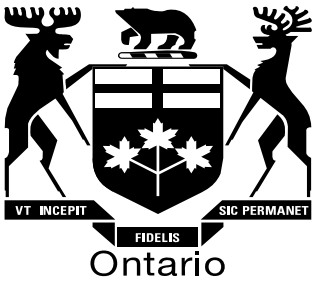

EB-2008-0272

IN THE MATTER OF the *Ontario Energy Board Act, 1998*, S. O. 1998, c. 15, Schedule B;

AND IN THE MATTER OF a review of an application filed by Hydro One Networks Inc. under section 78 of the *Ontario Energy Board Act, 1998*, seeking changes to the uniform provincial transmission rates.

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BOARD STAFF SUBMISSION

Supplementary Evidence (September 4, 2009)
Capital Projects D7 & D8

2009/2010 Electricity Transmission Rates
Hydro One Networks Inc.

1.0 PROJECT DESCRIPTION

Projects D7 and D8 are described in the pre-filed evidence of September 30, 2008[1], and for convenience, a summary sheet from that evidence is attached as Appendix A to this submission.

Project D7 is a northeast transmission reinforcement project, and involves installation of "Static Var Compensators" at Porcupine TS and Kirkland Lake TS with a forecast cost of $108.6M.

Project D8 involves installation of "Series Capacitors" at Nobel SS., with a forecast cost of $47.2M.

2.0 SUPPLEMENTARY EVIDENCE

[Board Decision and Order, May 28, 2009]

Projects D7 and D8 were classed as Category 2 projects as their expected in-service dates are within the two test years 2009/2010.

The Board's Decision and Order dated May 28, 2009 dealing with the 2009/2010 Transmission Revenue Requirements and Rates for Hydro One Networks Inc.[2], addressed adequacy of the evidence in support of four development projects – D7, D8, D9, and D10. For convenience attached as Appendix B are two pages from that Decision, highlighting the Board's findings for projects D7 and D8.

In regard to the four noted Category 2 Development projects, in that May 28, 2009 Decision, the Board stated[2] in part that (emphasis added):

> *D7, D8, D9 and D10 are each intended to increase transmission system capacity* ***by reducing congestion****. …. Project D7, NE Transmission Reinforcement, SVCs at Porcupine and Kirkland Lake and D8, Series Caps at Nobel SS are intended to relieve congestion by 700 MW. ….*
>
> *The analysis supplied in support of project D5, the unbundling of the 500 kV circuits between Claireville TS and Cherrywood TS to relieve congestion, demonstrated that the benefits accrued from the avoidance of congestion outweigh the cost of the project.* ***Hydro One has not provided similar analysis for these four projects.***
>
> *There may be strong indications of the requirement to commence activities in these areas, but based on the record in this proceeding the* ***Board is not able to assess the prudence of the activities proposed by the applicant. The***

[1] Pre-filed evidence, 2009/2010 Electricity Transmission Rates for Hydro One Networks Inc., September 30, 2008, [Exh. D2/Tab 2/Sch. 3/Invest.Summary for Programs/Projects in excess of $3 million]

[2] Board Decision and Order, Re 2009, 2009/2010 Transmission Revenue Requirement and Rates for Hydro One Networks Inc., Chapter 6, Capital Expenditures. May 28, 2009, Section 6.5 Development Capital, 6.5.2, pages 47-48

> ***Board requires evidence that the transmission solutions proposed are prudent projects to achieve the cited congestion relief.*** *As an example, the economic analysis that was supplied in support of the Claireville to Cherrywood project is lacking for these four projects.*
>
> ***The Board will not approve these four projects at this time because of the evidence has not been sufficient.*** *The only evidence provided was a letter of recommendation from the OPA which the Board has already explained is not sufficient. No supporting evidence or analysis was provided.*

3.0 ANALYSIS

Hydro One's response to Board staff's No. 1 supplementary interrogatory[3] disagreed with Board staff's view that the obligation to adhere to government directives as well as government objectives is basically to connect these generation sources to the system. Board staff is of the view that projects designed **to reinforce the transmission system** to accommodate such generation needs, like projects D7 and D8, should be considered based on demonstrated benefits that exceed the cost of such reinforcement. Examples where demonstrated benefits that exceed the project cost has been provided are the Bruce – Milton project (EB-2007-0050), and the D5 project (the unbundling of the 500 kV circuits between Claireville TS and Cherrywood TS)[4].

Need for Projects D7 and D8

View of Hydro One

Hydro One indicated in various parts of its response to Board staff's No. 1 supplementary interrogatory[5] that:

- *The need to accommodate this new generation goes beyond simply providing the connection facilities to the network; rather it will largely deliver the renewable energy to other load centres in southern Ontario. [ref 5, page3, lines 8-10]*
- *These projects are not driven primarily by a need to eliminate or reduce energy congestion; they are driven by renewable generation projects (762 MW of committed and other resources) in addition to the 517 MW of*

[3] Exh I/Tab 1S/Sch. 92/pages 1-5 [Hydro Ones Response to supplementary interrogatories, dated October 7, 2009]
[4] Board Decision and Order, Re 2009, 2009/2010 Transmission Revenue Requirement and Rates for Hydro One Networks Inc., Chapter 6, page 48, first paragraph
[5] Exh I/Tab 1S/Sch. 92/pages 1-5 [Hydro Ones Response to supplementary interrogatories, dated October 7, 2009]

hydroelectric generation[6] and over 1250 MW of new renewable resources.[ref 5, page 4 lines 13-14 & and page 2, lines 1-8]

- *All these sources of generation would cause southbound flows on the North-South Interface to greatly exceed its present operating capability of 1400 MW. This was confirmed by the OPA in its supplemental supporting evidence[7]*
- *Completion of projects D7 and D8 in addition to meeting planned and committed renewable generation resources in Northern Ontario, they mitigate the potential for significant interruptions to load customers north of New Liskeard as the peak southbound transfers, and the duration during which the transfer level exceeds the 650 MW are likely to increase as new planned hydroelectric generation comes in service north of Porcupine TS. [ref 5, page 4, lines 18-30]*
- *In addition, there are no reasonable alternatives that provide the required capability and meet the required in-service date, as described in the qualitative analysis of options for project D7 at B-1-3 and at B-2-3 for project D8. [ref 5, page 4, lines 14-17]*
- *The need to do the type of quantitative economic evaluation suggested by Board staff is not warranted.[ref 5, page 4, lines 17-18]*

View of Board staff

Board staff is of the view that the supplementary evidence filed by Hydro One in regard to Projects D7 and D8, though helpful where it added more details and context to the additional generation, description of alternatives, and implications of that generation on the transmission system, did not present quantitative economic cost/benefit analysis as required by the Board's Filing Requirements[8] for such projects.

Hydro One in its supplementary evidence is relying on establishing need based on new generation projects in addition to addressing reliability concerns for customers north of New Liskeard. The reliability concern is a result of the flow from new generation sites when a single contingency occurs on the single 500 kV circuit. Hydro One asserts that the need is justified because the cumulative expected MW exceeds the capability of the transmission system. It lists the following directives and generation forecasts as the basis for that assertion:

[6] OPA was required to procure by the Minister of Energy under the "Hydroelectric Energy Supply Agreements ("HESA") directive
[7] Exh C/Tab 1/Sch. 2
[8] Board Filing Requirements for Transmission Rate Applications and Leave to Construct Projects, November 14, 2006, section 5.3.2

1) Ministry of Energy directive[9], in regard to developing about 500 MW of hydroelectric generation;

2) Additional generation from variety of technologies amounting to 762 MW (updated projections[10]);

3) maintaining the supply reliability for customers north of New Liskeard in the event of a single contingency on the 500 kV single–circuit, which also contributes to meeting the IESO's criteria in assessing connection proposals[11]

Board staff submits that Hydro One's non-discretionary obligation to the noted Ministry directives and to the planned generation resources by the OPA to meet Government objectives, is to provide connections to generating sites i.e., connect such generation sites to Hydro One's transmission system. These generating sites can be either specific sites, or sites that would be established after contracting is completed between the OPA and the project proponent.

Board staff further submits that options and plans on how to modify the transmission system to accommodate the generation projects on its system should then be carried out by judiciously evaluating alternatives to select the most suitable one based on economic evaluation of alternatives. This is regarded according to the Board's "Filing Requirements"[12] as a discretionary project and as such should be accompanied by quantitative economic evaluation and should be documented and filed for approval as was done for the Bruce-Milton project (EB-2007-0050).

Hydro One's Rationale for not Performing Economic Evaluation

Hydro One indicated in its response to Board staff's No. 1 supplementary interrogatory[13] various reasons for not performing economic evaluation for projects D7 and D8. These reasons are summarized below:

<u>Economic Evaluation based on Avoided Costs</u>

Hydro One disagreed with Board staff that the Board requires a quantitative economic evaluation of the projected benefits that are attributed to the reinforcements, measured on the basis of avoided costs over a period of 15-20 years. It is important to note that such studies have been done in the past and have been based on either

[9] Ministry of Energy directive dated December 20, 2007 in regard to "The Hydro Electric Energy Supply Agreements" to develop about 500 MW of hydroelectric generation (from 4 specific projects)
[10] Supplementary Evidence, Exh C/Tab 1/Sch 2/p. 7/ Table 4
[11] Ontario Resource and Transmission Assessment Criteria
[12] Filing Requirements for Transmission and Distribution Applications, November 14, 2006 (EB-2006-0170)/Section 5.2.2 (Project Need) and Section 5.3.2 (Options and Cost Benefit Analysis)
[13] Exh I/Tab 1S/Sch. 92/pages 1-5 [Hydro Ones Response to supplementary interrogatories, dated October 7, 2009]

potential congestion reduction as in the justification of Project D5[14], or alleviated bottled energy as in the evidence for the Bruce – Milton project[15]. Hydro One has provided these evaluations with the help of the OPA and/or IESO.

Hydro One offered the following reasons for not performing supporting economic evaluation:

- Hydro One indicated that the Board did not request an economic evaluation of Hydro One; presumably on the basis that this information is not necessary pursuant to the Board's filing requirements given the nature of the proposed facilities (i.e., nondiscretionary) and the basis for which the reinforcements are needed. [ref 5, page 4, lines36-39]
- Hydro One stated that congestion relief is not the primary driver for the proposed facilities. [ref 5, page 4, lines 13-14 & lines 39-40]
- Hydro One indicated that the primary driver for this project is the need to provide additional transmission capability to facilitate connection of new renewable generation resources required by and consistent with Government policy. In addition, congestion studies of the sort requested by Board staff are fairly complex undertakings. [ref 5, page 4, lines 40-44]
- Hydro One concluded that in order to achieve reasonable results, these congestion studies require a significant amount of data and resources including detailed information, amongst other things, about the type and characteristics of future generation resources, load forecast and electricity prices. Furthermore, the study results obtained from such an undertaking would provide the Board with little, if any, information of value towards its review of the project need. [ref 5, page 4, line 44 to page 5, line 5]

Economic Evaluation based on Loss of Load to Customers

Board staff also asked if Hydro One would provide an economic evaluation based on the assessment of the loss of load probability for load customers north of New Liskeard[16], assuming the incorporation of the new generation resources without installation of the SVCs at Porcupine TS and Kirkland Lake TS (D7).

[14] Board Decision and Order, Re 2009, 2009/2010 Transmission Revenue Requirement and Rates for Hydro One Networks Inc., Chapter 6, page 48, first paragraph
[15] Board Decision and Order, dated September 15, 2008 granting leave to construct the Bruce-Milton Transmission Line
[16] Exh I/Tab 1S/Sch 94, Hydro One's response to Board staff supplementary interrogatory No. 94

Hydro One indicated that given the non-discretionary nature of projects D7 and D8, and the fact that both projects are needed to support the connection of the committed renewable resources, there is no benefit from completing the requested study.

4.0 REQUIREMENT FOR QUANTITATIVE ECONOMIC EVALUATION

Board staff is concerned that supporting evidence presented by Hydro One for two interrelated projects with combined investment of about $150 M should be supported by evidence that includes quantitative justification. Hydro One is relying on government directives as well as on OPA evidence of committed and planned generation resources to classify projects as non-discretionary but this is not a substitute for quantitative analysis.

Board staff's view is that the government directives and obligations to comply with such directives requires that Hydro One connect such projects, but that any reinforcements to reduce congestion or alleviate bottled energy must be supported by quantitative economic evaluation. Board staff notes that Hydro One' evidence[17] (see Appendix A to this submission) identifies increasing congestion as one of the main drivers for the two projects by stating in part that:

> *In order to mitigate concerns about increasing congestion on the N-S Interface and to enable renewable generation in the north as per the Government's direction, the OPA has recommended near term measures to enhance the N-S transfer capability and the transmission system north of Sudbury. These measures include: installation of series capacitors ("SC") at Nobel SS to provide 50 % compensation on the two 500kV lines, and installation of - 100/+300MVar static var compensator ("SVC") at Porcupine TS and +200MVar SVC at Kirkland Lake TS.*
>
> *This project was identified in the IESO's December 2006 Ontario Reliability Outlook, and the IESO System Impact Assessment Reports (CAA ID 2004-160 and 2006-223) for the SC and SVC projects have been completed.*
>
> ***Results:***
> - *Reduce or eliminate generation congestion in the north by increasing the N-S transfer capability by 500MW to 1,800MW without Generation Rejection ("GR") and by 750MW to 2,150MW with GR.*
> - *Enable OPA to successfully procure approximately 550MW of renewable generation north of Sudbury.*
> - *Address concerns about the risk of supply reliability for electricity customers in northeastern Ontario.*

Board staff is of the view that even if the two projects (D7 and D8) were classified as Non-Discretionary, the filing requirements call for economic evaluation, and should especially be provided for two interrelated projects with combined investment of $150

[17] Ex. D2/Tab 2/Sch. 3/Invest.Summary for Programs/Projects in excess of $3 million/Summary, last sentence and Results

million. In that regard, Board staff filed an interrogatory[18] on the pre-filed evidence, regarding the noted Filing Requirements as it relates to Projects D7 and D8, in which it was pointed out that regardless whether a Project is deemed Discretionary or Non-Discretionary, according to the Filing Requirements[19] economic evaluation for such projects are needed. In that interrogatory Board staff indicated that:

> *"… even though the net present value for a nondiscretionary project need not be shown to be greater than zero, an evaluation of the economic benefits e.g., the evaluation of the reduced congestion on the system is appropriate."*

Expected New Projects: Connection versus System Reinforcement Projects

In the upcoming years, as outlined in a recent letter from the Ministry of Energy and Infrastructure the Board will be reviewing a large number of projects. In that letter it is indicated that Hydro One should seek approvals for the upgrades as soon as there is a reasonable basis to do so. Board staff is of the view that any projects that are not directly connecting new generation sites or load customers must be justified based on demonstrating that the benefits will exceed the costs, except where such projects are non-discretionary due to the strict criteria as outlined in the Filing Requirements, rather than as interpreted by Hydro One.

5.0 CONCLUSION:

Board staff is of the view that the onus rests upon Hydro One to comply with the Board's filing requirements for transmission projects. In the case where this has not been done the Board could appropriately deny recovery of costs through rates.

As argued above, the Board might direct Hydro One to submit evidence similar to that submitted for either Project D5[20] which evidence was accepted by the Board, or evidence similar to that submitted for the Bruce-Milton project, which evidence was the basis for obtaining Board approval[21]. The economic analysis can also be augmented by presenting quantitative assessment of the loss of load probability for load customers north of New Liskeard. Such quantitative economic evaluation would

[18] Hydro One's Response to Board Staff IR # 61 in regard to Projects D7 and D8, dated December 23, 2008 (Exh I/Tab 1/Sch. 61/p. 1.
[19] Filing Requirements for Transmission and Distribution Applications, November 14, 2006 (EB-2006-0170)/Section 5.2.2 (Project Need) and Section 5.3 Project Justification and 5.3.2 (Options and Cost Benefit Analysis)
[20] Board Decision and Order, Re 2009, 2009/2010 Transmission Revenue Requirement and Rates for Hydro One Networks Inc., Chapter 6, page 48, first paragraph
[21] Board Decision and Order, dated September 15, 2008 granting leave to construct the Bruce-Milton Transmission Line.

give an indication of the value of unsupplied energy to customers under certain contingency events.

All of which is respectfully submitted.

End of document

Appendix A

D7 and D8 Projects Description

Extracts – Prefiled Evidence, September 30, 2008

[Exh. D2/Tab 2/Sch. 3/Invest.Summary for Programs/Projects in excess of $3 million]

Investment Type: Inter-Area Network Transfer Capability

Reference #	Investment Name	Gross Cost	In-Service Date
D7	Northeast Transmission Reinforcement: Installation of Static Var Compensators at Porcupine TS and Kirkland Lake TS	$108.6M	Late 2010
D8	Installation of Series Capacitors at Nobel SS	$47.2M	Late 2010

Please see Exhibit D1, Tab 3, Schedule 3, Table 2 for cash flow and other details about each project.

Need:

To relieve congestion on the North-South ("N-S") Interface in order to access available northern generation, and to enable incorporation of additional committed and planned renewable generation in northern Ontario in accordance with Ontario Power Authority ("OPA") recommendation and the Government directives. These projects will also ensure that the transfer of power from committed and planned generation will not have adverse impact on the supply reliability to electricity consumers in northeastern Ontario. Not proceeding with these investments would result in bottling of economic generation in northern Ontario and utilization of uneconomic generation in the south during peak loading conditions.

Summary:

The existing north and south electricity systems in Ontario are interconnected by two 278km long 500kV single circuit lines between Hanmer TS and Essa TS and one 91km long 230kV single-circuit line between Otto Holden TS and Des Joachims TS. These circuits comprise the N-S Interface, which allows transfer of generation that is surplus to northern Ontario into southern Ontario during critical peak load conditions.

Currently, the N-S Interface has a transfer capability of 1,300MW without Generation Rejection ("GR") or 1,400 MW with GR based on voltage and transient stability considerations. With the recent addition of new generation and the reduction of load in northern Ontario, the transfer capability limitations on the N-S Interfaces have resulted in constraining up to 400MW of economic generation, mostly during the critical peak load conditions. The congestion across the N-S interface is expected to increase further over the next few years as over 500 MW committed and planned generation will be placed in-service in the north.

In order to mitigate concerns about increasing congestion on the N-S Interface and to enable renewable generation in the north as per the Government's direction, the OPA has

recommended near term measures to enhance the N-S transfer capability and the transmission system north of Sudbury. These measures include: installation of series capacitors ("SC") at Nobel SS to provide 50 % compensation on the two 500kV lines, and installation of - 100/+300MVar static var compensator ("SVC") at Porcupine TS and +200MVar SVC at Kirkland Lake TS.

This project was identified in the IESO's December 2006 Ontario Reliability Outlook, and the IESO System Impact Assessment Reports (CAA ID 2004-160 and 2006-223) for the SC and SVC projects have been completed.

Results:

- Reduce or eliminate generation congestion in the north by increasing the N-S transfer capability by 500MW to 1,800MW without Generation Rejection ("GR") and by 750MW to 2,150MW with GR.
- Enable OPA to successfully procure approximately 550MW of renewable generation north of Sudbury.
- Address concerns about the risk of supply reliability for electricity customers in northeastern Ontario.

Project Classification per OEB Filing Guidelines / IPSP Status:

Project Class	Development
Project Need	Non-Discretionary: The projects are required to incorporate new renewable generation in northern Ontario to satisfy government directive(s), and to support the OPA's recommendation
IPSP Reference	Pre-IPSP: This project was referenced in the IPSP Discussion Document (November 13, 2006) and/or in the IPSP (August 29, 2007) on the basis that, in order to meet the required need date, the project would be initiated by Hydro One prior to IPSP approval.

Appendix B

Board Findings Re Projects D7 and D8

Extract from Decision and Order, Hydro One Networks Inc. Transmission Revenue Requirements, May 28, 2009

[Chapter 6, Capital Expenditures, Section 6.5 Development Capital, 6.5.2, pages 47-48]

Projects D7, D8, D9 and D10

Projects D7, D8, D9 and D10 are each intended to increase transmission system capacity by reducing congestion. The aggregate cost of these projects is about $175 million. Project D7, NE Transmission Reinforcement, SVCs at Porcupine and Kirkland Lake and D8, Series Caps at Nobel SS are intended to relieve congestion by 700 MW. Projects D9 and D10, when combined with project D11 (for which approval has not been sought in this application), are intended to reduce congestion by 130 MW. Hydro One has not received a recommendation from the OPA with regard to projects D9, D10 and D11. It does not intend to proceed with the projects until it receives the OPA recommendation.

The analysis supplied in support of project D5, the unbundling of the 500 kV circuits between Claireville TS and Cherrywood TS to relieve congestion, demonstrated that the benefits accrued from the avoidance of congestion outweigh the cost of the project. Hydro One has not provided similar analysis for these four projects.

There may be strong indications of the requirement to commence activities in these areas, but based on the record in this proceeding the Board is not able to assess the prudence of the activities proposed by the applicant. The Board requires evidence that the transmission solutions proposed are prudent projects to achieve the cited congestion relief. As an example, the economic analysis that was supplied in support of the Claireville to Cherrywood project is lacking for these four projects. The applicant should note that for that project the Board concluded that due to other factors there was a probability that the benefits would be higher than currently indicated and that that compensated for the lack of evidence supporting the social discount rate used. The normal expectation would be that the selection of the social discount rate would be substantiated with supporting evidence.

The Board will not approve these four projects at this time because of the evidence has not been sufficient. The only evidence provided was a letter of recommendation from the OPA which the Board has already explained is not sufficient. No supporting evidence or analysis was provided.

The Board recognizes that Hydro One's application was predicated on its position regarding the role of the OPA and specifically the significance of the OPA recommendations related to these projects. As indicated earlier, the Board does not

accept Hydro One's position, and as a result requires the type of analysis described in the *Filing Requirements for Transmission and Distribution Applications*.

The Board will keep this part of the proceeding open and will provide Hydro One with the opportunity to provide additional evidence on these projects for purposes of setting 2010 rates. Hydro One should file this evidence no later than November 30, 2009. The Board will ensure a streamlined process to consider any new evidence on these projects. If necessary, the Board will declare the 2010 rates interim at the appropriate time in order that the rate impacts of these projects can be included in the event the Board approves the projects.