ONTARIO ENERGY BOARD

BOARD STAFF SUBMISSION

Hydro One Networks Inc.

2013 Transmission Rates

Export Transmission Service Rate

EB-2012-0031

March 22, 2013

Board Staff Submission
Hydro One Networks Inc. Transmission
EB-2012-0031
2013 Export Transmission Service Rate

Background

Hydro One Networks Inc. ("Hydro One") filed an application seeking approval for changes to its 2013 and 2014 transmission revenue requirement and for changes to the provincial uniform transmission rates charged for electricity transmission.

A Settlement Conference was held in which parties achieved settlement on all but one issue, namely Issue #23 from the approved Issues List: "What is the appropriate level for Export Transmission Rates in Ontario?"

The Settlement Proposal was approved by the Board in an oral decision on November 8, 2012. On December 7, 2012 the Board issued a Decision on Interim Rates and Procedural Order #10, declaring Hydro One's current Export Transmission Service (ETS) rate of $2.00/MWh as final as of January 1, 2013 until such time as the Board makes its decision in this proceeding.

Export Transmission Rate Issue

In its Decision concerning Hydro One's 2011 and 2012 Transmission Rates (EB-2010-0002), the Board considered changes to the ETS rate. A rate of $1.00/MWh had been established at the time of market opening as a placeholder with the acknowledgment that it was "not the product of an objective, principled or pragmatic study."[1]

In EB-2010-0002, the Board increased the ETS rate to $2.00/MWh but concluded that, "…the most pressing requirement is that a genuinely comprehensive study be undertaken to identify a range of proposed rates and the pros and cons associated with each proposed rate in time for the next transmission rate application."[2] The Board stated that the Independent Electricity System Operator ("IESO") was the most appropriate party to undertake the study and directed the

[1] EB-2010-0002, Decision with Reasons, p. 74
[2] EB-2010-0002, Decision with Reasons, p. 75

IESO to procure the study and circulate the terms of reference to ensure that the scope is sufficiently broad and well-defined.[3]

The IESO selected Charles River Associates (CRA) to perform the study in December 2011. After a number of stakeholder consultations in 2012 CRA completed the study and the IESO presented the final results to Hydro One. In July 2012 Hydro One filed the study as part of the application as Exhibit H1-5-2 Appendix B ("CRA Study").

In October 2012, the Association of Power Producers of Ontario (APPrO) filed a report by Cliff Hamal, Managing Director, Navigant Economics ("Navigant") entitled "Evaluation of the Export Tariff" ("Navigant Report"). APPrO also included the evidence of Marc-Andre Laurin, Senior Trader, Brookfield Energy Marketing LP also entitled "Evaluation of the Export Tariff" ("Brookfield Report").

Also in October 2012, HQ Energy Marketing Inc. filed evidence prepared by Elenchus Research Associates Inc. ('Elenchus") entitled "Ontario Cost Allocation and Export Tariff Service" ("Elenchus Report").

In Procedural Order No. 8 the Board determined that it would require CRA, Navigant and Elenchus to participate in an expert pre-hearing conference (the "Experts' Conference") in accordance with Rule 13A(b) of the Board's *Rules of Practice and Procedure*. The Experts' Conference took place on December 13 and 14, 2012 and included Dr. Ira Shavel and Dr. Andy Baziliauskas from CRA, Mr. Hamal from Navigant and Mr. Michael Roger from Elenchus. A Joint Written Statement ("Joint Statement") was filed with the Board on January 16, 2013.

Procedural Order No. 9 addressed procedural aspects of the hearing and directed that the experts from CRA, Navigant and Elenchus sit as a concurrent expert witness panel, along with Mr. Darren Finkbeiner of the IESO. Mr. Laurin was to provide testimony as a separate witness panel.

An oral hearing was held on February 25 and 26, 2013. At the conclusion of the hearing the Board directed the parties to file written submissions, with the IESO filing its submission first.

The IESO filed its Submissions on March 8, 2013.

[3] EB-2010-0002, Decision with Reasons, p. 75

Board Staff Submissions

Board staff provides these submissions within the context of the Board's statutory objectives[4] which are most relevant to the issue before the Board, namely:

1. To protect the interests of consumers with respect to prices and the adequacy, reliability and quality of electricity service.
2. To promote economic efficiency and cost effectiveness in the generation, transmission, distribution, sale and demand management of electricity and to facilitate the maintenance of a financially viable electricity industry.

Board staff submits that when considering the level of ETS tariffs, the above-noted objectives need to be balanced by the Board in determining the appropriate ETS rate. Board staff also notes that, when the Board initially set the original tariff of $1.00/MWh it did so with an acknowledgement that users of the transmission system should pay for this service and stated that, "…the appropriate charge level of exporters that would help defray costs for domestic transmission customers".[5]

This submission sets out the main points of the CRA Study, followed by more specific submissions on the following issues: The Components of Total Surplus (consumer surplus; producer surplus; intertie congestion revenue and rents); Economic Efficiency; Cost Allocation Principles; and, Future Monitoring and Evaluation.

The CRA Study

The CRA Study reviewed the tariff rates and structures in neighbouring markets, assessed the proposed rate options on the basis of conformance with generally accepted rate making principles (consistency, simplicity, fairness and efficiency) and attempted to quantify the impact of each of the tariff options on Ontario consumers, producers and the Ontario Market as a whole.

Five options, including the status quo, were modeled for 2013, 2015 and 2017 using CRA's North American Energy and Environment Model ("NEEM") as follows:

- Unilateral elimination ("UE") of Ontario's current tariff or $0/MWh ("zero tariff");
- Increase in the tariff to $5.80/MWh, the Equivalent Average Network Charge ("EANC");

[4] *Ontario Energy Board Act, 1998*, c.15, Sch. B ("OEB Act")
[5] RP-1999-0044, Decision with Reasons, May 26, 2000, p. 66

- A tiered rate of EANC, or $5.80/MWh during on-peak hours and $0/MWh in off-peak hours ("Two-Tiered A")
- A second tiered rate scenario of $3.50/MWh in the on-peak period, and a $1/MWh off-peak rate ("Two-Tiered B").
- These were compared to the current $2.00/MWh rate.

In general, parties agreed that the CRA Study was a useful and informative analysis. While Mr. Hamal cited some shortcomings in the CRA Study, he also acknowledged that, "CRA has done a comprehensive analysis, using tools that are often used in the industry. It's the only comprehensive analysis that has been done in this case. "[6]

In order to assess the impacts of each rate option, the CRA Study calculated the impacts on consumer welfare, producer welfare (more commonly referred to throughout the proceeding as "consumer surplus" and "producer surplus") and Intertie Congestion Revenue (ICR or IC Revenue). In aggregate, CRA indicated that these three elements provide a measure of "total welfare" or "total surplus" in Ontario.

Board staff submits that while the CRA Study is informative and helpful, the changes expected to result from the alternate scenarios modelled do not demonstrate significant improvements in total surplus over the current ETS rate of $2.00/MWh. Board staff is of the view that there was no compelling evidence provided in this proceeding that indicated that the current $2.00/MWh level is not in the best interests of consumers or that it causes economic inefficiency, which are the Board's statutory objectives most relevant to this proceeding.

Submissions on Components of Total Surplus

Consumer Surplus

Board staff generally accepts the analysis of the CRA Study with respect to impacts on consumer surplus in the various tariff scenarios. In particular Board staff agrees with CRA's conclusion that in 2013 for example, a zero tariff scenario would result in a $42 million reduction in ETS revenues and total reduction of consumer surplus of $16.1 million, when changes in the Global Adjustment (GA) and market payments are also factored in.[7]

[6] EB-2012-0031, TR Vol. 2, p. 35
[7] EB-2012-0031, Exhibit H1-5-2 Appendix B, p. 36 of 102 ("CRA Study")

Board staff also accepts the general principle in the CRA Study that a lowering or elimination of the ETS tariff would result in an increased consumer surplus with respect to the electricity *commodity.* This increase would be a result of the increased demand for exports which would result in decreases in the GA and uplifts paid by consumers, even while the HOEP increases.[8] Hence the *commodity* portion of Ontario consumers' bills would decrease.

The IESO Submission states that the UE option (zero tariff) provides the highest increase in consumer surplus, namely $25.9 million because of the increases in GA and uplifts.[9] However, it acknowledges that, while the zero-tariff scenario leads to the largest reduction in the *commodity* portion of the customer bill, due to the impact of reduced ETS revenues there would be a *total* bill increase.[10]

It is not clear to Board staff why the IESO's Submission with respect to consumer surplus only considers the commodity change and does not take into account the $42 million reduction in ETS revenue in a zero tariff scenario. When the two amounts are combined there is still a net loss of approximately $16 million in consumer surplus in a zero tariff scenario which is consistent with the CRA Study as noted above.[11]

Producer Surplus

Both the CRA and APPrO experts agreed that, due to the unique structure of the Ontario market any calculated producer surplus is associated with Ontario Power Generation's (OPG) non-prescribed hydro-electric generation. Producer surplus would affect OPG's net income, and as OPG is owned entirely by the province, any increase in the Producer Surplus should benefit Ontario as a whole.

Board staff notes that there is no evidence on the record of this proceeding that quantifies how producer surplus benefits Ontario as a whole, or ratepayers more particularly. Hence, Board staff questions whether the purported quantum of the producer surplus should be given as much weight as consumer surplus in determining the greatest 'total' surplus for Ontario residents.

[8] CRA Study, pp. 88-91 of 102
[9] IESO Submission, page 1, Table 1 excludes ETS revenue changes; IESO Submission, Appendix A, pp. 1-2, Table A1 sets out the 'commodity' surplus only.
[10] IESO Submission, Appendix A, p. 3, Table A3 ("Impact to Consumer Bills")
[11] CRA Study, p. 36, Table 7

Intertie Congestion Revenue and Rents

Intertie Congestion Revenue is calculated in the CRA model as the difference between the price in the export market and the export cost (HOEP + Uplift + ETS tariff) plus friction.[12]

While both CRA and Navigant agreed in the Joint Statement that "IC Revenue associated with exports accrues to the benefit of Ontario", there was disagreement as to the ultimate recipients of IC Revenue. [13]

Mr. Hamal's position in the Joint Statement was that all the IC Revenue as calculated by the CRA model, should accrue to the IESO as IC Rent.[14]

CRA did not offer an opinion about the ultimate recipients of IC Rent. CRA noted its understanding that IC Rent collected by the IESO has largely funded shortfalls in the IESO's transmission rights (TR) account, and has therefore been disbursed to TR holders.[15]

On cross-examination IESO's witness, Mr. Finkbeiner clarified who "transmission rights holders" were:

> MR. FINKBEINER: ….. Transmission rights holders are either traders trying to hedge against transactions across interties, or speculative investments by people who are either not trading at that instant in time, financial institutions, individuals in the marketplace.[16]

Included in APPrO's Hearing Compendium is the Market Surveillance Panel's Report ("MSP Report") which indicates that, since market opening in May 2002 to April 2012, TR payments have totaled $564 million. [17] However, the IC Rent actually collected was only $414.6 million, leaving an IC Rent shortfall of $150 million which was covered by Transmission Rights auction revenue (TR auction revenue) of $271.2 million.[18]

[12] Joint Written Statement, p.6
[13] Joint Written Statement, p. 5
[14] Joint Written Statement, p. 10
[15] Joint Written Statement, p. 10
[16] EB-2012-0031 TR Vol. 2, p. 101, lines 20-26
[17] Market Surveillance Panel, "Monitoring Report on the IESO-Administered Electricity Markets for the period from November 2011-April 2012", January 2013 in Exhibit K2.5 ("APPrO Hearing Compendium"), Tab 3 ("MSP Report")
[18] MSP Report, page 155, Table 3-2, APPrO Hearing Compendium, Tab 3

On cross-examination Mr. Hamal acknowledged that, even if there was an increase in IC Rent and an expected increase in TR auction revenue under a zero tariff scenario," the potential for shortfall is always there".[19]

In terms of how much of the IC Revenue has been available, Mr. Finkbeiner indicated that the IESO intends to distribute $42 million to transmission customers in 2013 in addition to a previous distribution of $57 million for a total of $99 million paid over the 2002 to 2012 period.[20]

In light of the evidence given above, Board staff submits that it is not clear that an increase in IC Rents or IC Revenue (which includes TR auction revenue) would be available for the benefit of ratepayers or Ontario residents generally, nor that it would be available in the amounts indicated in the CRA Study. In Board staff's submission, the foregoing discussion indicates that:

- In the past few years the IESO has sold more TRs than it collected in IC Rent such that there was a shortfall and TR auction revenues were used to cover TR payouts to TR holders;[21]
- The IESO has yet to study and implement the recommendation of the MSP that the number of TRs that are auctioned should be balanced with the amount of TR payouts made;
- TR holders are not necessarily located in Ontario so not all IC Rent is for the benefit of "Ontario" in broadest terms;[22]
- The amounts that are left over, after TR payouts, that would benefit Ontario transmission customers are actually the balance of the TR auction revenue and not paid out from IC Rent;
- There is 'great volatility in TR payouts' and although the IESO expects to undertake a review next year, at this time the level of payments for the next couple years is highly uncertain.[23]

[19] EB-2012-0031 TR Vol. 2, p. 103-104
[20] EB-2012-0031 TR Vol. 2, p. 54
[21] MSP Report, p. 153-54, "…there have been significant congestion rent shortfalls that have had to be covered by TR auction revenues…the IESO's position has been that it is appropriate to use auction revenues to cover TR payouts where there are congestion rent shortfalls….This interpretation of the Ontario market design has, in the Panels' view, led to the overselling of TRs, resulting in additional congestion rent shortfalls that have had to be covered by TR auction revenues."
[22] EB-2012-0031 TR Vol. 2, p. 173
[23] EB-2012-0031 TR Vol. 2, p. 107

Board staff submits that, given the uncertainty with respect to TR auction revenue or payouts or how much will be needed to cover the TR payouts, there is no certainty with respect to the increase in IC Revenue predicted to result from a zero tariff scenario.

In the circumstances, Board staff submits that the Board should not place undue weight on the ICR component of the 'total surplus' expected to result from various tariff scenarios.

Board Staff Submissions with respect to Economic Efficiency

As indicated above, the Board's statutory objectives include "economic efficiency and cost effectiveness, namely:

> 2. To promote economic efficiency and cost effectiveness in the generation, transmission, distribution, sale and demand management of electricity and to facilitate the maintenance of a financially viable electricity industry.

The IESO Submission states that the Unilateral Elimination option (zero tariff) would best encourage the efficient use of electricity and promote economic efficiency in the generation, transmission and sale of electricity. Board staff offers the following submissions in response to the IESO Submission.

Efficient Use of Generation

The IESO Submission measures the efficient use of generation assets in relation to "total surplus" (consumer surplus, producer surplus and ICR).[24] As discussed in the preceding sections of this submission, Board staff does not agree that a zero tariff scenario results in a consumer surplus increase of $25.9 million (in 2013), as per the IESO Submission, but rather a decrease of approximately $16 million.

Furthermore, as discussed above, Board staff is not persuaded that an increase in IC Revenue would benefit Ontario ratepayers or residents and, in any event, the total quantum of the IC Revenue cannot be estimated accurately. Hence, Board staff is not persuaded that those 2 components of the 'total surplus'- consumer surplus and IC Revenue – will increase and thereby contribute to more efficient use of generation assets, as the IESO argues.

[24] IESO Submission, March 8, 2013 p. 6

Surplus Baseload Generation

There was much discussion and concern raised over the fact that trading was not being optimized during periods of surplus baseload generation (SBG). The experts were divided on the issue. The CRA Study indicated that the SBG is invariant to all of the ETS tariff scenarios,[25] and that export volumes during SBG periods are influenced by a variety of non-economic factors which are difficult to model.[26]

Mr. Hamal argued that CRA's analysis assumes that transmission lines are always constrained during SBG situations and that this assumption is not reasonable or consistent with historical SBG conditions.[27] Mr. Hamal also maintained that the correlation between tariffs and trading behaviour should be further evaluated. Board staff notes that the IESO has found in the past that export volume is highly sensitive to price, for example with respect to Ontario exports to New York.[28]

Mr. Finkbeiner indicated that there was not a strong correlation with the maximized utilization of the interties during SBG.[29] This was confirmed when Undertaking J2.1 was submitted, which showed that during hours of SBG, 60% of the time there was no congestion and 40% of the time where at least one intertie was congested.

All parties indicated that there are non-price factors that limit the ability of marketers to sell outside the province to take advantage of the price separations during SBG periods.[30] Board staff recommends that the IESO investigate any non-price obstacles to trading that are within its purview that might facilitate additional SBG trading. However, even if such non-price obstacles were removed it would not dispense with the likelihood that price (which should factor in the ETS tariff) affects exports.

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[25] CRA Study, p. 31 of 102
[26] Joint Written Statement, p. 17
[27] Navigant Report, pp. 24-25
[28] "Estimating the price elasticity of export demand in the Ontario electricity market", An IESO Working Paper by the Market Evolution Analysis and Research Group, 2008-01, Section III (Results). The Working Paper was briefly mentioned in the Navigant Report at page 26. The Working Paper found, for example, that a 1% increase in the Ontario price results in approximately 5% decline in export volume.
[29] EB-2012-0031 TR Vol. 2, p. 75
[30] CRA Study, page 10; Evaluation of the Export Tariff, page 26; Joint Statement, page 17, TR Vol 2, p. 27 (Dr. Shavel); TR Vol. 3, p. 47 (Dr. Baziliauskas); TR Vol. 3, p. 135 (Mr. Laurin).

Staff believes that SBG is an important issue and that the Board would have been assisted by more analysis on whether a lower or zero tariff might increase SBG trading. Board staff tends to believe that a zero price in the off-peak period would have some beneficial effect on SBG exports in that period, but acknowledges that there was no compelling evidence to that effect in this proceeding. Board staff recommends that the IESO undertake further monitoring, study and modeling, if appropriate, to determine the effect of tariff changes on trading behaviour, with particular reference to SBG trading.

Efficient Use of Transmission Interties

Board staff agrees that generally accepted rate-making principles indicate that rates should be designed such that excess capacity of utility assets is put to use, in this case so that intertie assets are used more efficiently.

While Board staff agrees that, as a general proposition, lower or no tariff options would likely lead to increased trade it does not necessarily follow that this would result in more efficient use of transmission interties. The increased trade may occur mainly during on-peak periods when there is no under-utilization of intertie assets under the present ETS tariff.

If there was increased trade it may occur during periods of high congestion that might require additional investment in intertie assets in order to relieve congestion. If there was increased trade (as a result of a zero tariff) during off-peak periods, that could lead to more efficient use of intertie assets. However, the evidence in this proceeding does not indicate that a lower or zero tariff would likely lead to more exports during off-peak or low congestion periods.

Cost Allocation and Efficiency in Export Service Pricing

Mr. Hamal agreed with the Elenchus Report that export loads impose less cost on the system, and goes on to state in his discussion points (# 16) that "Exports may impose as little as zero incremental cost."[31]

[31] Navigant Discussion Points filed on December 7, 2012, p. 5

The IESO's Submission quotes, from Elenchus Report, the reference to Professor Kahn's respected textbook which states that, "In the presence of excess capacity, utility companies ought to make every effort to design rates, down to SRMC (Short Run Marginal Cost), to put [the excess capacity] to use."[32]

Board staff agrees that the objective of efficiency includes an outcome in which production facilities would be dispatched to generate electricity at lowest aggregate cost across the region. However, the logic applies to all transmission, not just the inter-ties between jurisdictions. Further, the logic would apply to the export tariffs of the neighbouring jurisdictions, not just Ontario. Finally, Board staff cautions that the context of this brief quote is explained by Professor Kahn as the particular situation where customers do not require rate stability over the course of the business cycle or planning cycle in order to make economic investment decisions of their own. This stipulation may or may not apply to the producers and customers involved in the export market.

Submissions on Cost Allocation Principles

The Elenchus Report generally advocated for the application of cost causality principles in setting an ETS rate.

As indicated in the introduction of this submission, when setting the initial $1.00/MWh rate in EB-1999-0044 the Board did so, on the principle that that users of an asset should contribute to its costs in the form of an "appropriate charge".

Board staff believes that determining the 'appropriate charge' may be achieved, in part, by a cost allocation study.

In testimony, Mr. Roger indicated that a cost causality study did not need to be very expensive.[33]

Board staff agrees that if a cost allocation study could be undertaken for a reasonable cost, then such a study would be beneficial in determining the cost of Export Transmission Service and would provide useful information to the Board in the future in setting the ETS tariff. Board staff submits that Hydro One be directed to do such a study and report back to the Board within 2 years.

[32] IESO Argument-in-Chief, p. 8
[33] EB-2012-0031 TR Vol. 3, pp.56-57

Submissions on Future Monitoring and Evaluation

In the oral hearing Board staff asked a number of questions regarding the use of the CRA model in monitoring the results of the ETS tariff that the Board approves in this proceeding. The witnesses (Dr. Shaval, Dr. Baziliauskas, Mr. Hamal and Mr. Finkbeiner) all agreed that monitoring would be helpful. Mr. Shaval also indicated that it could be done for reasonable cost.[34]

Board staff submits that the Board should direct Hydro One to institute a monitoring process based on the current CRA model, to evaluate the outcomes after the EST tariff is set in this proceeding. This monitoring would inform the Board for it next sets the tariff in conjunction with the completion of the cost allocation study recommended above.

Summary and Conclusions

In this submission, Board staff recommends general acceptance of the CRA Study, questions the benefits provided for consumers through the producer surplus and IC Revenue and concludes that the Unilateral Elimination (zero tariff) option is not preferred.

Although on its face, the CRA Study indicates that Unilateral Elimination of the current tariff yields the highest total surplus in 2013 and 2014, in this scenario the consumer surplus is reduced while increased producer surplus and IC Revenues supposedly make up for the reduction in consumer surplus. However, because Board staff finds questionable the consumer benefits of both the producer surplus and the IC Revenue Board staff is not in favour of the UE (zero tariff) option because it does not benefit consumers and does not best fulfill the Board's statutory objective of consumer protection. As discussed above, Board staff is also not convinced that a zero tariff results in economic efficiency and cost effective use of generation and/or intertie assets

Board staff notes that the CRA Study's model results for each scenario show only marginal changes (when considered in the context of the total electricity export market) and therefore is of the view that it would be an appropriate option

[34] EB-2012-0031 TR Vol. 2, p. 94

for the Board to continue with the current $2.00/MWh rate pending further review of ETS rate options.

Board staff sees the potential merit in the Two-Tiered Option B put forth in the CRA Study and also invites comment from the IESO on the alternative suggested by Mr. Hamal of $2.50/MWh on-peak and $0/MWh off-peak.[35] Board staff surmises that either of these two options may help to alleviate the SBG issues through the lower off- peak rate, but also invites the IESO to pursue other options on this front.

Finally, Board staff advocates further monitoring of the ETS tariff approved and recommends that a cost allocation study be conducted to determine the actual costs of the ETS service, in an effort to determine a tariff that is cost based.

- All of which is respectfully submitted -

[35] Navigant Report, p. 49 and EB-2012-0031 TR Vol. 3, pp.93-99