IPSP. SON argued that the application is seeking pre-approval of the IPSP because it includes 1,000 MW of planned wind and the refurbishment or replacement of Bruce B, which are core elements of the IPSP. In SON's view, it will be the IPSP, if approved, which will provide the strategic level certainty about generation that will be necessary to substantiate transmission projects, including any transmission project in the Bruce area.

SON argued that Hydro One could have implemented the near term and interim measures, to address the immediate need for enhanced transmission, so that it was not necessary to make this application in advance of the IPSP. SON submitted that because Hydro One chose to proceed with the application,

> *it was incumbent upon them [Hydro One] to establish a full case for the inclusion of the future generation elements, including sufficient evidence respecting OPA's planning work to allow this Board to fully assess that work according to the standards required for the review of such work in the context of the IPSP review.*[19]

SON concluded that the evidence provided regarding the generation forecast was insufficient, and submitted that the Board "should not approve the current application based on the paucity of evidence respecting related forecasting and planning work."[20]

Hydro One responded that "the manner in which the OPA carries out pre-IPSP Directives is not subject to Board approval either within the IPSP or outside the IPSP process."[21]

3.5.1 Board Findings

The Board does not agree with SON that Hydro One had an obligation to provide greater evidence related to OPA's forecasting and planning work. The Board is not examining the underlying planning undertaken by the OPA except to the extent it informs the determination of the reasonableness of the generation forecast and the

[19] SON, Argument, p. 15.
[20] *Ibid.*
[21] Hydro One, Reply Argument, p. 26.

economic evaluation of the project. For example, the scope of this proceeding does not extend to broader planning considerations such as the tradeoffs between generation and conservation and between different types of generation. The IPSP proceeding will deal with those issues.

With respect to the reasonableness of the generation forecast, the scope of this proceeding does not extend to a consideration of the merits of the generation itself (i.e. whether or not 700 MW of large wind *should* be procured).

The August 2007 Ministerial Directive is a pre-IPSP directive, and therefore the OPA has authority to procure the 2,000 MW of renewable generation identified in the directives whether or not the IPSP is approved. The OPA has indicated that it intends to procure 700 MW from large wind projects in the Bruce area. No further Board approval is required in that regard. Therefore, the Board's determination of the reasonableness of the wind generation forecast does not pre-judge the IPSP.

There are a number of issues for review in the IPSP proceedings that relate to nuclear generation for base-load requirements. However, in its decision on the IPSP issues, the Board noted that "many of the most significant decisions regarding nuclear power have been made, or will be made, outside this proceeding."[22] In addition, the Board has already determined that it must assess this application under two nuclear scenarios: with continued generation from eight units at Bruce NGS on the one hand, and with Bruce B retirement and no new build on the other. Therefore, the Board is satisfied that its decision in this proceeding does not pre-judge the determination of future generation at the Bruce NGS or the Board's consideration of base-load nuclear generation in the IPSP.

3.6 Is the Project Non-Discretionary?

The Board's *Filing Requirements for Transmission and Distribution Applications* (the "Filing Requirements") include provisions whereby the applicant is to identify whether the proposed project is discretionary or non-discretionary. Hydro One submitted that the project was non-discretionary because Ministerial directives require the procurement of new generation and drive the need for the project: to minimize congestion, to maintain nuclear base-load, and to increase generation from renewables.

[22] EB-2007-0707, *Decision with Reasons*, March 26, 2008, p. 23.

The Ross Group maintained that the project was discretionary because the witnesses acknowledged that the project accomplished the purposes listed under discretionary projects in the Filing Requirements, and did not testify that it met the requirements under the non-discretionary category. The Ross Group argued that because it is a discretionary project, the evidence in support of the project must be comprehensive and concluded that Hydro One had failed to meet the evidentiary burden in the application.

Hydro One responded that in its cross-examination, the Ross Group had omitted to identify the most important criteria for a non-discretionary project, namely "Projects that are required to achieve Government objectives that are prescribed in governmental directives or regulations."

The Fallis Group submitted that the rules contained in the Filing Requirements require the Board to determine whether the project need is determined beyond the control of the Applicant or is determined at the discretion of the applicant. In the Fallis Group's view, a non-discretionary project is one for which "the need is determined beyond the control of the Applicant", and this means that some party external to Hydro One should have ordered or directed Hydro One to make the application. The Fallis Group argued that the project is, by definition, discretionary, because Hydro One had the discretion not to make the application. The Fallis Group submitted that because the project is discretionary, the Board can examine it through its overall legislative objectives.

Hydro One responded that the Fallis Group argument that Hydro One was not compelled to apply for the Project was largely irrelevant.

The Fallis Group also submitted that the project should be considered in the same way as the Consolidated Hearing Board determined transmission issues previously, including an assessment of alternative technologies. The Fallis Group also submitted that the Board cannot render a final decision in advance of the EA approval and a development permit under the Niagara Escarpment Planning and Development Act.

3.6.1 Board Findings

The Board finds that the project can be categorized as non-discretionary because the need for the project has been determined beyond the control of Hydro One. Specifically, the need for the project has been determined by the OPA in its role as

system planner which is required to achieve Government objectives that are prescribed in directives or regulations.

In any event, the Board concludes that little turns on the project categorization. With respect to the Ross Group argument that Hydro One's evidence was insufficient the Board notes that issues regarding the sufficiency of Hydro One's evidence are addressed throughout the decision. The Board disagrees with the Fallis Group submission that an external party would have had to order or require Hydro One to make the application. There is no support in the Filing Requirements for that interpretation. The Board notes that regardless of the categorization, the Board's legislative objectives are relevant to the consideration of the application.

Further, the Board notes that it is clear in the Board's Filing Requirements (and in its past practice with all leave to construct applications) that it will test a proposal against the reasonable alternatives. The only difference in filing requirements for a non-discretionary project[23] is that the applicant need not evaluate the alternative of doing nothing.

Finally, contrary to the view of the Fallis Group, the Board has the authority to render a final decision in this application, in advance of the EA and Niagara Escarpment processes, provided such approval is conditional on the successful completion of those processes.

3.7 Evaluation Criteria and Identification of Alternatives

Hydro One identified that the project and any reasonable alternatives would need the following essential attributes:

- Meets the required transmission capability
- Has limited effect on other paths
- Uses proven technology
- Is constructed at a reasonable cost
- Is consistent with land use policy

In Hydro One's view, only its proposal meets these essential criteria.

[23] Filing Requirements for Transmission and Distribution Applications, November 14, 2006, section 5.3.2

Hydro One reviewed a number of potential alternatives and reached the following conclusions in respect of each:

1. "Do nothing": the Ontario power system has changed since the time when the transmission system had sufficient capability for the eight nuclear units. The heavy water plant has closed; load patterns have changed; wind is an additional generation resource; the province has an established "off-coal" policy.
2. Use of higher capacity conductor (e.g. ACCR technology): it would require 15 years and $1.8 billion to achieve the same capability as the project.
3. High Voltage Direct Current ("HVDC") options: "HVDC Lite" is not a proven technology; HVDC 500 KV was screened out on basis of cost.
4. Bruce to Essa and Bruce to Longwood: neither line could accommodate the 1,000 MW planned wind.
5. Bruce to Kleinburg and Bruce to Crieff: significantly greater land use requirements from new corridors.
6. Longwood to Middleport: this proposal by Pollution Probe does not meet the need (only provides 7,025 MW), and the evidence is that it would cost more than the proposed project.

We address the following four sub-issues:

1. Sufficiency of the evidence
2. Interpretation of the land use policy
3. Scalability and uncertain generation
4. Near term and interim measures

3.7.1 Sufficiency of the Evidence

The Fallis Group submitted that the Board determined at Motions Day that it would not consider route selection or route alternatives, thereby resulting in insufficient evidence and examination of the costs and adequacy of the various transmission route alternatives.

The Fallis Group also submitted that the more advanced conductor technology is superior to the Aluminum Conductor Steel Reinforced ("ACSR") proposed to be used in the project and is therefore a reasonable alternative for which Hydro One did not

provide adequate comparative evidence. The Fallis Group maintained that the cost estimates provided by Hydro One for this alternative were unsubstantiated and subjective.

Mr. Chris Aristides Pappas, an individual intervenor, submitted that Hydro One had not met the Filing Requirements because it had not examined in sufficient detail new conductor technologies, Flexible Alternating Current Transmission Systems, commonly called "FACTS" technologies, series compensation, etc. He further submitted that the proposed project presents significant risk to the system due to, among other things, the continued use of the BSPS.

SON submitted that by fixing the transmission transfer requirement at 8,100 MW, Hydro One "short-circuited" the evaluation of the alternatives by refusing to consider alternatives associated with less generation or alternatives which provide flexibility to accommodate uncertainty with respect to generation: series capacitors; Bruce to Essa; and Bruce to Longwood to Middleport. Therefore, the Board cannot conclude that Hydro One has considered all reasonable alternatives.

3.7.2 Board Findings

The Fallis Group submission with respect to Motions Day is incorrect. The Board decided that it would not consider route *refinements* within the applied for corridor – it was open to intervenors to explore the various route alternatives in order to test Hydro One's proposal and there was cross-examination on these alternatives.

The Board notes that Hydro One's evidence with respect to evaluation criteria and alternatives was not as good as it could have been, but the Board has sufficient evidence to make its determination. Much of the key evidence regarding comparison of the project to the alternatives was developed through intervenor interrogatories, cross-examination, and intervenor evidence. It would have been helpful to have had more analysis in the application itself, even if Hydro One was of the view that an alternative was not worthy of further consideration. As an example, Hydro One's evidence on the

"conceptual alternatives" associated with alternative conductor technologies took the form of a one-page summary filed during the course of the proceeding. The Board expects that in future applications, Hydro One will take a broader view of the relevant alternatives and will provide sufficient evidence in a timely manner to assist the Board in considering alternatives.

3.7.3 Interpretation of the Land Use Policy

Hydro One's position was that the proposal was consistent with provincial land use policy.

The Provincial Policy Statement ("PPS") reads:

> *The use of existing infrastructure and public service facilities should be optimized, wherever feasible, before consideration is given to developing new infrastructure and public service facilities.*[24]

The Ross Group submitted that the PPS should be interpreted in the following way:

- The use of "should" indicates a desire, not a legal obligation or imperative;
- Optimizing the existing corridor does not recognize that additional land acquisition is required for the proposed project as well as the two rejected alternatives.
- "Infrastructure" doesn't include the existing corridor as no specific reference to transmission corridor is made in the definition, whereas there is specific reference to transit and transportation corridors in the definition
- "Feasible" should be defined as "suitable" and should be assessed in terms of the risk of a single corridor and the adverse impact on Camp Creek Lowlands and the Niagara Escarpment.

[24] Exhibit B/Tab 6/Sch. 5/Page 10/Section 1.6.2

3.7.4 Board Findings

The Board concludes that the PPS is clearly directed toward the intensified use of existing infrastructure, including infrastructure corridors. In that context the Board concludes that intensified use of an existing corridor is preferred to an expanded corridor, and an expanded corridor is preferred to a greenfield corridor.

3.7.5 Scalability and Uncertain Generation

SON, Energy Probe and the Ross Group all argued that the proposed project was not suitably scalable. SON argued that total committed generation in 2013 will be about 7,100 MW, but that generation beyond that time could be substantially higher or substantially lower depending upon the outcomes of the IPSP, regulatory approvals, development decisions and competitive procurements:

- Generation production could be as low as 6,250 MW in 2018 if Bruce B begins retirement and if planned wind is not fully realized, generation could drop to 3,700 MW in 2022.
- Alternatively, generation production could reach higher than 8,100 MW if there is both refurbishment at Bruce B and new nuclear build and/or if wind generation beyond the current forecast of 1,700 MW is achieved.

A number of intervenors submitted that the project should be downwardly scalable given the uncertainties related to generation and noted that the Hydro One project is not downwardly scalable.

Hydro One submitted that scalability is achieved through the near-term and interim measures and maintained that there is no reasonable possibility of declines in generation in the Bruce area.

3.7.6 Board Findings

The Board concludes that scalability is an important consideration, particularly given that the project is based on a generation forecast and is not underpinned by contractual commitments. The evidence is clear that the project is designed for 8,100 MW and is not scalable to either lower or higher levels of generation. Hydro One did not take

adequate account of this factor in its analysis of the project and the alternatives. However, the Board finds that this deficiency in the application is not sufficient reasoning to reject the project. In future applications, the Board expects Hydro One to assess how sensitive its analysis of alternatives is to variations in capability requirements.

3.7.7 Near Term and Interim Measures

Hydro One identified two near-term measures which increase transfer capability by 400 MW: uprating the 230 kV Hanover to Orangeville line by 2009 and adding dynamic and static reactive resources to the transmission system in southwestern Ontario. Hydro One also identified two interim measures: expanding the BSPS; and, installing series capacitors if the project were to be delayed beyond the end of 2011. In addition the OPA will maintain the Orange Zone (which prevents the connection of further renewable generation in the Bruce area);

Hydro One argued that these near-term and interim measures do not meet the forecast need over the long term, noting that more transmission capability is needed by 2009 for both committed wind generation and Standard Offer Program wind generation. Hydro One submitted that the interim measures also cannot be considered as an alternative to the project because longer term use of generation rejection in normal conditions breaches reliability standards.

Hydro One submitted that a combination of generation rejection and series capacitors was also not a reasonable alternative. Hydro One stated that the resulting transmission capability of 7,076 MW is insufficient for the forecast need, and series compensation presents operational challenges and cannot be implemented until 2011 given the studies which are necessary (as identified by Hydro One's external consultant) to ensure reliability on the complex Bruce system.

Board staff noted that there is uncertainty around the timing of the approvals process (the Environmental Assessment) and when generation will be committed. Board staff questioned whether the interim measures (including series capacitors) would be appropriate to maintain transmission capability to meet the generation requirements in the Bruce area in the event the proposed line is delayed.

Pollution Probe submitted that a combination of series capacitors and generation rejection is a reasonable alternative which is both viable and reliable:

- Series capacitors are a mature and reliable technology, which Hydro One could implement by the end of 2011.
- The BSPS has been used for decades, which indicates its viability and reliability, and it would still be used if the new line is built.
- The BSPS should be armed more frequently to allow greater optimization of the existing system, in line with land use policy.

Pollution Probe submitted that transmission capability would be 7,076 MW with series capacitors and generation rejection, noting that Mr. Russell testified that the limit could be further increased to 7,176 MW or even 7,400 MW. Pollution Probe submitted that this alternative cannot be rejected as not meeting the need when more realistic capacity factors are used and when one considers the cost effectiveness analysis.

3.7.8 Board Findings

Hydro One screened out the project alternatives based on its criteria, and with the exception of the series capacitor/generation rejection alternative, there was limited dispute about Hydro One's analysis. The Board accepts the evidence that the Longwood to Middleport alternative would provide less transmission capability at higher cost than the proposed project.

However, the series capacitor/generation rejection alternative appears to have some merit based on the uncertainty in the generation forecast and the limited scalability of the proposed project. The series capacitor/generation rejection alternative offers the potential for greater scalability. This alternative would also be consistent with the government's land use policy in that it would result in more intensive use of the existing corridor.

The Board notes that there appear to be limited incentives for Hydro One to optimize its assets. The Board observes that Hydro One was slow to offer evidence on the comparison with "conceptual alternatives" but quick to highlight the "complexity" of series capacitors. Hydro One (and the IESO and the OPA) displayed a definite hesitancy to extend or stretch system capabilities.

It would have been more helpful to the Board if Hydro One's evidence in this area had been more comprehensive. Therefore the Board assesses the proposed project against the alternative of series capacitors/generation rejection in the next two sections: the Financial Evaluation; and the Reliability Evaluation.

The Board is indebted to the intervenors for their rigorous examination of the series capacitors/generation rejection alternative and the testing of this alternative against Hydro One's proposal.

4. FINANCIAL EVALUATION

4.1 Introduction

Hydro One explained that the Locked-In Energy ("LIE") analysis provides an estimate of the cost to Ontario consumers if the proposed facilities are not built and thus inadequate transfer capability resulted:

> *Model results depict the cumulative net present value of costs, including transmission losses and locked in energy, both for the applied-for facilities and those associated with other alternatives. Graphs depicting these results were submitted in evidence and show "cross-over points" where the costs of one option rise above those of the other being considered. Cross-over points of the cumulative cost of an alternative expressed on a NPV basis demonstrate which alternative has a higher or lower cost in the long-term.*[25]

The OPA estimated the cumulative net present value ("NPV") of the locked-in energy costs to be $1.3 billion based on the costs of the locked-in energy and losses and the BSPS upgrade costs, and assuming the near term measures have been installed.[26] If series capacitors are included the cumulative NPV of the costs falls to $917 million (the costs of the series capacitors are more than offset by the reduced locked-in energy).[27] Both of these values are well in excess of the project cost of $635 million.

Hydro One provided the graph below which depicts the cumulative NPV of costs over time for the Bruce to Milton project and the series capacitor alternative under the assumption that Bruce B is refurbished or replaced. This graph shows the cross-over point of 2019, demonstrating that while the series capacitor alternative is less expensive in the early years, its cost exceeds that of the project over the long term.

[25] Hydro One, Argument in Chief, p. 25.
[26] Exhibit C/Tab 2/Schedule 10
[27] Exhibit C/Tab 2/Schedule 11

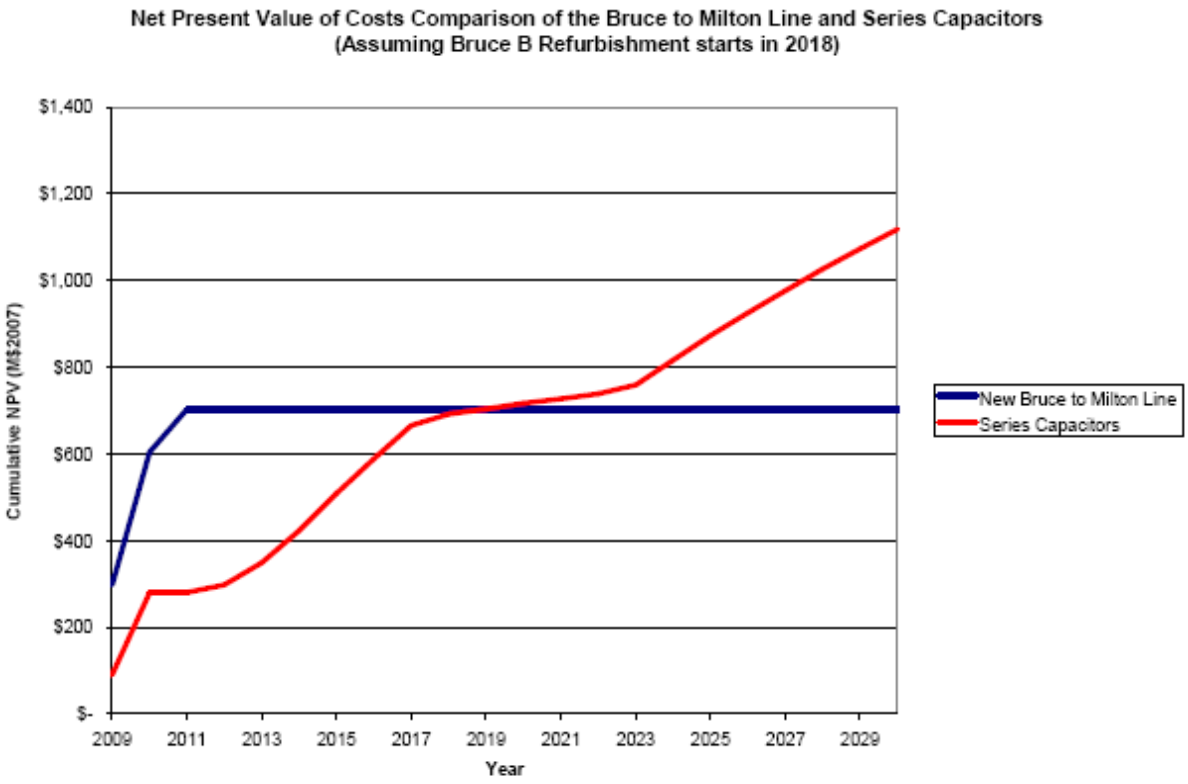

Figure 4 Source: Exhibit K.3.2, slide 1

Hydro One also provided the following graph which shows the results of the same analysis but under the assumption that Bruce B is retired. The cross-over date is unchanged, and although the costs of the series capacitor alternative level off, they remain higher than the proposed project.

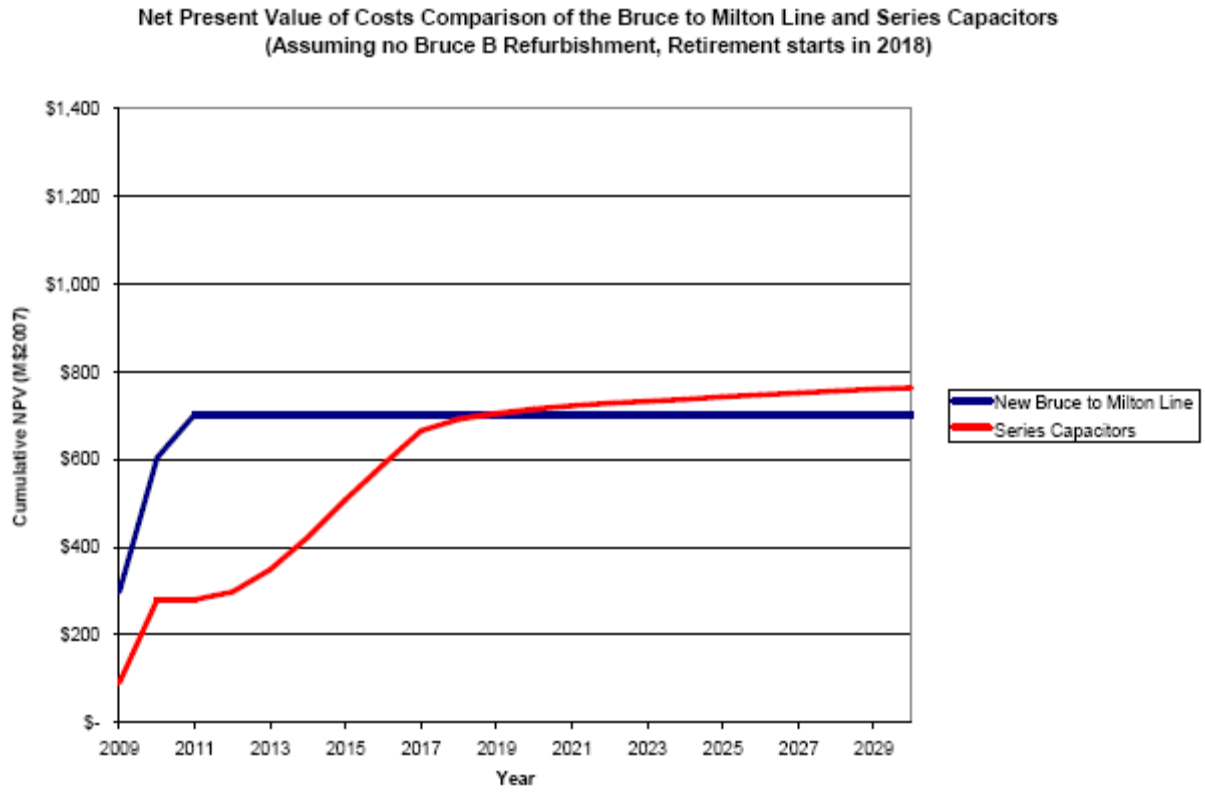

Figure 5 Source: Exhibit K3.2, slide 2

The PWU submitted that the locked-in energy analysis was irrelevant

> *because it presupposes that the task for the Board is to determine the financially optimal combination of generation and transmission resources, regardless of all other factors that make the proposed project a non-discretionary and pre-IPSP project that is recommended by the authorities mandated to do so. Such an exercise would be inconsistent with the authorities of the various entities involved in the electricity sector.*[28]

4.1.1 Board Findings

The Board disagrees with the PWU. This locked-in energy analysis is not irrelevant. The Board must assess the application in terms of prices, reliability and quality of electricity service. This financial analysis is the best means by which the Board can

[28] PWU, Argument, p. 25, paragraph 54.

assess the public interest in respect of price. This is particularly important given the uncertainties associated with the generation forecast and the OPA's approach of planning transmission capability to meet full nameplate generation even though the simultaneous maximum generation from all sources can be expected to occur infrequently.

The Board notes that the intervenors have made a significant contribution to the testing and assessment of the locked-in generation analysis and the series capacitors/generation rejection alternative. First, we examine the Pollution Probe analysis, and then we review the SON analysis.

4.2 Pollution Probe (Fagan/Lanzalotta) Analysis

4.2.1 The Approach to the Analysis

Mr. Fagan and Mr. Lanzalotta, witnesses for Pollution Probe, claimed there were a number of flaws in the OPA model and developed an alternative analysis by which to assess the project. Pollution Probe submitted that the Fagan/Lanzalotta analysis should be accepted over that of Hydro One, and concluded that the proposed line does not make economic sense compared to the alternative (series capacitors/generation rejection), whether or not Bruce B is refurbished.

Hydro One took the position that the adjustments made in the Fagan/Lanzalotta model (namely to use average capacity factors for nuclear generation for the winter/summer and shoulder periods, average capacity factors for wind, and monthly average transmission penalties) were inappropriate for the following reasons:

- Using monthly capacity factors for wind and nuclear underestimates locked-in energy: "using capacity factors as a proxy for the generation profile will under-estimate the amount of generation that is produced, and under-estimate the amount of locked-in energy, where the generation profile is variable, as in the case of wind." (p.29) The OPA convolution of wind and nuclear data captures the detailed generation profiles.
- There is minimal operating flexibility for the CANDU reactors. The OPA approach reflects actual output with more real-time precision than the Fagan/Lanzalotta approach.

- There is no substantiation for the claim of spatial diversity of wind in the Bruce area. The AWS Truewind report of October 2006 refers to spatial diversity, not the April 2007 report which OPA used. (The 2006 report uses 10 minute mast data at sites across Ontario; the 2007 report provides hourly data based on simulated aggregate generation of three "virtual" wind farms in the Bruce area based on 20 years of climate data.) The Pollution Probe approach results in a flat profile (40% for winter and shoulder and 20% for summer); the OPA's approach provides greater precision.
- Deriving the reduction in transmission system capability due to outages (the "transmission penalty") based on monthly averages does not capture real-time effects of congestion: for example, the coincidence of strong wind blowing for three hours at the same time that an unexpected transmission outage occurs. The result is that locked-in energy is underestimated in the Fagan/Lanzalotta model.
- There is no statistical analysis to demonstrate a pattern of transmission outages in shoulder time periods. The OPA testified as to why outages cannot reasonably be expected to be scheduled during shoulder period on a consistent basis.

More specifically with respect to the nuclear generation profile, Hydro One maintained that the two-state model used by the OPA is the most appropriate approach. Hydro One pointed to the chart[29] which presents the nuclear distribution curves for 2007 and submitted that the charts demonstrate that for each unit most of the time is spent either off or generating at maximum capacity. In Hydro One's view,

> *The [OPA] model takes the frequency with which each unit is actually on or off into account with the probabilistic generation profiles, based on three years of historic operating data. As a result, and because the model does not assume that every unit at the Bruce complex generates all the time, Pollutions Probe's concern that the model does not reflect aggregate generation of the Bruce nuclear complex is satisfied.*[30]

Hydro One acknowledged that the OPA model does ignore the approximate 5% of total time at which the unit operates between zero and MCR less 50MW: half would be represented by zero production and half would be represented by full production in the

[29] Exhibit. K13.1, p.1
[30] Hydro One, Reply Argument, p.16.

OPA model. While the OPA could have used a three-state model, Hydro One maintained that the minimal improvement in the model would have necessitated an "exponential increase" in its complexity.

4.2.2 Board Findings

The Board's conclusion is that the Fagan/Lanzalotta analysis has identified some areas of the OPA model which would benefit from further analysis and/or sensitivity analysis, but their model does not provide a superior way of analyzing the project. The Board would like to note, however, that it finds the presentation of alternative approaches to be particularly helpful. The Board understands the data and time restrictions intervenors face when undertaking such analysis and does not expect that such analysis would provide a complete substitute for the applicant's analysis. The Board sees the primary purpose of intervenor expert analysis to be a means of testing the robustness of the applicant's approach and presenting alternative approaches which may be appropriate for the applicant to adopt.

The Board agrees that the greater level of detail in the OPA approach is superior to the Fagan/Lanzalotta reliance on monthly capacity data. The Board also agrees with Hydro One that the OPA's approach to modelling nuclear generation based on a two-state model is superior to the Fagan/Lanzalotta monthly capacity approach in most respects. The Board accepts that the OPA approach appropriately captures the aggregate generation from the Bruce NGS, and that capturing the small amount of time during which there is partial generation from each of the units would result in minimal improvement to the model.

With respect to spatial diversity of wind, the Board notes the concern expressed in the 2006 GE Energy/AWS Truewind Report[31], referenced by Fagan/Lanzalotta, that the data may not adequately capture spatial diversity. The report observes that as a result, "the wind generation profiles produced probably overstates the variability of the combined output of the wind projects."[32] However, this comment is made in the context of the 10-minute data. The report goes on to state

[31] *Final Report to: OPA, IESO, CanWEA for Ontario Wind Integration* Study, October 6, 2006, attached to the Supplemental Direct Evidence of Robert M. Fagan and Peter J. Lanzalotta , filed May 15, 2008.
[32] *Ibid., p. 3.5.*

> *On the other hand, over periods of several hours or more, wind fluctuations tend to be more correlated between projects spaced as many as hundreds of kilometers apart. On such time scales, the lack of geographic diversity in the data probably makes little difference to the overall variability of the combined plant output.*[33]

The OPA relied upon an AWS Truewind report of April 2007. This study simulates production at specific project sites (rather than specific masts) and therefore addresses the issue of spatial diversity within a wind farm project. The OPA took the data from three sites in this study and scaled the results to the forecast total wind capacity of 1700 MW. Although the OPA did not specifically address whether this direct scaling was appropriate or whether additional consideration of spatial diversity across the region was warranted, the Board notes the earlier observation that over longer time periods, the lack of spatial diversity in the data probably makes little difference. The Board concludes that spatial diversity is unlikely to be a significant factor in the context of the OPA model.

Fagan/Lanzalotta have also identified that there is at least apparent seasonality to nuclear production and transmission capacity. It may be that this aggregate pattern has limited impact on the OPA model results given the OPA model is based on a finer temporal level (hourly rather than monthly); however the OPA did not appear to give this serious consideration. The credibility of any model is enhanced if it successfully mimics real-world experience. Hydro One criticizes Fagan/Lanzalotta for not providing statistical analysis of this apparent seasonality. While such an analysis would have strengthened the Fagan/Lanzalotta position, the observation of the pattern alone has some merit.

The Board notes that the IESO did testify that there were attempts made in real operating circumstances to coordinate nuclear and transmission outages, to the extent possible, in the shoulder period.[34] In the Board's view, it is the responsibility of Hydro One (and by extension, the OPA) to consider such circumstances and assess more thoughtfully whether the model could or should be enhanced. The Board expects Hydro One and the OPA to address this issue in the context of any future reliance on the model before the Board

[33] *Ibid.,* p. 3.5.
[34] Transcript Volume 7/pp. 129-130

4.2.3 The Results of the Analysis

The results of the Fagan/Lanzalotta analysis can be summarized as follows:

- If Bruce B is not refurbished, there will be significant excess transmission capacity when the nuclear units reach the end of their life, beginning around 2017. Fagan/Lanzalotta estimated that $245 million would be saved by using the alternative instead of the proposed line.
- If Bruce B is refurbished, the aggregate generation from the Bruce area could be transmitted almost all of the time. Fagan/Lanzalotta estimated that at least $72 million would be saved in this scenario by using the alternative instead of the proposed line.

Pollution Probe argued that in either case the savings would be even higher than estimated because of the conservative assumptions made regarding nuclear capacity factors and the low assumed transmission limit of 7,076 MW. Pollution Probe also maintained that the cost of series capacitors ($91 million) should not be included in the analysis because of other long term benefits of this technology (higher transfer capability in the event of a contingency). If the costs were included, the net savings would still be substantial in the scenario where Bruce B is not refurbished and still likely to outweigh the costs if Bruce B is refurbished.

Hydro One submitted that Fagan/Lanzalotta used the wrong data set in their analysis. They used the OPA scenario "C" (which includes series capacitors) for the comparison, whereas using scenario "B" (which does not include series capacitors) would have been more appropriate, in Hydro One's view, and would have resulted in much higher locked-in energy:

> *…Pollution Probe's assertion that $245 million would be saved by using series capacitors instead of building the line cannot by definition be correct. Mr. Fagan's results do not show the value of the line compared with series capacitors; they show the incremental value of the line after series capacitors are built. Not surprisingly, based on this approach the NPV Mr. Fagan derives is considerably lower than a proper analysis would show.* [35]

[35] Hydro One, Reply Argument, p.19.

Hydro One maintained that the OPA's analysis, which indicates net benefits of $700 million from construction of the line, is the analysis upon which the Board should rely.

4.2.4 Board Findings

Hydro One maintained that the Fagan/Lanzalotta analysis was flawed because it used scenario "C" (which includes the near term measures, the BSPS and series capacitors) for comparison purposes rather than scenario "B" (which only includes the near term measures and the BSPS). The Board does not agree. The Fagan/Lanzalotta analysis is attempting to measure the cost of locked-in energy in the series capacitor/generation rejection alternative; the analysis is not attempting to measure the incremental improvement offered by the Bruce to Milton alternative. However, given the other limitations of the Fagan/Lanzalotta approach discussed above, the Board concludes that the results cannot be relied upon to assess the project.

The Board concludes that based on the OPA analysis, the benefits of the project in comparison to the series capacitors/generation rejection alternative exceed the costs. The benefits are substantially larger than the costs if Bruce B is refurbished or replaced around 2018. This is shown in Figure 4 where the cumulative costs of the alternative are significantly higher over time than the cumulative costs of the project. If Bruce B is retired and not replaced, the cumulative costs of the alternative are still higher over time than the costs of the project, although the difference is much smaller. This is shown in Figure 5. However, the Board accepts that if Bruce B is to be retired, then it is quite likely that the plant would run beyond its current retirement date, thereby increasing the difference in cost between the two alternatives. For example, Figure 6 below shows the comparison assuming Bruce B begins to be retired in 2020 (as opposed to 2018).

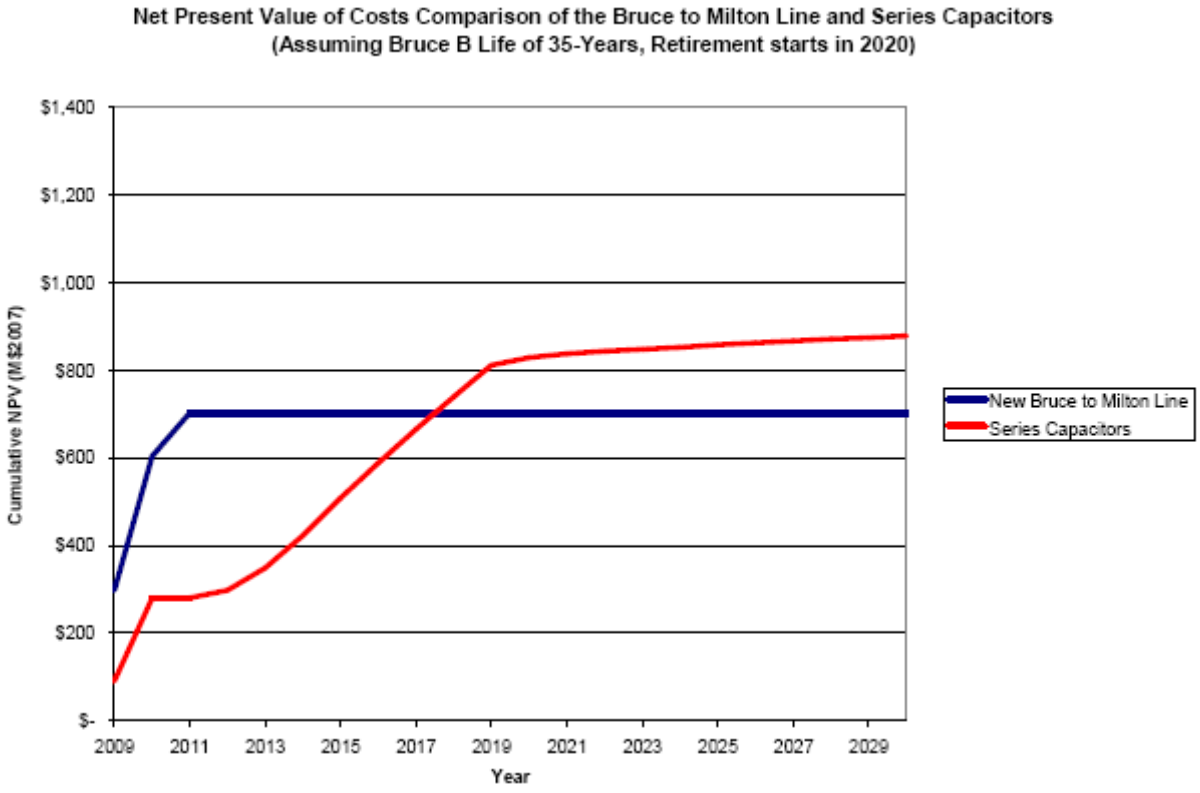

Figure 6 Source: Exhibit K3.2, slide 4

4.3 SON (Russell) Analysis

4.3.1 The Approach to the Analysis

SON submitted that the OPA NPV cost analysis cannot be used to demonstrate the comparative values of various alternatives and is of doubtful reliability given various flaws and assumptions. In particular, the model does not include:

- the annual savings associated with delaying capital costs associated with the project
- the on-going value of series capacitors and its upward scalability

Hydro One responded that the annual revenue requirement is not an appropriate proxy for the avoided costs associated with delaying the line and that delaying the line leads

to a net loss, because the line has a positive net present value. Hydro One also submitted that if series capacitors are installed and the line is subsequently built, then the series capacitors will become redundant unless the generation installed surpasses 8,100 MW.

SON further submitted that the OPA model contains the following flaws:

- Does not accurately measure the avoided costs when wind generation is locked-in, and the avoided cost data is low and outdated
- Does not include losses or outages of enabler lines
- Does not include costs for future switchgear upgrades
- The discount rate should be 10%, not 4%

(SON also submitted that the OPA model did not take account of spatial diversity or the seasonal pattern to transmission derating. The Board has addressed these criticisms in the prior section.)

Hydro One responded that:

- If the most recent avoided cost data were used, the result would make SON's alternative less attractive because the avoided costs have risen.
- Reducing the avoided costs by the cost of the wind generation fails to recognize the Market Rules and Ontario policy.
- Enabler lines are not part of the project and many wind farms in the IESO queue would not require an enabler line, and any alternative would be subject to the same circumstances.
- Expected future upgrades to the Milton station, beyond those included as part of this project, are not related to the project.
- It is appropriate to use a real social discount rate, not a utility-specific nominal rate, when discounting unescalated non-utility cashflows.

SON concluded the OPA model was not a viable system planning tool. Hydro One responded that the model is not intended to be a system planning tool; it complements and confirms the nameplate planning methodology.

4.3.2 Board Findings

The Board's findings in respect of Mr. Russell's analysis are largely the same as for the Fagan/Lanzalotta analysis: namely that Mr. Russell's analysis provides useful insights and valuable testing of the OPA model, but ultimately Mr. Russell's approach cannot be relied upon to evaluate the project. The Board would like to note that it was greatly assisted by the testimony of Mr. Russell.

As with Pollution Probe, SON and Mr. Russell have raised legitimate challenges to the OPA analysis. The Board has already addressed the issues of seasonality in transmission capability and spatial diversity for wind in the prior section of this decision.

The Board does not agree with SON's criticisms with respect to the avoided costs, losses on the enabler lines, and the costs of switchgear upgrades. The Board accepts Hydro One's position that the switchgear upgrades are outside the scope of the analysis and that losses on enabler lines would be common to any of the alternatives being analyzed. With respect to the avoided cost data, the Board notes that the current Navigant data is higher than that used by the OPA and hence the OPA analysis understates the costs of locked-in energy.

The Board does not agree with SON that a 10% discount rate is appropriate. No evidence was lead in support of this level and the Board notes that 10% is substantially in excess of the discount rate set out in the Board's Transmission System Code for economic evaluation of connections. That discount rate is the transmitter's after-tax cost of capital, which in the case of Hydro One is a nominal rate of 5.47%. The Board accepts the use of a real discount rate of 4% in these circumstances.

The Board also disagrees with SON's argument that the savings from locking-in higher cost wind energy should be included. The Board agrees with Hydro One that it would be inappropriate to reduce the avoided costs by the amount of the avoided wind generation costs. First, the Market Rules are such that wind generation is the last to be curtailed, and standard offer wind is not curtailed. Second, if wind generation were to be subject to curtailment, then the wind developers will factor that into their bids in response to the OPA's procurement process. Third, the model uses Navigant's estimates of avoided costs (developed for purposes of evaluating conservation and demand management programs), which are possibly lower than the costs which would

actually be paid for replacement generation using the IESO's Hourly Ontario Energy Price ("HOEP").

With respect to voltage support costs, the Board finds that while there is substantial dispute as to the level of these costs, it would not be appropriate to assume these costs are zero.

Based on these findings, the Board concludes that Mr. Russell's scenarios which show cross-over points beyond approximately 2024 are not relevant.

Although the Board accepts the assumptions used by the OPA, it would be helpful for future evaluations if the OPA were to conduct some sensitivity analysis around these key variables.

4.3.3 The Results of the Analysis

SON argued that the series capacitor/generation rejection alternative would provide 87%-91% of the full nameplate capacity of OPA's assumed 8,100 MW of generation for $535 million less than the cost of the project. SON maintained that Hydro One's own evidence is that this alternative would support a minimum of 7,076 MW (under stressed conditions) up to 7,476 MW (with voltage support). SON maintained that this alternative would provide a lower cost option for meeting committed requirements and allow a staged approach to planning for future requirements given the current uncertainties around wind and nuclear generation.

SON's expert, Mr. Russell, used the OPA's model to analyze a variety of scenarios with Bruce B retirement and with Bruce B refurbishment and with and without voltage support costs. Based on this analysis, the cross-over dates of the cumulative cost NPV varied from 2018 to beyond 2030. SON concluded that these dates suggest that Hydro One could install the series capacitor/generation rejection alternative and have a large window of opportunity to determine whether and to what extent future transmission upgrades are necessary based on actual generation from the Bruce area.

Hydro One acknowledged that the inclusion of voltage support at a cost of $70 million extends the cross-over point, but argued that the evidence is that the cost estimate was likely low and therefore the analysis could not be relied upon. Hydro One asserted that

using a voltage support cost of $105 million would bring the cross-over point forward in time. SON responded that neither Hydro One, nor the OPA, nor the IESO had studied the actual costs of voltage support and that the evidence Hydro One relied on for a higher estimate came from a study developed for a different purpose. Hydro One replied that it was meeting the Filing Requirements by not analyzing options that did not meet IESO reliability standards and did not meet the need identified by the OPA.

With respect to the analysis generally, Hydro One argued that the model cannot be used to justify a delay because it is a cumulative analysis, and not an annual analysis. The cross-over point does not show when another alternative becomes more attractive; it is the point at which the cumulative costs of the alternatives are equal. This is demonstrated by the analysis in Exhibit J14.1 which shows that the projects cannot be sequenced to minimize costs.

Hydro One concluded that a “wait and see approach” does not take proper account of the locked-in energy (due to delay) and duplicated costs, which in Hydro One’s view exacerbate price, quality and reliability risks, to the detriment of ratepayers. Hydro One maintained that this would be neither prudent nor cost effective planning and that Mr. Russell’s analysis, as presented in Exhibit J14.1, demonstrates that implementing series capacitors now and the constructing the Bruce to Milton line later is a much more expensive option than building the Bruce line now.

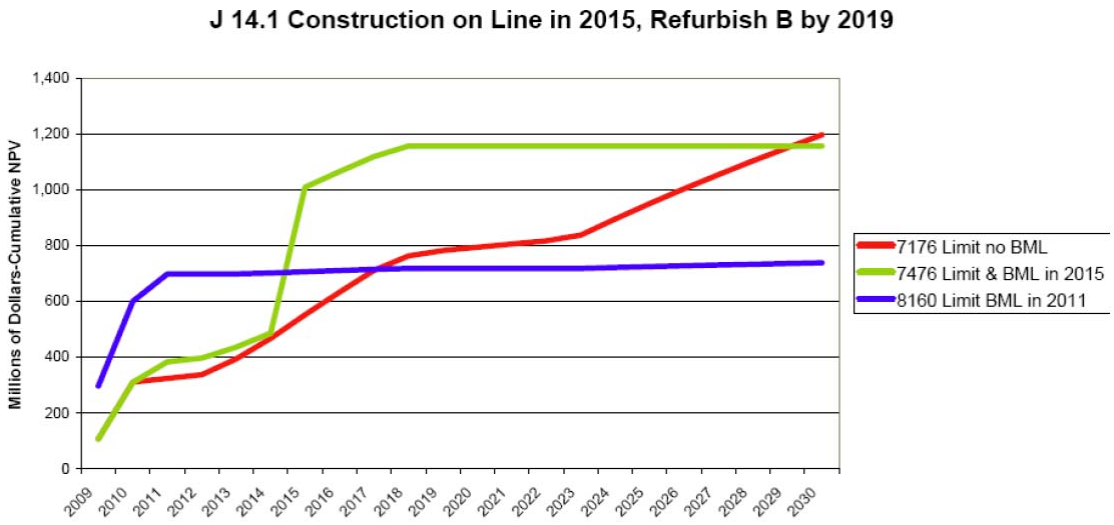

Figure 6 Source Undertaking, J14.1

Hydro One also maintained that the series capacitor/generation rejection alternative was not better from an economic perspective. Hydro One noted that the OPA analysis shows the cross-over in 2018-2019, even if Bruce B is not refurbished, with significant reliability benefits prior to the cross-over. Hydro One maintained that even under the SON alternative analysis, the furthest cross-over point is 2030, which is only 20% of the way through the expected 100 year lifespan of the project. Hydro One argued:

> *In most circumstances, the cross-over occurs in the 2018 or 2019, at about the anticipated commencement time of the refurbishment or retirement of the Bruce B units. This result, using Mr. Russell's own supplementary evidence, indicates that the issue of the future of Bruce B can be removed from the decision-making surrounding the line. As the evidence shows, the line is economically justified even if Bruce B is not refurbished. And if refurbishment or replacement does occur, the line provides considerable upside economic and reliability benefits.*[36]

SON characterized Hydro One's approach in the following way:

[36] Hydro One, Argument in Chief, p. 27.

> *Hydro One suggests that the Board can approve of this Project, and the 635 million dollar expenditure, not on the basis of a current demonstrated need, but on the basis that OPA's financial model predicts a cost savings that may occur in the distant future.*[37]

SON disagreed with this approach. In SON's view, the financial evaluation model has not been used to assess the situation where all "planned" generation is removed. In SON's view:

> *The Board simply has no evidence to determine whether the applied-for project has a lower NPV than alternatives when "planned" generation of 1000 MW of wind and Bruce "B" refurbishment or replacement is removed from the analysis.*[38]

4.3.4 Board Findings

SON and Mr. Russell's main conclusion is that the analysis supports a "wait and see" approach. Their contention is that the series capacitor/generation rejection alternative is sufficient to meet the load requirements until such time as the generation forecast becomes more certain:

- If Bruce B is neither refurbished nor replaced and depending upon the level of wind generation, then the Bruce to Milton line will not be required and Hydro One can continue to rely on the series capacitor/generation rejection alternative.
- If Bruce B is refurbished or there is new build, then the Bruce to Milton line could be installed later.

However, as Hydro One points out, the analysis is cumulative, not annual, and therefore installing both options results in significantly higher costs and reduced net benefits in the event the 8,100 MW forecast is accurate. This might be appropriate if there were the prospect of significant economic benefits from relying on the series capacitor/generation rejection alternative in the event Bruce B is retired and there is no new build. However, that is not the case. In the event there is no Bruce B refurbishment or new build, and assuming the conservative (low) estimate of voltage support costs, the NPV of costs cross-over point under Mr. Russell's analysis is in the

[37] SON, Argument, p. 21.
[38] *Ibid.*

range of 2018-2019.[39] As a result, there is no significant economic benefit to not having built the line because at the point when Bruce B retirement begins the cumulative value of the alternatives is the same. The Board's conclusion is that the economic analysis does not support a "wait and see" approach. The OPA analysis assuming no Bruce B refurbishment or new build also has a cross-over date of 2019.[40]

While the Board agrees that the OPA analysis does not examine the impact of removing the 1,000 MW wind generation, the Board has already concluded that there is sufficient certainty regarding that aspect of the generation forecast.

4.4 Conclusions on the Financial Evaluation

The Board concludes that there are two potential shortcomings to the OPA model: the model assumes no correlation between nuclear production and transmission capability and no pattern of seasonality to either. The evidence, however, is that operators attempt to coordinate nuclear and transmission outages, and do so in the shoulder seasons. On the other hand, in some ways the OPA model has taken a conservative approach (and therefore understated the benefits of the project):

- The model does not include the "take or pay" costs associated with the Bruce A contracts, and therefore may underestimate the cost of any locked-in nuclear generation.
- The model assumes there will be the same transmission derating experience as took place from 2005 to 2007. However, under the series capacitor/generation rejection alternative, the system would be under greater stress and therefore the actual level of derating would likely be higher.
- The model uses estimates of avoided costs, which are possibly lower than the costs which would be paid for replacement generation (HOEP).

The Board finds that the OPA analysis supports the conclusion that, from an economic perspective, the proposed project is preferable to the series capacitor/generation rejection alternative, whether or not Bruce B is refurbished or replaced. The Board also finds that the benefits of the project in terms of reduced locked-in energy meet or exceed the costs of the project whether or not Bruce B is refurbished or replaced.

[39] Supplementary evidence of SON, Appendix A, p.2 and 4
[40] Exhibit K3.2

5. RELIABILITY EVALUATION

5.1 The Proposed Project

With respect to the Ontario transmission system operation, Hydro One submitted that it needed to de-stress an already stressed system:

> *The Project will provide more of a margin for contingencies and scheduling maintenance, reduce the amount of operating reserve required during outage conditions, and have less complicated re-dispatch actions following contingencies and lower power losses.*[41]

Hydro One noted that the IESO, which is the standards-making body, testified that the proposed line is the best alternative that meets the need from the perspective of reliability.

Hydro One made the following submission:

> *The SIA [IESO System Impact Assessment] concludes that the Project will not result in material adverse effects to the power system, subject to the installation of dynamic compensation, specified shunt capacitors banks and the enhancement of the BSPS (all of which form part of the near term and interim measures).*[42]

Hydro One noted that the Customer Impact Assessment ("CIA") concluded that there will not be any adverse impacts on southwestern Ontario customers.

Hydro One argued that installing more 500 kV lines on a common corridor does not breach reliability standards and that there are risk management procedures in place to address the extreme contingency of a loss of right of way. Hydro One pointed to the IESO testimony to the effect that the consequences of the loss of the right of way are assessed and are acceptable and manageable.

[41] *Ibid*., p. 24.
[42] Hydro One, Argument in Chief, p. 61.

5.1.1 Board Findings

The Board finds that the proposed project meets all the necessary reliability requirements. Specifically, the evidence is that all of the requirements of the SIA will be met and that no adverse consequences were identified in CIA. The only substantive issue raised was the risk associated with placing the new line adjacent to an existing line. The Board accepts the evidence of the IESO that a shared right of way does not breach reliability requirements. The Board recognizes that a separate transmission corridor might provide higher reliability but notes that such an approach would entail higher costs and would not be consistent with Ontario's land use policy.

5.2 The Series Capacitor/Generation Rejection Alternative

Hydro One submitted that the transmission and reliability standards are set out in licence conditions, the Transmission System Code, the IESO's Ontario Resource and Assessment criteria ("ORAT"), and the IESO's Market Rules. Hydro One noted that series capacitors would be a new technology on a critical part of the Ontario power system but acknowledged the external consultant's conclusion that series capacitors can be installed provided necessary studies are undertaken. Hydro One expressed more concern about generation rejection and argued that the long term use of the BSPS does not accord with the Northeast Power Coordinating Council ("NPCC") and IESO reliability standards.

The IESO also submitted that long term use of series compensation and generation rejection under normal conditions was inconsistent with NPCC and IESO reliability standards.

Hydro One noted that reducing reliance on the BSPS was one of the project objectives.

Hydro One submitted that long term reliance on generation rejection through a Special Protection System ("SPS") is not permitted under ORAT. Section 3.4.1 reads:

> *[A]n SPS associated with the bulk power system may be planned to provide protection for infrequent contingencies, for temporary conditions such as project delays, for unusual combinations of*

> *system demand and outages, or to preserve system integrity in the event of severe outages or extreme contingencies.*[43]

The section also provides further clarification that a Type 1 SPS (the Bruce SPS is a Type 1) is "reserved only for few specific conditions, including transition periods to enable new transmission reinforcements to be brought into service."[44]

The Ross Group argued that prior to March 2007 the IESO did not preclude the long-term use of SPS and that the limitation on the use of the SPS was only introduced with the fundamental change to the ORAT in February 2007. SON questioned the IESO's authority to create the stricter reliability criteria and pointed out that Hydro One, in its response to IESO, challenged the IESO's jurisdiction to make changes to transmission planning standards. Mr. Russell testified that the change was substantially stricter than the NERC and NPCC requirements and the prior IESO criteria.

SON concluded that even with the questionable change, the provisions do not preclude the interim use of generation rejection as part of a series capacitor alternative. When actual transmission requirements become more certain, further planning can be done: if generation declines, then the generation rejection will be armed less frequently; if generation increases, then transmission upgrades will reduce the need for arming.

Hydro One discounted the SON suggestion that IESO does not have the authority to create new reliability criteria. In Hydro One's view, the position it expressed in 2006 is dated, and the IESO standards which have been issued are legislatively underpinned and not optional.

Hydro One submitted that the proposed expansion and intensified use of the Bruce SPS increases the operational complexity of the system and sparked NPCC concern.

NPCC is one of ten Regional Reliability Councils located throughout the United States, Canada and portions of Mexico that together make up the North American Electric Reliability Council ("NERC"). As a member of NERC, NPCC provides for its members

[43] Exhibit K10.2, tab 19, ORAT, s. 3.4.1.
[44] *Ibid.*

broad based industry-wide reliability standards. The NPCC developed a standard titled "Basic Criteria and Operation of Interconnected Power Systems", which was most recently revised on May 6, 2004. The criteria described in that standard are applicable to design and operation of bulk power systems (in Ontario it is the transmission system operating at voltages above 50 kV).

SON submitted that the NPCC was asked to consider and approve an SPS expanded beyond historical levels and likely more expansive than what would be required under a series compensation alternative (since transfer capability will be increased). SON submitted that it was clear that if the series compensation alternative were pursued, a revised BSPS would need to be developed and assessed for compliance with reliability criteria in the normal course, but that any conclusion as to the NPCC response would be speculation at this point.

5.2.1 Board Findings

There is no dispute that the proposed line provides a higher level of reliability than the series capacitor/generation rejection alternative. The issue is whether the series capacitor/generation rejection alternative meets the relevant reliability standards. Hydro One did not dispute that the series capacitor/generation rejection alternative would meet the relevant reliability standards if it were being used on an interim basis. The dispute arose primarily in terms of whether the series capacitor/generation rejection alternative would satisfy reliability standards if it were to be relied upon over the long-term. While SON proposed that series capacitors could be used in the "interim", it contemplated their potential use until 2021 or later, depending upon the timing of the line installation. The Board finds that this period extends substantially beyond what could be considered an "interim" period.

Under the current IESO ORAT standard, long term use of the alternative quite clearly does not meet the standard. The intervenors did not dispute this; rather they questioned the underlying reliability standard. The Board agrees with Hydro One that the standards themselves are not an issue before the Board in the current proceeding. The current standards are in force and the Board is not in a position to substitute a different standard, even a pre-existing standard.

With respect to the NPCC standards, the Board agrees that it can only speculate as to whether a series capacitor/generation rejection alternative would be approved as a Type I SPS system.

Even if it were established that the series capacitor/generation rejection alternative could be relied upon in the long term, it is clear that the proposed project is a superior alternative in terms of reliability. Further, it has already been determined by the Board that the proposed line is also the preferred alternative from an economic perspective.

6. LAND MATTERS

In accordance with Section 97 of the OEB Act, the Board must be satisfied that Hydro One either has or will offer to each owner of land affected by the approved route an agreement in a form that it has been approved by the Board.

The approved issues list contained two issues related to land matters.

- Are the forms of land agreements to be offered to affected landowners reasonable?
- What is the status and process for Hydro One's acquisition of permanent and temporary land rights required for the project?

6.1 Forms of Land Agreements

The following forms of agreement were included in Hydro One's leave to construct application:

- Easement Agreement
- Agreement of Purchase and Sale
- Offer to Grant an Easement
- Option to Purchase
- Damage Claim Form
- Damage Release Form
- Access for Testing and Associated Access Routes Agreement
- Off-Corridor Temporary Access and Access Roads Agreement

In its submission Hydro One indicated that no party has challenged the forms of land agreements to be offered to landowners as presented in the pre-filed evidence.

Hydro One further stated that Powerline Connections as a group representing over one hundred properties that will be offered those agreements support the forms of agreement.

While the Fallis Group stated that the forms of agreement are in reasonable as far as they go, it submitted that they lacked annual perpetual recognition payments.

6.1.1 Board Findings

The Board notes that no party has raised any concern with the forms of land agreements to be offered to affected landowners. The Board approves the forms of agreement to be offered to the affected land owners.

The Fallis Group's issue related to compensation is not within the scope of this proceeding[45].

6.2 Status and Process for Acquisition of Permanent and Temporary Land Rights

Hydro One submitted that throughout this proceeding, significant time, care and attention had been placed by Hydro One on the implications that a project of this magnitude and of this size would have on individual landowners. Hydro One stated that it had been assisted by Powerline Connections in developing and addressing concerns that, in effect, fall outside of the jurisdiction of this Board, namely, the compensation for land acquisition.

Powerline Connections informed the Board by way of a letter dated April 28, 2008, that it had withdrawn its opposition to Hydro One's section 92 application. In its letter Power Line Connections referenced progress in three main areas which was cited as the reasons for this withdrawal:

- The completion of Hydro One's review of routing alternatives and the report dated March 14, 2008;
- The response of Hydro One to Powerline Connections' interrogatories which secured substantive information to its members to help out in their planning and mitigation strategies; and

[45](1) The Oral Decision: Transcript Vol. 6, May 8, 2008, pages 72-74 ;
(2) Reminder of the Oral Decision, Transcript, Vol. 9, May 13, 2008, pages 1-2 ;
(3) Issues Day Decision and Order, September 26, 2007, Appendix A, Issues List

- The release of Hydro One's land compensation principles for the Bruce to Milton line, which was based on consultation with landowners including Powerline Connection represent a significant progress and departure from previous practices by Hydro One's predecessor.

For its part, the Fallis Group submitted that the Environmental Assessment process and this Leave to Construct process are "out-of-step" and therefore there is no way to determine the status and process for Hydro One's acquisition of permanent and temporary land rights.

6.2.1 Board Findings

The Board recognizes that the need to plan for the acquisition of project associated land rights concurrently with the design stages of a project requires a measured and conditioned approach. There is a need to match the efforts in securing land rights to the certainty of the route and the obtaining of various project approvals.

The Board does not accept The Fallis Group's assertion that the status and process for Hydro One's acquisition of permanent and temporary land rights is undeterminable. The Board has already ruled on the acceptability of the sequence and timing of the two separate processes and finds that the status and process as they relate to this proceeding are readily determinable as has been demonstrated by the Powerline Connection Group.

The Board is satisfied that the steps taken by Hydro One in relation to land rights acquisitions have been commensurate with the evolutionary nature of the project.

7. ABORIGINAL CONSULTATION

7.1 Background

Issue 6.1 of the Issues List deals with Aboriginal consultation:

> Have all Aboriginal Peoples whose existing or asserted Aboriginal or treaty rights are affected by this project been identified, have appropriate consultations been conducted with these groups and if necessary, have appropriate accommodations been made with these groups?

The Board also provided the following direction to parties on the final day of the oral of the hearing:

> *[R]egarding argument, the Board is requesting specific input in the argument on issue 6, which is in regard to Aboriginal consultation and accommodation. We ask parties to address the following questions in their argument: What Crown consultation and accommodation is required for the purposes of approving a section 92 leave-to-construct application; and what, if any, consultation and accommodation issues are within the Board's jurisdiction in this case; and has the required consultation and possibly accommodation been done.*[46]

Hydro One filed evidence relating to its Aboriginal consultation activities, including information detailing which Aboriginal groups were contacted, how they were selected, and an overview of the results of the consultations as of that time. All parties agreed that Aboriginal consultation for the project as a whole is ongoing and has not been completed.

No other party called evidence on Aboriginal consultation issues. MNO filed a series of documents relating generally to the Métis People and consultation for the project, which its counsel reviewed with the Hydro One witness panel.

[46] Transcript, volume 14, pp. 2-3.

7.2 The Issues

The Duty to Consult

Although there is disagreement amongst the parties regarding the Board's specific role, there appears to be broad agreement regarding the overall nature of the duty to consult.

The duty to consult flows from s. 35 of the *Constitution Act, 1982*:

> 35. (1) The existing aboriginal and treaty rights of the aboriginal peoples of Canada are hereby recognized and affirmed.
>
> (2) In this Act, "aboriginal peoples of Canada" includes the Indian, Inuit and Métis peoples of Canada.
>
> (3) For greater certainty, in subsection (1) "treaty rights" includes rights that now exist by way of land claims agreements or may be so acquired.
>
> *(4) Notwithstanding any other provision of this Act, the aboriginal and treaty rights referred to in subsection* (1) are guaranteed equally to male and female persons.

All parties made reference to the three Supreme Court cases that originally described the duty to consult.[47] These cases make it clear that the Crown has a duty to consult with Aboriginal groups prior to taking any action which may have an adverse impact on an Aboriginal or treaty right. In certain circumstances, there will also be a duty to accommodate Aboriginal interests. The duty to consult (including the duty to accommodate where appropriate)[48] arises where the Crown has knowledge, real or constructive, of the potential existence of an Aboriginal or treaty right and contemplates conduct that might adversely affect it. The extent of the duty requires a preliminary assessment and is proportionate to the strength of the case supporting the existence of the right or title in question, and to the seriousness of the potentially adverse effect upon the right or title claimed.

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[47] *Haida Nation v. British Columbia (Minister of Forests)*, [2004] 3 S.C.R. 511 ("*Haida*"); *Taku River Tlingit First Nation v. British Columbia (Project Assessment Director)*, [2004] 3 S.C.R. 550 ("*Taku*"); *Mikisew Cree First Nation v. Canada (Minister of Canadian Heritage)*, [2005] S.C.C. 69 ("*Mikisew*").

[48] Any reference to the "duty to consult" in this decision includes the duty, where appropriate, to accommodate.

On these general points there appears to be broad agreement. In addition, no party argued that the Board itself had a duty to consult on the project. Where the parties differ is with regard to the Board's role in assessing the adequacy of the consultation.

The Board's Role

The Board's authority to approve leave to construct applications for electricity transmission projects comes from sections 92 and 96 of the *Ontario Energy Board Act*. Section 92 states:

> *No person shall construct, expand or reinforce an electricity transmission line or an electricity distribution line or make an interconnection without first obtaining from the Board an order granting leave to construct, expand or reinforce such line or interconnection.*

Section 96(2) of the Act places certain restrictions on the scope of the Board's review:

> *In an application under section 92, the Board shall only consider the interests of consumers with respect to prices and the reliability and quality of electricity service when, under subsection (1), it considers whether the construction, expansion or reinforcement of the electricity transmission line or electricity distribution line, or the making of the interconnection.*

An issue the Board must consider here is whether it is required to evaluate the adequacy of the consultation conducted by reference to the whole of the project and its potential impacts despite the section 96(2) restrictions on the Board's jurisdiction.

In the submissions of SON and MNO, the answer is yes. In its submissions, MNO states that the duty to consult arises from section 35 of the *Constitution Act*. It is a super-added duty that runs parallel to existing statutory and policy mandates. In other words, it cannot be legislated away. MNO submitted: "the OEB, as a statutory Crown decision-maker, whose discretionary authorization (i.e. a leave to contract [*sic*] order) has the potential to adversely affect Aboriginal peoples is accountable and responsible to ensure the constitutional duty has been discharged in relation to its authorization."[49]

[49] MNO final argument, para. 45

MNO cited the Supreme Court decision *Paul v. British Columbia (Forest Appeals Commission)*[50] ("Paul") in support of its contention that Crown statutory decision makers have the jurisdiction to consider Aboriginal rights related issues in the course of their decision making:

> *I am of the view that the approach set out in Martin, in the context of determining a tribunal's power to apply the Charter, is the only approach to be taken in determining a tribunal's power to apply s. 35 of the Constitution Act, 1982. The essential question is whether the empowering legislation implicitly or explicitly grants to the tribunal the jurisdiction to interpret or decide any question of law. If it does, the tribunal will be presumed to have concomitant jurisdiction to interpret or decide that question in light of s. 35 or any other relevant constitutional provisions. Practical considerations will generally not suffice to rebut the presumption that arises from authority to decide questions of law. This is not to say, however, that practical considerations cannot be taken into consideration in determining what is the most appropriate way of handling a particular dispute where more than one option is available.*[51] *[Emphasis added by MNO]*

MNO then points to s. 19(1) of the OEB Act, which states: "The Board has in all matters within its jurisdiction authority to hear and determine all questions of law and of fact." In MNO's analysis, this leads to the conclusion that the Board has the jurisdiction to consider questions of constitutional law and s. 35 or any other related constitutional provision in its decision making process, including Aboriginal consultation issues.

SON also cites the *Paul* case and makes a similar submission:

> *… as a statutory tribunal, the Board must exercise its decision-making functions in accordance with the dictates of the Constitution, including s. 35(1) of the Constitution Act, 1982. The Board is therefore required to respect and honour, not ignore, the duty to consult and accommodate.*[52]

[50] [2003] S.C.J. No. 34
[51] *Paul*, para. 39.
[52] SON final argument, p. 42.

SON further submitted that the EA is an administrative and political process, and was therefore not an appropriate mechanism for making an independent determination regarding the Crown's consultation obligations.

SON concluded that, since consultation for the project is clearly not completed, the application should be denied.

Board staff adopted a different view. It was Board staff's submission that in this case the Board should only consider Aboriginal consultation issues that relate to prices, reliability and quality of electricity service. Board staff did not rule out the possibility of the Board considering broader consultation issues in some cases; it stated that where no other Crown actor had a responsibility to consider consultation issues relating to matters other than prices, reliability and quality of electricity service, the Board might have to adopt that role. However, given that Aboriginal consultation issues were being considered through the EA process, it was Board staff's view that the Board did not have to adopt that role in this case.

Hydro One submitted that the Board's s. 35 responsibilities are limited by its mandate under the OEB Act. The Board's s. 35 obligations, therefore, can relate solely to prices, reliability and quality of electricity service. Hydro One took issue with MNO's submission that the duty to consult is a super-added duty for the Board, and that it stands as an independent requirement of the Board outside of its enabling statutes. In Hydro One's view there is no authority for this proposition, and it should be rejected. In Hydro One's analysis, the *Paul* decision simply describes the nature of an administrative tribunal:

> *it does not stand for the proposition that Crown consultation must occur in only one venue, that the decision maker's scope of authority is expanded beyond that which is expressly provided for in the applicable legislation and that the first decision maker to consider any consultation aspects must consider all consultation aspects."*[53]

Hydro One submitted that the Board would in no way be delegating or deferring its duty to consult by leaving the issue to the EA process, because the Board has never had responsibility for any s. 35 duties relating to environmental matters. This is an

[53] Hydro One reply argument, p. 32.

obligation of the Minister of the Environment, and has never been an obligation of the Board. The Board's mandate is restricted to prices, reliability and quality of electricity service, even when considering Aboriginal consultation issues.

7.3 Board Findings

The Board's Jurisdiction to Consider Aboriginal Consultation Issues

It is agreed by all parties that Aboriginal consultation is required for the project as a whole. Where the parties disagree is with respect to the scope of the Board's assessment of the consultation. The issue presented by the parties was not whether the Board itself had an obligation or duty to consult but whether the Board had a duty to determine whether the Crown had engaged in adequate consultation. The Board's role, in this case, is to assess whether or not adequate consultation has taken place prior to granting an approval.

The Board is not aware of any cases in which a tribunal has been found to be responsible for either conducting Aboriginal consultation, or for making a determination as to whether or not Aboriginal consultation has been sufficient. Neither is the Board aware of any cases stating that a tribunal does not have these responsibilities. It appears that this issue has yet to be addressed by a Canadian court.

In the absence of definitive guidance from the courts, the Board must analyze the statutes and precedents that do exist and come to a reasoned conclusion.

Paul holds that tribunals that have the authority to determine questions of law have the jurisdiction to deal with constitutional issues. The Board accepts that it has the authority and duty to consider questions of law on matters within its jurisdiction.

Parties suggested that the Board should not approve the application because the consultation in the EA process is incomplete and/or inadequate, and that the leave to construct should only be granted when the Board determines that the consultation as a whole is complete and has been adequate. The Board does not agree with either proposition.

Although the Board has the authority to determine questions of law, the EA process is beyond the Board's jurisdiction and therefore the Board does not have the authority to determine whether the Aboriginal consultation in that process has been sufficient. The Board cannot assume authority over matters that are clearly within the legislated jurisdiction of the EA process. In addition, parties argued that the Board should consider the requirement for Aboriginal consultation related to the development of generation. The Board disagrees. The matter before us is the approval to construct transmission facilities. It does not include the approval of plans for, or development of, generation facilities. Therefore, it is not within the Board's jurisdiction, in this case, to consider the adverse impacts on Aboriginal peoples requiring consultation related to the development of generation.

Regardless of the issue of jurisdiction, the consultation surrounding this project as a whole is clearly not complete. The issue for the Board, therefore, is whether a leave to construct may be granted in the absence of a complete consultation.

Some parties suggest that the Board may not grant a leave to construct until the consultation for the project as a whole is complete. The Board does not think this is necessary. In a general sense this would be impractical and in this specific case it is unnecessary because the Board's leave to construct order is conditioned on completion of the EA process and the EA process will be dealing with the consultation issues raised in direct relation to this project.

There is only one Crown. The requirement is that the Crown ensure that Aboriginal consultation takes place for all aspects of the project. It is not necessary that each Crown actor that is involved with an approval for the project take on the responsibility to ensure that consultation for the entire project has been completed; such an approach would be unworkable. It would lead to confusion and uncertainty and the potential for duplication and inconsistency. It would also potentially lead to a circular situation in which each Crown actor finds itself unable to render a final finding on consultation because it is awaiting the completion of other processes. The *Paul* case directly addresses this practicality issue:

> *Practical considerations will generally not suffice to rebut the presumption that arises from authority to decide questions of law.*

> *This is not to say, however, that practical considerations cannot be taken into consideration in determining what is the most appropriate way of handling a particular dispute where more than one option is available.*

The *Paul* case predates the *Haida* case; however in the Board's view this principle applies equally in the consultation context. As a practical matter it is unworkable to have to separate Crown actors considering identical Aboriginal consultation issues for the same project. In fulfilling its responsibility to assess the adequacy of consultation, the Board must necessarily take responsibility for the aspects of the consultation that relate to the matter before it, but should do so with a recognition of any other forum in which consultation issues related to the project are being addressed as well.

The Evidence

Based on the evidence and argument before it, the Board is unable to identify any adverse affect on an Aboriginal or treaty right that would occur as a result of the Board's granting a leave to construct. Nor has any party identified any such issue on which there has been a failure or refusal to consult.

Neither SON nor MNO called a witness in this proceeding to address issues relating to Aboriginal consultation. MNO did file a number of documents which provided information about the Métis People. Several documents reference the asserted Métis Aboriginal right to harvest and other land related issues. For example, in a letter to HONI regarding Métis consultation on the Bruce-Milton transmission line, the MNO wrote:

> *The Crown has never undertaken a Métis traditional land use study and has never provided support to the MNO to undertake such a study in order to identify Métis land use, harvesting practices, sacred places, Métis cemeteries, etc. in the region. As such, the MNO is very concerned that Métis harvesting practices or use of land in the region has not been considered in the development of the Project.*[54]

[54] Exhibit K9.6- Letter dated March 31, 2008, filed in this proceeding as Tab 10 of the Evidentiary Submission filed on April 18, 2008 by the Métis Nation of Ontario

MNO also filed a map showing Métis traditional harvesting territories (which include the Bruce peninsula)[55].

In its pre-filed evidence, Hydro One filed minutes from a number of meetings between itself and SON. Counsel for SON questioned Hydro One's witnesses regarding the consultation activities it had undertaken with SON. Both the minutes from the meetings and the responses under cross examination from Hydro One witnesses reveal that SON had raised a number of concerns about the proposed project. Specific reference is made to, amongst other things, archaeological issues, biological issues, and issues relating to how the project fits in with the overall generation and transmission plans for the Bruce area. There are references to "local benefit" or economic issues, but the main thrust of the concerns relate to what can best be described as environmental or land related issues.

All of the evidence is that the consultation issues relate to the EA process and generation planning decisions. Generation planning is beyond the scope of the project and is the subject of other ongoing consultations. The Memorandum of Understanding between the Ministry of Energy and Hydro One[56] clearly sets out the Crown's acknowledgement of its duty to consult and establishes those areas where Hydro One will undertake some aspects of that consultation for this project. The EA process is a key component.

The Environmental Assessment Process

In addition to the Board's approval, Hydro One must complete the EA in order to commence building the project. The EA is conducted under the aegis of the Minister of the Environment, and the EA is not complete until it is approved by the Minister. The terms of reference ("TOR") for the EA were filed with the Board in this proceeding. The TOR includes a section relating to Aboriginal consultation. Section 8.4 of the TOR, entitled "Aboriginal Communities and Groups Engagement/ Consultation Plan", provides an overview of Hydro One's plan to ensure proper consultation and possibly accommodation takes place. The TOR states:

[55] Exhibit K9.6- Métis Traditional Harvesting Territories Map, Tab 5 of the Evidentiary Submission filed on April 18, 2008 by the Métis Nation of Ontario
[56] Exhibit K8.1

> *Hydro One is committed to working closely with the Crown to ensure that the duty to consult Aboriginal communities and groups is fulfilled. Hydro One's process for Aboriginal communities and groups is designed to provide information on the project to the Aboriginal communities and groups in a timely manner and to respond to and address issues, concerns or questions raised by the aboriginal communities and groups in a clear and transparent manner throughout the completion of the regulatory approval processes (e.g., the EA process).*[57]

In addition to section 8.4, there are numerous additional references to the consultation activities that Hydro One plans to undertake as part of the EA process. Under the heading "Traditional/Aboriginal Land Use", for example, it states:

> *Based on consultation with the Aboriginal communities and groups, the EA will document concerns and issues raised. The EA will also describe how Hydro One proposes to address these concerns. The EA document will describe Aboriginal communities and groups, their traditional uses of the land, and their established and asserted claims.*

The EA process, which must be approved by the Minister of the Environment, is specifically charged with addressing Aboriginal consultation issues relating to the Project through its TOR. The Board disagrees with SON'S contention that the environmental assessment process is not an appropriate mechanism for making a determination regarding the Crown's consultation obligations. The duty to consult and, if necessary accommodate, is a duty owed by the Crown to Aboriginal peoples. The Crown must satisfy itself that consultation has been adequate. A determination regarding the adequacy of consultation which is made by a Minister of the Crown after having considered the record of consultation conducted as part of an Environmental Assessment is an entirely appropriate and logical means by which the Crown can assure itself that consultation has been adequate. As the Crown will be making the decision to grant the EA, and given the Crown's broad duty to ensure adequate consultation, it is reasonable to expect the Minister to consider the Crown consultations that have gone on in areas beyond the project, namely generation planning.

[57] Approved Terms of Reference of the EA dated April 4, 2008, Pages 74-75

The Board's leave to construct order is conditioned on the granting of all other necessary approvals and permits. Specifically, the Board's order is conditional on successful completion of the EA process. In this way, the Board has satisfied itself that the process of assessment of the duty to consult (including the duty to accommodate where appropriate) will be completed prior to the commencement of the project and in a practical and workable manner.

The Board's Proposed Aboriginal Consultation Policy

Both MNO and SON made reference to the Board's draft Aboriginal Consultation Policy ("ACP").

The Board issued the draft ACP for comment on June 18, 2007. A variety of stakeholders, including several Aboriginal groups, made submissions to the Board on the draft policy. Every Aboriginal group that made substantive comments on the draft, including MNO, was opposed to the ACP as drafted and asked that the Board not adopt it. To date, the Board has not adopted the ACP, and it currently has no formal policy with regard to Aboriginal consultation.

The Board has recognized that whatever consultation responsibilities it has exist irrespective of the existence of a formal consultation policy. For that reason it has considered Aboriginal consultation issues on a case by case basis as proceedings have come before the Board. In one case cited by MNO, which was released in October 2007, the Board made reference to its proposed ACP. This decision clearly identified the ACP as "proposed" as opposed to final, and should not be taken to mean that the Board has in fact adopted an ACP. In fact, the MNO appears to have recognized that the ACP was still only a draft in a letter to Hydro One dated November 27, 2007:

> *…the Ontario Energy Board has recently issued a draft Aboriginal Consultation Policy that requires all proponents to provide information in their future applications to the Board on how the Aboriginal communities who may be affected by the projects being proposed by proponents have been consulted.*[58]

[58] Exhbit K9.6- Letter dated November 27, 2007 addressed to Hydro One, Tab 9 of the Evidentiary Submission filed on April 18, 2008 by the Métis Nation of Ontario

8. PRICE IMPACTS

Section 96(2) of the OEB Act states that the Board shall only consider the interests of consumer's with respect to prices and the reliability and quality of electricity service when it considers whether the construction of an electricity transmission line is in the public interest. With respect to the cost estimate and rate impact, Hydro One maintained that the $635 million cost estimate was confirmed throughout hearing and that the resulting 9-10% increase in the Transmission Network Pool Rate and 0.45% increase in total electricity bill to a typical residential customer was acceptable. Hydro One noted that the estimated impact for a typical residential customer is $0.50/month.

Mr. Barlow questioned the accuracy of the project budget and suggested that Hydro One should be responsible for any cost overruns.

8.1 Board Findings

The Board concludes that based on the estimates provided, the rate impact is acceptable. The Board notes, however, that Hydro One is at risk for any cost increases and that any cost overruns will be subject to a prudence review at a subsequent rate application.

9. CONDITIONS OF APPROVAL

Board staff prepared a set of standard conditions of approval. Hydro One indicated that it did not have any concerns with the conditions as proposed.

The Fallis Group submitted that if an Order is granted it should also be conditional on the issuance of a Development permit under the Niagara Escarpment Planning and Development Act.

Hydro One responded that a specific condition related to the Niagara Escarpment Planning and Development Act is not required as it is already covered in the general condition proposed by Board staff regarding other permits and approvals.

Board staff and a number of intervenors proposed conditions related to the uncertainty of the generation forecast. In its reply, Hydro One maintained that to "impose conditions in response to which Hydro One has not had the opportunity to provide evidence, would violate the principles of natural justice and fairness" (p.2).

9.1 Board Findings

The Board has determined that the forecast of wind generation is reasonable and contains very little risk. The Board has also determined that the proposed project is the preferred option from an economic point of view, regardless of whether Bruce B is retired or refurbished or replaced. Therefore, while the Board does not agree with Hydro One's submission that imposing conditions without providing the applicant an opportunity to provide related evidence violates the principles of natural justice and fairness, conditions related to the generation forecast are unnecessary in this case.

10. COST DECISION AND ORDER

The board will issue its decision and order on cost awards shortly.

THE BOARD ORDERS THAT:

Leave to construct the transmission reinforcement project between the Bruce Nuclear Generating Station and Milton Switching Station is hereby granted to Hydro One Networks Inc. subject to the Conditions of Approval attached as Appendix "C" to this Order. The transmission reinforcement project includes making certain modifications at the Milton, Bruce A and Bruce B transmission stations to accommodate the new transmission lines.

DATED at Toronto, September 15, 2008
ONTARIO ENERGY BOARD

Original Signed By

_____
Pamela Nowina
Presiding Member

Original Signed By

_____
Ken Quesnelle
Member

Original Signed By

_____
Cynthia Chaplin
Member

APPENDIX A

LIST OF PARTIES

HYDRO ONE NETWORKS INC.
BRUCE MILTON TRANSMISSION PROJECT
DECISION AND ORDER

EB-2007-0050

September 15, 2008

LIST OF PARTIES

Board Counsel and Staff	Michael Millar Neil McKay Zora Crnojackie Nabih Mikhail
Applicant	**Representative(s)**
Hydro One Networks Inc.	Glen MacDonald
Applicant's Counsel	Gord Nettleton Nicole J. MacDonald
Intervenors	**Representative(s)**
William H. Allen	
Association of Power Producers of Ontario ("APPRO")	Jake Brooks David Butters Tom Brett
Bentinck Packers Limited	Steven Lindner
Emily and Jorge Botelho	
Doug, Donna, Daryl and Drew Braithwaite	
Jeff and Bonnie Bruce	
Bruce Power	Brian G. Armstrong, Q.C. George Vegh J. Rosengarten

Buffalo Sunrise Farm	Paul John Eisenbarth and Margaret Helen Cuff
Calldron Gas Bars Ltd.	Bob Ware
Canadian Wind Energy Association	Sean Whittaker
Gwendolyn Charlton and Alvin Mcallister	
Council for the Town of Erin	Kathryn Ironmonger
Donald A. Corbett	
Willis and Madeline Crane	
Dirk Emde	
Enbridge Inc.	Ron Collins Cherry Blackwood
Energy Probe Research Foundation	David MacIntosh Thomas Adams Peter T. Faye Dr. Kimble F. Ainslie
Heinrich and Theresia Eschlboeck	Anthony Wellenreiter
David France	
The Fallis Group	Peter T. Fallis
Keith Cressman **Doris Anna Cressman** **Saugeen Maple Farms Ltd.** **Mervyn Wayne Lewis** **Jennifer Lynne Lewis**	

John Leslie Flanagan	
Phyllis Dianne Flanagan	
Dean Alexander Flanagan	
Allan Eric Foster	
Karyn Foster	
James Douglas Lewis	
Penny Joanne Lewis	
John Mulhall	
Catherine Blanche Mulhall	
Calvin John Hughes	
Stephen Hodges	
Orland Magwood	
Gloria Magwood	
1063755 Ontario Ltd.	
James Magwood, In Trust	
Andrew Magwood, In Trust	
David John Milne	
Mary Joan Milne	
David Mervyn Rawn	
Karen Ruth Rawn	
Thomas William Visser	
Laura Lee Heather Visser	
Gwendolyn Charlton and Alvin McAllister	
Robert Watson	
Sharon Kennedy Meanaul	
Robert George Younger	
Ron Elo	
Paul Garvey	
Mike and Carolyn Giesler	
Great Lakes Power Limited	Peter Bettle Charles Keizer
J.B. Gregorovich	
Sherwood and Gladys Hume	
Independent Electricity System Operator (“IESO”)	Carl Burrell John Rattray

Daniel and Marjorie Kobe	
Philip Lawton	
Darvey and Danny Liedtke	
Manfred and Luzia Lindner	
Steve and Catherine Lindner	
Métis Nation of Ontario	Jason Madden
Allan R. McFee	
The Municipality of West Grey	Christine Robinson
Thomas Murtagh **Glenis Falbo**	
One Milton Trust Inc.	Yadvinder S. Toor
Ontario Federation of Agriculture ("OFA")	Neil Currie
Ontario Power Generation Inc. ("OPG")	Tony Petrella
Chris Aristides Pappas	
Bernd and Gerd Pollex	
Pollution Probe Foundation	Jack Gibbons Murray Klippenstein Basil Alexander David Schlissel Peter Lanzalotta Bob Fagan

Power Worker's Union ("PWU")	John Sprackett Bayu Kidane Judy Kwik Richard Stephenson
Powerline Connections	Stephen F. Waqué Frank Sperduti

William Allison
Janet Allison
Edward Bird
Maribeth Bird
Robert Barlow
Bruce Barrett
Dave Clifford
Anne Clifford
Pat Crouse
Steve Crouse
Ralph Cunningham
Vivian Cunningham
Paul Fisher
Pat Fisher
John Hofing
John Jenkins
Julia Jenkins
Steven Joyce
Anne Joyce
Robert McClure
Susan McClure
Joseph Rice
Ivan Rice
Verna Rice
Rice & McHarg Limited
Garry Sterritt
Mary Jean Sterritt
Bonnie Neely
Perry Stuckless
Elaine Stuckless
Mark Bergermann
Janet Bergermann
Leslee Einmann
Scott Einmann
John MacLeod
Melanie MacLeod
Joanne Coletta

Fernando Coletta **Maria Coletta** **Rosa Nucci** **Vittorio Nucci** **Jim Dinatale** **Lisa Dinatale** **Eileen Dinatale** **Elda Threndyle** **Dave D'Auria** **Michelle D'Auria**	
The Regional Municipality of Halton	Peter Daillebout
"The Ross Firm Group"	Quinn M. Ross
Dave and Martha Barrett **Jack and Hildreth Park** **Lloyd Hutton** **Tom Fritz** **Doug Hackett** **Bob and Betty Mills** **Jim and Jairus Maus** **Dave and Pat Woelfle** **Glenn and Sandra Sawyer** **Carman and Everlyn Hodgkinson**	
C.B. and L. Rutledge	M. Virginia MacLean, Q.C.
Saugeen Ojibway Nations	David McLaren Art Pape Alex Monem Elaine Cameron Dale Jacobs
Dieter E. and Vija M. Sebastian	
Dr. James and Sandra Shaw	
Mathew and Logan Smerek	

Ernest Thompson and Catherine Dalton	
Toad Hall Farm Inc.	Bryn Waern, M.D.
TransAlta Energy Corporation ("TEC")	Sandy O'Connor
TransAlta Counsel	Richard J. King
TransCanada Energy Ltd. ("TransCanada")	Margaret Kuntz
TransCanada Energy Counsel	Angela Avery
Tribute Resources Inc.	Bill Blake
Tribute Resources Counsel	Peter Budd
Union Gas Limited	Patrick McMahon
Marinus and Patricia VanBakel	
Phillip C. and C. Gale Walford	
Bob Watson	Bob Watson
Herman and Berta Weller Cedarwell Excavating Ltd.	Kevin W. McMeeken, LL.B.
Trevor M.A. Wilson	
David Woelfle	

APPENDIX B

PROCEDURAL MATTERS
INCLUDING LIST OF WITNESSES

HYDRO ONE NETWORKS INC.
BRUCE MILTON TRANSMISSION PROJECT
DECISION AND ORDER

EB-2007-0050
September 15, 2008

PROCEDURAL MATTERS
INCLUDING LIST OF WITNESSES

EB-2007-0050
HYDRO ONE NETWORKS INC.

BRUCE-MILTON TRANSMISSION PROJECT

As part of proceeding EB-2007-0050, the Board heard preliminary motions related to how the application should proceed. The Board held a Motions Day on June 25, 2007. The Board issued its decision on the motions on July 4, 2007. In that decision, the Board determined that the overall schedule for the proceeding should be adjusted to allow additional time to facilitate landowner participation in the proceeding and that a Technical Conference should be held.

An Issues Day was held on September 17, 2007. Following the Issues Day, the Board, on September 26, 2007 released its "Issues Day - Decision and Order" by which it approved a final list of issues ("Issues List").

A transcribed Technical Conference was held in Toronto on October 15 and 16, 2007.

Upon receiving the Amended Application on November 30, 2007, the Board invited intervenors in to examine the Issues List and make submissions as to whether changes or additions are appropriate.

To hear the submissions on the Issues List, the Board held a second Issues Day on February 21, 2008. Several parties made submissions on the need for issues to address the relative timing of the Board's leave to construct process and the environmental assessment process. Although the Board made no changes to the Issues List, the Board instructed Hydro One to inform the Board and other parties of the status of the environmental assessment process two weeks before the commencement of the oral hearing in this case. The Board stated it would determine at that time the need to add issues resulting from the timing of the environmental assessment process.

Procedural Order No.5 set out the schedule for interrogatories and the filing of intervenor evidence. On March 7, 2008 the Board issued Procedural Order No. 6 which addressed an issue of confidentiality related to a System Model used by the IESO allowing for Interrogatory Response to be sent to those parties that requested the confidential information on condition that those parties sign the Board's Declaration and Undertaking and files it with the Board. On April 1, 2008, the Board issued its Decision and Order on Confidentiality Matters.

A Motions Day was held on April 3, 2008 to hear submissions from various intervenors with respect to certain interrogatory answers. On April 7, 2008 the Board issued Procedural Order No. 8 requiring Hydro One to provide answers to certain interrogatories filed by intervenors. The Decision and Order on the Motion also dated April 7, 2008 required that Hydro One make its best efforts to obtain this information from Ontario Power Generation, Bruce Power, or some other body.

On April 14, 2008 the Board issued its Procedural Order No. 9, to address an issue in regard to a letter dated April 10, 2008 from the OPA requesting that certain information provided in response to certain Pollution Probe interrogatories be treated in confidence.

On April 24, 2008, Pollution Probe filed a Motion seeking specific information relating to its interrogatories regarding two matters related to the cost effectiveness of the proposed transmission line. The Board decided to conduct this Motion by way of a written proceeding. In a Procedural Order No. 10 issued on April 28, 2008 the Board invited Hydro One to respond to Pollution Probe's Motion and for Pollution Probe to reply prior to the commencement of the Oral hearing on May 1, 2008.

WITNESSES

Witnesses Supporting the Application

The following witnesses representing the Applicant, Hydro One Networks Inc.("Hydro One"), the Ontario Power Authority ("OPA"), and the Independent Electricity System Operator ("IESO") testified at the oral hearing:

R. Chow	OPA
M. Falvo	IESO
V. Girard	Hydro one
J. Sabiston	Hydro One
G. Schneider	Hydro One
D. Woodford	Expert on behalf of OPA
J. Lee	OPA
L.A. Cameron	Hydro One
R.Thompson	Hydro One
E. Cancilla	Hydro One
J. Sabiston	Hydro One
M. Falvo	IESO

Witnesses called by Intervenors

For Pollution Probe Foundation

R. Fagan

P.Lanzalotta

For Saugeen Ojibway Nation

W.Russell

For Fallis Group

E.Brill

APPENDIX C

CONDITIONS OF APPROVAL

HYDRO ONE NETWORKS INC.
BRUCE MILTON TRANSMISSION PROJECT
DECISION AND ORDER

EB-2007-0050

September 15, 2008

CONDITIONS OF APPROVAL
EB-2007-0050
HYDRO ONE NETWORKS INC.

BRUCE-MILTON TRANSMISSION PROJECT

1 GENERAL REQUIREMENTS

1.1 Hydro One Networks Inc. (“Hydro One”) shall construct the facilities and restore the land in accordance with its application, evidence and undertakings, except as modified by this Order and these Conditions of Approval.

1.2 Unless otherwise ordered by the Board, authorization for Leave to Construct shall terminate December 31, 2011, unless construction has commenced prior to that date.

1.3 Hydro One shall advise the Board's designated representative of any proposed material change in the project, including but not limited to changes in: the proposed route; construction techniques; construction schedule; restoration procedures; or any other impacts of construction. Hydro One shall not make a material change without prior approval of the Board or its designated representative. In the event of an emergency the Board shall be informed immediately after the fact.

1.4 Hydro One shall obtain all necessary approvals, permits, licences, certificates and easement rights required to construct, operate and maintain the proposed project, shall provide copies of all such written approvals, permits, licences and certificates upon the Board’s request.

2 PROJECT AND COMMUNICATIONS REQUIREMENTS

2.1 The Board's designated representative for the purpose of these Conditions of Approval shall be the Manager, Facilities.

2.2 Hydro One shall designate a person as project engineer and shall provide the name of the individual to the Board's designated representative. The project engineer will be responsible for the fulfillment of the Conditions of Approval on the construction site. Hydro One shall provide a copy of the Order and Conditions of Approval to the project engineer within ten (10) days of the Board's Order being issued

2.3 Hydro One shall give the Board's designated representative ten (10) days written notice in advance of the commencement of construction.

2.4 Hydro One shall furnish the Board's designated representative with all reasonable assistance needed to ascertain whether the work is being or has been performed in accordance with the Board's Order.

2.5 Hydro One shall develop, as soon as possible and prior to start of construction, a detailed construction plan. The detailed construction plan shall cover all activities and associated outages and also include proposed outage management plans. These plans should be discussed with affected transmission customers before being finalized. Upon completion of the detailed plans, Hydro One shall provide five (5) copies to the Board's designated representative.

2.6 Hydro One shall furnish the Board's designated representative with five (5) copies of written confirmation of the completion of construction. This written confirmation shall be provided within one month of the completion of construction.

3 MONITORING AND REPORTING REQUIREMENTS

3.1 Both during and after construction, Hydro One shall monitor the impacts of construction, and shall file five (5) copies of a monitoring report with the Board within fifteen months of the completion of construction. Hydro One shall attach to the monitoring report a log of all complaints related to construction that have been received. The log shall record the person making the complaint, the times of all complaints received, the substance of each complaint, the actions taken in response, and the reasons underlying such actions.

3.2 The monitoring report shall confirm Hydro One's adherence to Condition 1.1 and shall include a description of the impacts noted during construction and the actions taken or to be taken to prevent or mitigate the long-term effects of the impacts of construction. This report shall describe any outstanding concerns identified during construction and the condition of the rehabilitated land and the effectiveness of the mitigation measures undertaken. The results of the monitoring programs and analysis shall be included and recommendations made as appropriate. Any deficiency in compliance with any of the Conditions of Approval shall be explained. Within fifteen (15) months of the completion of construction, Hydro One shall file with the Board a written Post Construction Financial Report. The report shall indicate the actual capital costs of the project with a detailed explanation of all cost components and shall explain all significant variances from the estimates filed with the Board.

4 ENVIRONMENTAL ASSESSMENT ACT REQUIREMENTS

4.1 Hydro One shall comply with any and all requirements of the *Environmental Assessment Act* relevant to this application.