

REVISED

Naren Pattani, P.Eng. (Retd)
Oakville, ON
Phone: 905-845-8316
E-Mail: Naren.Pattani@outlook.com

September 6, 2022 (Revised)

BY E-MAIL TO: Registrar@oeb.ca

To: Ms. Nancy Marconi
Registrar
Ontario Energy Board

Dear Ms. Marconi,

**Subject: EB-2021-0243 (Phase 1 – Export Transmission Service Rate)
Submission of Comments**

As per Procedural Order No. 3 for the subject proceeding, I submitted my comments regarding the Export Transmission Service (ETS) Rate early this morning.

This document needs to be revised to align with the revised data provided by the IESO in Exhibit JT-1.7 of August 4, 2022. My apologies for not having picked up on IESO's revisions earlier and any inconvenience as a result.

Sincerely,

Naren Pattani
Intervenor

cc: Michael Price, OEB Case Manager
James Sidlofsky, OEB Counsel

..

September 6, 2022

**SUBMISSION FOR OEB PROCEEDING EB-2021-0243:
Generic Hearing on Uniform Transmission Rates (Phase 1)**

**Submission on Treatment of
Export Transmission Service Rate**
(Submitted By Naren Pattani¹, P.Eng. (Retd))

1.0 SUMMARY OF SUBMISSION

This submission on the Export Transmission Service Rate (“ETS Rate”) is in accordance with Procedural Order No. 3 of the Ontario Energy Board (“Board”) dated August 23, 2022.

Electrical energy exports from Ontario, including wheel-through energy transactions between neighbouring jurisdictions, use capital-intensive internal transmission infrastructure that delivers power to interties that connect the Ontario transmission system to neighbouring jurisdictions.

In this proceeding, there are effectively two somewhat competing perspectives that need be evaluated to arrive at a determination related to the setting of an appropriate Export Transmission Service (ETS) Rate. On the one hand, there is likely a need to ensure that charges for recovery of revenues for regulated transmission infrastructure are consistent with sound ratemaking principles. On the other hand, some proponents of the elimination or reduction of the ETS Rate assert that the ETS Rate may be detrimental to export activity and to the collection of congestion rents through market-based Intertie Congestion Pricing (ICP).

¹ Naren Pattani is a retired electrical engineer. As a former staff member of the Regulatory Affairs Team at Hydro One, he was involved in the company’s, and province’s, first transmission rate filing under Proceeding RP-1999-0044. He was a member of the Energy Market Group of the Market Design Committee whose work led to the establishment of the first set of Market Rules in 2002. For eight years between 1999 and 2006, he was an advisor to two successive members of the IESO’s Technical Panel that manages additions and amendments to the Market Rules. He retired from Hydro One in 2010 as Manager of the Transmission Planning Department where he was actively engaged with the then-OPA and IESO in matters related to system planning.

Sound ratemaking principles require the setting of a nonzero ETS Rate. These principles include the following:

- **User Pay:** Exports require use not only of interties, but also of internal transmission required to serve each intertie node.
- **Cost Causality:** Although transmission system planning does not consider requirements to increase competitive export activity, system planning for the internal transmission network *does* require the preservation of existing export capability at each intertie. Similar considerations exist for Operation & Maintenance costs for the corresponding infrastructure. Accordingly, some portion of the costs of the internal transmission network is attributable to exports.
- **Fairness:** Elimination of the ETS Rate would result in several scenarios that would plainly be unfair, for example when considering that a wheel-through transaction from Quebec to Michigan, during uncongested periods, would not pay an ETS Rate nor generate congestion rents in Ontario, while a domestic industrial customer located near Niagara Falls, Ontario (in the vicinity of Ontario’s major hydroelectric generating facility) pays a fully-costed transmission network charge.
- **Avoidance of the “Free Rider” Issue:** Elimination of the ETS Rate would result in some exports making use of the internal transmission network without paying their share of costs for the use of the transmission network.

It is further noted that the Charles River Associates Jurisdiction Review² did not find any jurisdiction where an equivalent export transmission rate was set to zero (notwithstanding a case where two neighbouring jurisdictions have a Memorandum of Understanding establishing such an arrangement to the benefit of exporters from *both* jurisdictions, which is a distinctly different proposition from eliminating entirely the export transmission rate).

² “Jurisdictional Review of ETS Rates Study” by Charles River Associates: EB-2021-0243 HONI Submission on the ETS Rate, Attachment 2.

Proponents of eliminating the ETS Rate have identified the benefits of exports and collection of congestion rents as primary drivers supporting such a view. In reviewing these market-based considerations, it is respectfully submitted that the Board should note the following:

- During the breakup of Ontario Hydro two decades ago, the “deregulation of the energy market” was intended to separate the regulated, monopolistic transmission business from the competitive (energy) generation business. It was, and is, widely understood that this deregulation exercise would eliminate cross-subsidization and provide transparency of costs in the industry, among other benefits. While the Board may balance various competing positions in determining an ETS Rate, it would be a step backward from what has been achieved over the last two decades if the ETS Rate were to be eliminated altogether because of consideration of energy market issues.
- The ICP is a market mechanism to allocate transfer capability over constrained interfaces and it can justifiably continue to co-exist with the ETS Rate that contributes to recovery of the regulated transmission revenue requirement. Since the Board does not have direct purview over ICP nor on market rule changes that could impact ICP, it is not appropriate for ICP charges to be considered in lieu of regulated transmission charges.
- There is insufficient evidence to suggest that the ETS Rate would preclude or substantially reduce the accrual of net benefits from exports in the future.
- Although this proceeding is not about energy market rules, on the basis of discussions during this proceeding, it is appropriate to note that a market outcome of incentivising exports can be obtained through a market mechanism wherein ICP charges are credited (offset) up to the ETS charges paid by exports on a transaction basis. Such a market mechanism would be under IESO’s purview and the IESO may then evolve this mechanism depending on prevailing market conditions over which it has oversight. This approach would not require the Board to compromise sound ratemaking principles, including for cost allocation and fairness.

Furthermore, it is noted that elimination of the ETS Rate through the current proceeding will be difficult to reverse in the future, leaving the Board entirely reliant upon the IESO-administered ICP – a market-based mechanism – to ensure exports pay some portion of costs for transmission infrastructure.

Based on the above, it is respectfully recommended that:

- The Board maintain a nonzero ETS Rate.
- The Board select what Elenchus³ has characterized as a “hybrid” approach for determining the ETS Rate, where costs are allocated to exports on a “50% Basis of Shared Net Fixed Assets,” and accordingly set the ETS Rate on this basis (i.e., at \$3.66 per MWhr).
- The Board decide that the ETS Rate be held steady during the rate-setting term, to provide rate stability.
- The Board direct Hydro One to develop an ETS Cost Allocation Manual that details how the ETS Rate would be set using the “50% Basis of Shared Net Fixed Assets” approach, so that future revisions to the ETS Rate can be determined following this objective, mechanistic methodology. (In future revisions, the Board may also wish to adopt an “80% Basis” approach, although the “80% Basis” approach may not be suitable today, given the step change it would represent from the present ETS Rate of \$1.85/MWh).

The balance of this submission elaborates on the above, and is structured as follows:

- Section 2.0 covers principles and considerations for a Board-regulated ETS Rate to be applicable to exports;
- Section 3.0 provides comments on matters pertaining to the electricity market that have been raised during the current proceeding; and,

³ Elenchus Report titled “Export Transmission Service Rate Cost Allocation Methodology”: Attachment 1 of Proceeding EB-2021-2043 filed by Hydro One on October 10, 2021; see Tables 14 and 15 on Page 31.

- Section 4.0 provides the rationale and a recommendation for the ETS Rate.

2.0 PRINCIPLES AND CONSIDERATIONS FOR THE ETS RATE

The ETS Rate applies to electricity exports from generation in Ontario, and to wheel-through transactions that use Ontario’s transmission system to transport energy from one neighbouring jurisdiction to another jurisdiction (for example from Quebec to Michigan). These transactions use the Shared Transmission Network facilities of Ontario’s bulk transmission system. (The transmission line connections and transformation connection facilities, which are used by one or a few domestic loads, are *not* part of the Transmission Network Pool, and they are therefore *not* covered by this proceeding).

The following principles and considerations suggest that a non-zero, Board-regulated ETS Rate should exist, irrespective of the existence of a market-based Intertie Congestion Pricing (ICP) charge which would itself be “zero” during periods without intertie congestion.

2.1 User Pay

The ETS Rate is meant to charge exports for the use of a capital-intensive transmission system in Ontario that also requires significant operating, maintenance, and repair expenditures to be undertaken by regulated transmitters in Ontario. Much more than simply the interties themselves, which connect neighbouring jurisdictions to Ontario, exports also utilize Ontario’s transmission network spanning thousands of kilometers of high voltage circuits and numerous large power transformers to get power delivered to the export interties.

Therefore, the “User Pay” principle with respect to Ontario’s vast transmission network should apply to exports as well as to existing domestic loads in Ontario.

2.2 Cost Causality

The IESO and Ontario’s transmitters do not plan new regulated transmission facilities specifically to *increase* competitive exports. However, to the extent that existing export capability must be maintained (preserved) by the IESO and

transmitters, the principle of cost causality still applies to exports, from the perspective of OM&A expenditures as well as new network investments for transmission within Ontario.

Transmitters in Ontario spend OM&A funds and, when necessary, capital funds to repair internal transmission facilities upstream of the interties so that existing export capability, as well as supply to domestic load, is maintained to the requisite standards of system security and reliability. When maintaining and repairing internal transmission, transmitters are focused on the need to enable all power flow across the transmission system; they do not, cannot, and are not authorized to differentiate between power flow destined for exports and domestic loads.

With respect to transmission planning, IESO and Hydro One plan for needed future investments within Ontario on the basis of preserving capability to transport power to the interties through which exports take place. Planning for inter-area transmission respects Section 3.2 of the Ontario Resources and Transmission Assessment Criteria (“ORTAC”)⁴ which requires that power system studies model existing intertie capabilities as well as domestic demand. System planners ensure that, with all elements in service and existing and new domestic loads considered, the interties’ existing capacity requirements are satisfied by the internal transmission supply network. [Refer to Undertaking Exhibit JT-1.1⁵]. Two recent planning reports by IESO – “Need for Bulk System Reinforcement West of London”⁶ and “Need for Bulk Transmission Reinforcement in the Windsor-Essex Region”⁷ – are indicative of how the need to maintain export capability significantly influences decisions about major investments in bulk transmission facilities within Ontario.

Thus, transmission planners *do not* and *cannot* defer the need for inter-area transmission within Ontario by reducing or eliminating the requirement to

⁴ <https://www.ieso.ca/-/media/Files/IESO/Document-Library/Market-Rules-and-Manuals-Library/market-manuals/connecting/IMO-REQ-0041-TransmissionAssessmentCriteria.pdf>

⁵ In Undertaking Exhibit JT-1.1, Hydro One notes, ““ORTAC section 4.1 requires that new or modified facilities do not degrade existing power transfer capabilities (including inter-tie capability) by more than 5%.”

⁶ Among many other references in the report, refer to 2nd last paragraph on Page 10 of https://www.ieso.ca/-/media/Files/IESO/Document-Library/regional-planning/southwest-ontario/WOL_Bulk_Report_Final_20210923.ashx

⁷ Among many other references in the report, refer to Page 5, item (c) in <https://www.ieso.ca/-/media/Files/IESO/Document-Library/regional-planning/Windsor-Essex/Need-for-Bulk-Transmission-Reinforcement-in-Windsor-Essex-Region-June2019.ashx>

maintain capability to transfer power to export nodes. Indeed, as evidenced by the aforementioned planning reports, the need to retain capability to export power at the interties results in major internal transmission investments being needed many years earlier than they would have otherwise been needed if the export maintenance criteria were not to be satisfied. (This practice is not being questioned, since it is indeed prudent and necessary to ensure interties can function as intended. However, the practice confirms that exports rely upon internal transmission, and thus the cost causality principle obtains.)

2.3 Fairness

Although IESO's transmission customers pay transmission charges on a capacity (“\$/MW”) basis, energy consumption data can be used to convert this to an effective “\$/MWhr” basis to enable a notional, order of magnitude comparison to the ETS Rate paid by exporters (which is currently \$1.85/MWhr). Notionally, the average, effective Transmission Network charge paid by domestic customers is over \$10 per MWhr.⁸

The principle of fairness is often considered amorphous. In any case, fairness in the eyes of domestic customers would ***not*** exist if, during periods without intertie congestion:

- For a capital-intensive transmission infrastructure for which, on one hand, domestic customers pay an average transmission network charge in excess of \$10 per MWhr, exports were offered the use of that same infrastructure without having to pay an ETS Rate.
- A domestic industrial customer located, for example, in Niagara Falls – in the vicinity of Ontario's major hydraulic generation facility – would have to pay an average transmission network charge in excess of \$10 per MWhr,

⁸ Tab 01 of Exhibit HONI_I-05-24-03_20220513.xlsm shows that Network Revenue Requirement for the subject year is \$1,800,412,703 and Tab 18 indicates that the domestic energy forecast for the year is 132,225,424 MWhr. Therefore, the *average, effective* Transmission Network charge to be paid by a domestic customer is approximately \$13.6 per MWhr (slightly less if considering ETS rate paid by exports). To avoid risk of rebuttal for possibly having misinterpreted HONI tables, suffice it to say that domestic customers notionally pay over \$10 per MWhr in effective Transmission Network charges. This number is provided for context and order-of-magnitude comparison, recognizing that transmission charges are collected on capacity basis from domestic transmission customers.

while wheel-through transactions from Quebec to Michigan or New York were to use Ontario's transmission system over hundreds of kilometres without having to pay an ETS Rate.

- An Ontario manufacturer located near the border and choosing to import energy from a nearby jurisdiction would have to pay a fully-costed transmission charge in the originating jurisdiction as well as more than \$10 per MWhr domestic transmission charge in Ontario, while a manufacturer in any other jurisdiction importing power from Ontario would have to pay only for transmission in their home state/province but no ETS Rate in Ontario.

Section 3.2 of this submission further addresses why Intertie Congestion Pricing (ICP) charges, which are paid by some export transactions if there is congestion on an intertie, should not be considered to be “in lieu of the ETS Rate” to assuage these concerns about fairness.

2.4 Free Rider Principle

As noted in Elenchus Report⁹ [Page 28, Section 6.1], the Board has stated previously (in its report on Pole Attachment Charges) that when developing a cost-based methodology, consideration can be given to the value that users obtain from leveraging an established network. This “value to users” philosophy is pertinent and applicable to the use of the shared transmission network in that there should not be users of a shared network that do not pay their fair share of costs for use of said shared network. The Elenchus Report also notes that the Regie de l'énergie in Quebec has a long-standing “no free service” guiding principle for cost allocation and rate design¹⁰, and FERC Order No. 1000 states as its first cost allocation principle that costs should be allocated “in a manner that is at least roughly commensurate with estimated benefits.”¹¹

⁹ EB-2021-0243 HONI Submission on ETS Rate Filed 2021-10-14, Attachment 1: “Export Transmission Service Rate Cost Allocation Methodology” prepared by Elenchus.

¹⁰ https://publicsde.regie-energie.qc.ca/projets/235/DocPrj/R-3867-2013-A-0219-Autres-Autre-2019_11_20.pdf

¹¹ <https://www.ferc.gov/electric-transmission/order-no-1000-transmission-planning-and-cost-allocation>

On the basis of the regulatory principle of “No Free Riders”, all export transactions should involve payment of a regulated transmission tariff towards recovery of cost for regulated transmission that is under the purview of the Board.

2.5 Jurisdictional Review and Comparison with Ontario

The following comments are based on the “Jurisdictional Review of ETS Rates Study”¹² by Charles River Associates (CRA) and on the related Interrogatory Responses (IR) and testimony by CRA Staff during the Technical Session and Board Presentation (hereafter collectively referred to as “CRA’s Jurisdictional Review”).

CRA’s Jurisdictional Review indicates that an export transmission service charge, for the most part based on full-cost allocation, exists in all jurisdictions it studied.¹³

In the CRA Jurisdictional Review, exports also pay congestion charges in one form or another, if congestion manifests in the transmission system, in all jurisdictions studied. This occurs through Locational Marginal Pricing (LMP) applicable in the energy market (in the case of American jurisdictions studied¹⁴), or explicitly through a calculation of congestion costs (as in Quebec through consideration of redispatch costs¹⁵). To the extent that Ontario’s Intertie Congestion Pricing (ICP) is considered distinct, that distinction is about the mechanism to charge for congestion; it should not be interpreted to mean that Ontario is the only jurisdiction where congestion costs are recovered from exports.

There is no evidence of any jurisdiction offering offsets or credits associated with congestion charges in determining export transmission charges,¹⁶ except possibly in New York where, according to CRA’s responses in the technical conference,¹⁷ the fully-accounted Transmission Service Charge (TSC) is offset by a

¹² EB-2021-0243 HONI Submission on the ETS Rate, Attachment 2.

¹³ See Exhibit I-06-03 (a).

¹⁴ See Exhibit I-06-04 (b).

¹⁵ See Exhibit I-06-04 (c).

¹⁶ See Exhibit I-06-03 (b).

¹⁷ Technical Session Day1 Transcript: Line 20 of Page 55 to Line 16 of Page 58.

Transmission Usage Charge (TUC), which likely includes congestion costs (presumably on a per transaction basis).

All jurisdictions in the CRA Jurisdictional Review also have Rate Adders payable by exports.¹⁸ These Rate Adders recover costs of functions similar to Uplift Charges in Ontario.

To the extent that the New York ISO has a Memorandum of Understanding (MOU) with the New England ISO and PJM to eliminate export transmission service¹⁹ between specific jurisdictions that are signatories to the MOU, it is suggested that IESO may also consider such an MOU with any jurisdictions that is willing to do so. Indeed, such an evolution was addressed by “Decision with Reasons”²⁰ of the Board for Proceeding RP-1999-044 which first decoupled transmission charges from total cost of energy in Ontario.

Finally, it is of interest to note that:

- Quebec, where most generation is from hydroelectric plants and wind generation (both having very low incremental cost), has the reputation of being the largest exporter of electricity from among the jurisdictions surveyed. The transmission system and generation in the province are effectively under the same owner – the Government of Quebec. Notwithstanding these distinct features, which would reflexively indicate that the owner of the bulk of both the energy supply and transmission in Quebec would want to promote more export transactions, the exports from that province still pay for transmission on the basis of full-cost (or near full-cost) accounting and at an export rate that is several times more than in Ontario.
- From among the jurisdictions surveyed by CRA, Ontario is the second largest geographically and it has the second largest number of transmission circuit kilometers. Even then, export and wheel-through transactions that

¹⁸ See, for example, Appendix B of “Jurisdictional Review of ETS Rates Study” by Charles River Associates, in EB-2021-0243 HONI Submission on the ETS Rate, Attachment 2.

¹⁹ See Exhibit I-06-03 (a).

²⁰ Paragraphs 3.8.5, 3.8.19, 3.8.20, and 3.8.22 in “Decision with Reasons” for Proceeding RP-1999-0044.

utilize this transmission in Ontario pay the lowest ETS Rate of all jurisdictions.

2.6 Precedent Concerns

Elimination of the ETS Rate at this time will set a precedent that will likely never be overturned in the future. Once the ETS Rate is set at zero, the issue of the ETS Rate will likely fade over the next few ratemaking proceedings. Even if the issue were to be brought forward in the future, it would be very difficult to then re-establish an ETS Rate at that time.

3.0 PERTINENT ELECTRICITY MARKET CONSIDERATIONS

The current proceeding is about the ETS Rate for use of regulated transmission which falls under the purview of the OEB. It is not about the energy market which is primarily under the purview of the IESO. Nonetheless, there were considerable submissions and discussions in this proceeding about the energy market. Therefore, comments on this subject are considered necessary and appropriate. As such, this section provides a synthesis of material on the separation between transmission and the energy market; Intertie Congestion Pricing (ICP); Avoided System Costs; congestion rents; Uplift Charges paid by exports; and potential market mechanisms that can coexist with the ETS Rate.

3.1 Separation Between Transmission and the Energy Market

Among the many objectives of the breakup of Ontario Hydro two decades ago, and the introduction of what was referred to as “deregulation of the energy market” in Ontario, was the desire to separate the regulated, monopolistic transmission business from the competitive (energy) generation business. It was, and is, widely understood that this deregulation exercise would eliminate cross-subsidization and provide transparency of costs in the industry, among other benefits.

While the Board may balance various competing positions in determining an ETS Rate, it would be a step backward from what has been achieved over the last two decades if the ETS Rate were to be eliminated altogether because of consideration of energy market issues. Eliminating the ETS Rate would result in cross-

subsidization (from transmission to energy market) and loss of transparency, while at the same time compromising the aforementioned principles of User Pay, Cost Causality, Fairness, and prevention of Free Ridership.

3.2 Intertie Congestion Pricing (ICP)

IESO's Inter-Jurisdictional Trading²¹ algorithm manages bids and offers for exports and imports, respectively, across Interties with neighbouring jurisdictions. The IESO collects Intertie Congestion²² Pricing (ICP) charges from successful export transactions that are allowed to take place on congested Intertie(s) by IESO's dispatch algorithm. For a successful export on a congested Intertie, these charges are effectively determined by the difference in energy market clearing price between the Ontario zone (the price on the Ontario side of the Intertie) and the Export Node of the congested Intertie.

Several concerns suggest that the ICP should not be considered as a mechanism to replace an ETS Rate. These include:

- Nonzero ICP is paid by exports *only* if and when there is congestion on an intertie (on a per transaction, per hour, per intertie basis). As shown in Table 1 below, in the past four years, a majority of exports (by TWh volume) did not have to pay ICP charges; for example, based on data provided by IESO under Exhibit HONI_I-01-01-01_20220513, in the year 2021, only 7.1 Terawatt hours (TWh) out of a total of 17.2 TWh of exports paid congestion charges. Thus, if the ICP were to replace the ETS Rate, substantial volumes of exports and wheel-through transactions that use Ontario's transmission system will effectively "free ride" over the capital-intensive transmission infrastructure in Ontario.

²¹ Section 4 of IESO Training Manual "Interjurisdictional Energy Trading" dated January 2014.

²² Intertie Congestion manifests when the power flow requested by importers/exporters across an Intertie is more than the capability of the Intertie. In this case, IESO's dispatch algorithm determines which transactions can be consummated (successful), and which cannot take place so that the Intertie capacity limit is respected.

Table 1: % of Exports Not Paying ICP Charges

	2017	2018	2019	2020	2021
Total Exports (TWh)	19.1	18.6	19.8	20.4	17.2
Exports That Paid ICP (TWh)	11.3	9.2	9.5	9.8	7.1
Exports That Did Not Pay ICP (TWh)	7.8	9.4	10.3	10.6	10.1
% Exports NOT Paying ICP	41%	51%	52%	52%	59%

Source: Exhibit HONI_I-01-01-01_20220513, Table 1 & Table 16 (Revised by Ex. JT-1.7)

- It is conceivable that the volume of exports that will be eligible to pay nonzero ICP charge may decrease in the future (in relative and absolute terms), as discussed in Section 3.3.2 below.
- The ICP is a market mechanism to manage congestion across interties, while the ETS Rate is meant to collect fees from users of regulated transmission in Ontario. The two can co-exist as they have over the last two decades in Ontario; indeed, different mechanisms for collecting congestion charges and regulated transmission export charges co-exist in the jurisdictions covered by the CRA Jurisdictional Review.
- Replacing the ETS Rate with the ICP mechanism would compromise the basic principles of regulated ratemaking and deviate from the objectives of electricity deregulation to separate the transmission and energy businesses.
- The Board has little or no purview over the ICP or over market rules that impact the ICP. Thus, it will not have direct authority related to the evolution of the ICP in response to market forces.

3.3 Comments on Market Implications of the ETS Rate

In this proceeding, there have been filings that have sought to summarize the economic benefits of exports in order to support a view that the ETS Rate should be eliminated, reduced, or not increased in order to encourage greater export activity (which in turn, in some parties' view, may increase congestion rents collected through ICP). There is no doubt that export activity plays an important and laudable role in the operation of Ontario's energy market, and the analysis herein is not intended to suggest that exports should be discouraged. However,

the commentary below is intended to ensure that a discussion related to the benefit of exports is clarified, to ensure that a potentially incomplete discussion of benefits does not lead the Board to conclude that the ETS Rate should be abandoned in order to potentially encourage market activity.

3.3.1 Avoided System Costs

In its initial submission under this proceeding, IESO provided a summary of economic benefits of exports, including “Avoided System Costs.” The table showed that exports eliminated the curtailment of some contracted generation, resulting in \$153 million in Avoided System Costs in 2020.²³ This is a laudable example of the benefits of exports.

The Avoided System Costs are dependent, in part, on: the degree to which Surplus Baseload Generation conditions would persist in future years; the degree to which must-take²⁴ contracted generation are part of the supply mix; energy prices; and the degree to which exports would continue to be transacted from Ontario. IESO’s 2021 Annual Planning Outlook²⁵ suggests that Surplus Baseload Generation would decrease by about 80 percent²⁶ and exports would decrease by about 60 percent over the next eight years, even in conditions where existing resources continue to be available. This would suggest that the conditions that give rise to the materialization of Avoided System Costs – namely, the volume of export activity that avoids curtailment of Surplus Baseload Generation and must-take contracted generation – could conceivably be expected to decrease in the future.

The IESO will indeed have to procure new generation going forward, as rightly indicated by IESO during the technical conference. Nonetheless, it is reasonable to assume that these new resources will likely not have certain challenging characteristics, such as a lack of maneuverability, thus potentially avoiding

²³ See IESO Report, “Market Implications of the Export Transmission Service Rate”, Table 1 on Page 9 of Exhibit H-9-1 Attachment 3.

²⁴ The term “must-take” is used here to refer to generation that has already been procured through contracts, that have a revenue requirement set by the regulator, or that have operating limitations that require their dispatch.

²⁵ <https://www.ieso.ca/-/media/Files/IESO/Document-Library/planning-forecasts/apo/Dec2021/2021-Annual-Planning-Outlook.ashx>

²⁶ It is acknowledged that Surplus Baseload Generation on its own does not give rise to Avoided System Costs, but in the absence of additional analysis, Surplus Baseload Generation can directionally provide insight into conceivable scenarios for how these Avoided System Costs may materialize in the future.

significant re-emergence of concerns about excessive surplus baseload generation and must-take contracted generation. Recent IESO initiatives to seek additional generation²⁷ suggest that the new generation to be procured – including from energy storage resources and gas-fired energy generation²⁸ – will be undertaken by IESO in a manner that is measured and will also likely be dispatchable in order to have significantly greater maneuverability characteristics that are suited to following market signals.

In interrogatory responses²⁹ seeking clarification of forward-looking analysis to determine whether these Avoided System Costs would continue to materialize, the IESO noted that it does not provide forecasts based on market conditions, and so declined to provide analysis related to whether these Avoided System Costs would continue to accrue in future years. Accordingly, in this proceeding, there have not been objective, forward-looking assessments of the likely Avoided System Costs that may accrue through export activity, including when considering the IESO's Annual Planning Outlook and its overall procurement strategy. Further, there have not been objective, forward-looking assessments of the *impact* of the ETS Rate on the likely Avoided System Costs that may accrue. This may give pause to the Board in accepting, without further scrutiny, the view that Avoided System Costs will continue to occur at the same level as they have historically, or that the ETS Rate would materially reduce the degree to which Avoided System Costs would otherwise accrue.

3.3.2 Congestion Rents

Similarly to the above commentary, given the expected reduction in export activity in the IESO's Annual Planning Outlook, it is reasonable to assume that Ontario's existing capability to export power over the New York Intertie (~2,500 MW) and Michigan Intertie (~1,600 MW) – the two main export paths – will be substantially adequate to support much of the likely volumes of exports even with the new, market-oriented generation that is likely to be procured over the next decade.

²⁷ <https://www.ieso.ca/en/Sector-Participants/Resource-Acquisition-and-Contracts/Long-Term-RFP-and-Expedited-Process>

²⁸ <https://www.ieso.ca/-/media/Files/IESO/Document-Library/medium-term-rfp/MT-I-RFP-results.ashx>

²⁹ See, for example, Exhibit I-03-03; Exhibit I-05-09 (9.1-ii); and Exhibit I-06-09 (a).

Further, in the technical conference, IESO also noted that in the first six months of 2022, it has collected approximately \$200 million in congestion rents,³⁰ which should also indicate that there are other factors – notably, market prices in neighbouring jurisdictions – that would have a substantial impact on congestion rents that would far outweigh the impact of the ETS Rate.

As with Avoided System Costs, it is noted that there was no objective, forward-look assessment of how congestion rents may materialize in the future, again due to uncertainties that exist when forecasting based on market conditions. Moreover, there was no objective, forward-looking assessment of the *impact* of the ETS Rate on the future collection of congestion rents. This may also give pause to the Board in accepting, without further scrutiny, the view that congestion rents would be substantially impeded by an increase in the ETS Rate.

3.3.3 Uplift Costs

In its initial submission, the IESO included “Uplift Costs” as an economic benefit that accrues from export activity.³¹ These were further explored in IR Exhibits I-01-01(g) and I-06-10. The purpose of the comments below is to establish that Uplift Charges paid by exports should not be considered benefits or credits to domestic customers, but instead are reflective of costs to provide for export services.

The following attributes of the individual components of Uplift Services are summarized based on data from IESO’s Website^{32,33,34,35,36} and on transmission planning considerations and engineering physics principles:

- **System Losses and Voltage Support:** These are among the top contributors to Uplift Cost. Based on engineering physics, system losses

³⁰ Technical Session Day1 Transcript: Line 14 of Page 153.

³¹ See IESO Report, “Market Implications of the Export Transmission Service Rate”, Table 1 on Page 9 of Exhibit H-9-1 Attachment 3.

³² <https://www.ieso.ca/en/Sector-Participants/Settlements/Guide-to-Wholesale-Electricity-Charges>

³³ <https://www.ieso.ca/-/media/Files/IESO/Document-Library/training/WB-Intro-Ontario-Physical-Markets.ashx>

³⁴ <https://www.ieso.ca/-/media/Files/IESO/Document-Library/training/WB-Interjurisdictional-Energy-Trading.ashx>

³⁵ See <https://www.ieso.ca/-/media/Files/IESO/Document-Library/training/ORGuide.ashx>

³⁶ <https://www.ieso.ca/ancillary-services>

and voltage support requirements are proportional to the square of power flow over the system. Thus, flow of power to supply exports results in increases in costs associated with these components.

- **Operating Reserve:** System Operators procure adequate 10-minute and 30-minute reserves for reliable operation based on the largest generation and transmission contingencies that could occur in the power system. The amount of Operating Reserve required is determined by total system demand and power flows. Thus, Operating Reserve is both essential for reliable exports to take place and its cost is also a function of supply and power flows for exports.
- **Congestion Management Settlement Credit:** This recovers incremental operating costs as a result of utilizing otherwise economically inefficient resources that must be dispatched to address the physical constraints of the transmission system while supplying total system demand, including exports.
- **Intertie Offer Guarantee (IOG) and Day-Ahead Commitment Process (DACOM):** These are market instruments meant to improve market efficiency and they effectively seek competitive energy prices for the benefit of exports and domestic load.
- **Frequency Regulation Services:** The power system must be in balance (supply meeting system demand) on a split-second basis to maintain the frequency of interconnected power supply very close to 60 cycles per second. Exports would not be possible if frequency regulation is not maintained to the standards dictated by reliability organizations of the interconnected system.
- **Reliability Must-Run Service and Black Start Capability:** Reliability Must-Run Service is procured by the IESO to ensure that certain load pockets in supply-constrained locales have adequate supply. The Black Start Capability is procured by the IESO to provide a guarantee of immediate supply from special generator(s) that can start up without requiring external or auxiliary power to start motors, etc., following a total system outage. These services cost less than 5% of the total Uplift Costs

and they represent the only functions that could possibly be described as being predominately for domestic loads (and of limited or no benefit to exports).

In summary, the need for all Uplift Services, except possibly the Reliability Must Run and Black Start Services that comprise less than 5% of total Uplift Costs, is indeed influenced by exports and/or required to maintain security and reliability of exports as well as domestic load.

3.7 Market Mechanisms for Market Outcomes

As per discussions during the Board Presentation³⁷, the IESO's Market Rules were amended relatively recently to establish different minimum floor prices for wind, hydroelectric, and nuclear generation in order to ensure that generators with less costly shutdowns are dispatched down first. This is an excellent and laudatory example of Market Rules' capability to manage desired outcomes using market mechanisms.

There was discussion during the current proceeding about credits or offsets^{38,39} to export transmission charges for ICP charges paid by exports and about the notion of variability⁴⁰ or dynamic transmission charges for exports. It is therefore appropriate to comment about a market mechanism to obtain a similar outcome of reducing export transaction costs in a fitting manner, as summarized below.

The market rules can be amended to provide for ICP charges to be offset (credited) up to the value of the ETS charges paid by exports on a per transaction basis in order to reduce costs for export transactions. Such an amendment – the process for which is no more onerous than the OEB process for ratemaking – should have substantially the same end result as reducing the ETS charges by the ICP charges payable by exports during periods of congestion.⁴¹ An advantage of such a market

³⁷ August 4, 2022, Board Presentation Transcript: Line 20 of Page 106 to Line 12 of Page 107.

³⁸ Technical Session Day1 Transcript: Line 19 of Page 23 to Line 12 of Page 26.

³⁹ Technical Session Day1 Transcript: Line 25 of Page 55 to Line 16 of Page 58.

⁴⁰ August 4, 2022, Board Presentation Transcript: Line 24 of Page 112 to Line 28 of Page 113.

⁴¹ Market rules pertaining to various charge codes and settlements performed routinely by the market operator demonstrate that the calculation to incorporate such a change should be feasible to incorporate in the IESO's software.

mechanism is that it would be entirely under the purview of the IESO and the IESO will retain the levers to modify or eliminate the credit based on prevailing energy market conditions in the future. Such an approach would also ensure that the Board, while carrying out its mandate of ratemaking and regulation of transmitters, does not need to abandon ratemaking principles in order to attempt to achieve a market outcome.

4.0 RATIONALE AND RECOMMENDATION FOR AN ETS RATE

4.1 Summary of Rationale for ETS Rate

The costs associated with the Interties themselves are a very small proportion of the total costs associated with the transmission facilities used by exports. More significantly, exports utilize the capital intensive, internal transmission network to get power from its source and to the interties. This is no different than the way a domestic load near the border would utilize the internal transmission network (and pay for it in full). Planning for new inter-area transmission in Ontario, as well as day-to-day operation and maintenance of such transmission, must consider the need to preserve existing export capability together with the need to maintain supply to existing domestic load. Therefore, in consideration of the ratemaking principles of User Pay, Cost Causality, Fairness, and prevention of Free Riding, it is appropriate that all export transactions should pay an ETS Rate that is stable, guaranteed, and consistent with the OEB's mandate.

From the perspective of setting a precedent, if the ETS Rate were eliminated, or set to "zero" at this time, it would likely remain so forever, irrespective of how the energy market evolves, and that would not be in the interest of Ontario ratepayers.

Intertie Congestion Pricing (ICP) charges are not an appropriate replacement of the ETS Rate because exports and wheel-through transactions do not pay the ICP when there is no congestion on an intertie, which is already the case for a significant portion of exports today (when measured by volume, as shown in Table 1 above which is based on Tables 1 and 16 (Revised by Exhibit JT-1.7) provided by IESO in Exhibit HONI_I-01-01-01_20220513). Further, the ICP is under the purview of the market-focused IESO, while the ETS Rate is under the purview of the OEB which does not have direct control over the ICP nor over details of market

rules that influence the ICP. Therefore, it is respectfully submitted that the ICP would make for an inappropriate substitute for a Board-administered ETS Rate.

All jurisdictions included in CRA's Jurisdictional Review have an export transmission tariff equivalent to the ETS Rate.⁴² In almost all jurisdictions, the export rate is based on full cost accounting so that the exports pay the same effective rate as domestic customers.⁴³ In all jurisdictions included in the review, when energy transactions are successful over congested interfaces, exports pay congestion costs in some manner. All jurisdictions included in the review have Rate Adders⁴⁴ that are equivalent to Uplift Costs in Ontario.

In conclusion, for reasons noted above, it is recommended that an ETS Rate should continue to exist in Ontario.

4.2 Options and Recommendation for ETS Rate

There are several reasons why the ETS Rate applicable to exports should be lower than the rate for domestic loads. Over the past two decades, a precedent has been set wherein the ETS Rate is significantly lower than the equivalent rate for domestic transmission customers.⁴⁵ Exports are curtailable⁴⁶ during supply adequacy concerns in Ontario and they are therefore considered non-firm. Exports help manage the issue of surplus baseload generation, at least at this time. From the energy market context, exports would be discouraged if the ETS Rate were increased drastically.

⁴² New York ISO has established an MOU with New England ISO and possibly with PJM so that transactions between them do not pay export tariffs between themselves. The Board may wish to suggest that IESO consider entering into such MOUs with any neighbouring jurisdictions. On this subject, refer also to Paragraphs 3.8.5, 3.8.19, 3.8.20, and 3.8.22 in "Decision with Reasons" for Proceeding RP-1999-0044.

⁴³ In New York ISO, exports pay the Transmission Service Charge (TSC) which is based on full cost accounting is reduced by Transmission Usage Charge (TUC) on a per transaction basis. (Refer to Section 2.5 above, at Footnote 17).

⁴⁴ See, for example, Appendix B of "Jurisdictional Review of ETS Rates Study" by Charles River Associates, in EB-2021-0243 HONI Submission on the ETS Rate, Attachment 2.

⁴⁵ The ETS Rate is currently \$1.85 per MWhr while domestic customers pay an effective transmission network charge at an average of over \$13 per MWhr (although, as noted above, domestic IESO customers pay on a "\$/MW" basis). See Footnote 8 above for further details.

⁴⁶ Evidence provided by Elenchus and IESO indicates that over the past year, exports were curtailed about 20% of the time.

As a result of the above considerations, while it is not appropriate to eliminate the ETS Rate entirely on the basis of posited outcomes in the energy market, it may nonetheless be justifiable to discount the transmission rate for exports to some extent, as discussed below.

Table 2 below shows options for the ETS Rate that have been considered in the Elenchus Report titled “Export Transmission Service Rate Cost Allocation Methodology.”⁴⁷ All of these options satisfy the consideration that the ETS Rate should be lower than the transmission rate paid by domestic customers.

TABLE 2: Options for ETS Rates

Option # (Note i)	Option Methodology (Option Titles Per Elenchus Report)	Adjusted ETS Rate (\$/MWhr)
1	OEB 2020 Approved ETS Rate	1.85
2	2014 Report Methodology (Note ii)	1.80
3	Allocation on 100% Basis of Shared Net Fixed Assets	6.54
4	Allocation on 50% Basis of Shared Net Fixed Assets	3.66
5	Allocation on 80% Basis of Shared Net Fixed Assets	5.42

Notes: (i) The Option #s are not from the Elenchus Report; they have been introduced herein for clarity and for ease of review below. (ii) The original rate for Option 2 in the Elenchus Report was updated in Undertaking Exhibit JP-1.2 dated August 11, 2022.

Assessment of Options:

Options 1 and 2 are based on a highly subjective rationale arising out of decisions over the past two decades without an underlying cost allocation study. As a result, there is likely to be consternation in every ratemaking cycle if either of these options were selected moving forward. With the extensive review being undertaken by the Board in the current proceeding, it is appropriate that the rate

⁴⁷ Attachment 1 of Proceeding EB-2021-2043 filed by Hydro One on October 10, 2021; see Tables 14 and 15 on Page 31.

methodology now be selected on the basis of an objective, mechanistic cost allocation study such as that undertaken by Elenchus. Therefore, it is suggested that Options 1 and 2 be eliminated from further consideration and the choice of a suitable ETS Rate be from among the methodologies for Options 3, 4, and 5.

The remaining options, as per Tables 14 and 15 on Page 35 of the Elenchus Report, are:

- Option 3, based on 100% “Shared Network Fixed Asset Cost” as defined in the Elenchus Report;
- Option 4, based on 50% Shared Network Asset Cost, referred to as a “hybrid model” by Elenchus (in paragraph 2 of Page 29 of the report); and,
- Option 5, based on 80% Shared Network Asset Cost, based on the consideration by Elenchus that the exports were curtailed 20% of the hours in the last few years.

From among these three options, Option 3 (Allocation on 100% Basis of Shared Network Costs) is closest to the rate methodology based on full-cost accounting that is used in other jurisdictions, even though this Option uses partial-cost accounting of less than 50% of the total network revenue requirement [Exhibit I-06-01 (g)]. A major disadvantage of Option 3 is that its \$6.54 per MWhr ETS Rate would still be more than three-and-a-half times the current ETS Rate of \$1.85 per MWhr. As a result, this ETS Rate would likely be considered an unfair increase by export proponents. In the interest of seeking a “Balanced Approach”, it is recommended that Option 3 should also be eliminated from further consideration.

Option 5 (Allocation on 80% Basis of Shared Network Costs) is likely the most justifiable option from among the options tabled by Elenchus. The 20% reduction in the allocation of costs to exports is justified by consideration that exports were curtailed 20% of the hours in the last few years. Compared to Option 3 above, it results in a further reduction in the ETS Rate, to \$5.42 per MWhr, a desired outcome of a reduced ETS Rate to obtain a balanced approach as rationalized above. Nonetheless, in order to provide a suitable transition period to this higher

rate, it is suggested that Option 5 should also be set aside at this time and Option 4 should be adopted as recommended below.

RECOMMENDATION:

Option 4 (Allocation on 50% Basis of Shared Net Fixed Assets) represents a further reduction in the export rate compared to Option 5. It is based on reducing the allocation of “Shared Network Costs” to exports by 50% – a “hybrid” methodology, as described by Elenchus. Although the choice of 50% is arbitrary, this option can nonetheless be considered objective to the extent that it is essentially mechanistic. Most importantly, Option 4 is a “Balanced Approach” in that it satisfies, to some extent, the principles of user pay, cost causality, fairness, and avoidance of free riding, while alleviating concerns of export proponents that high transaction costs would curtail exports. Therefore, it is recommended that Option 4, titled “Allocation on 50% Basis of Shared Net Fixed Assets,” should be adopted for calculating the ETS Rate for Ontario, and the ETS Rate of \$3.66 per MWhr is recommended for this rate-setting cycle.

In the matter of adjusting the ETS Rate during the rate-setting term, it is recommended that, for simplicity, the ETS Rate should be held steady in between rate-setting proceedings. At the time of a future detailed proceeding associated with the approval of a revised Hydro One revenue requirement, the ETS Rate can be recalculated using the cost allocation methodology for either Option 4 or Option 5 described above.

In order to leverage the extensive effort undertaken during the current proceeding, it is recommended that Hydro One be directed to develop and maintain a suitably detailed ETS Cost Allocation Manual so that future revisions to the ETS Rate, based on either of the Elenchus options titled “Allocation on 50% Basis of Shared Network Costs” or “Allocation on 80% Basis of Shared Network Costs” are relatively mechanistic and do not require an elaborate proceeding.

END

Attachment 1: Figures from IESO’s 2021 Annual Planning Outlook

Figure 23 | Surplus Baseload Generation

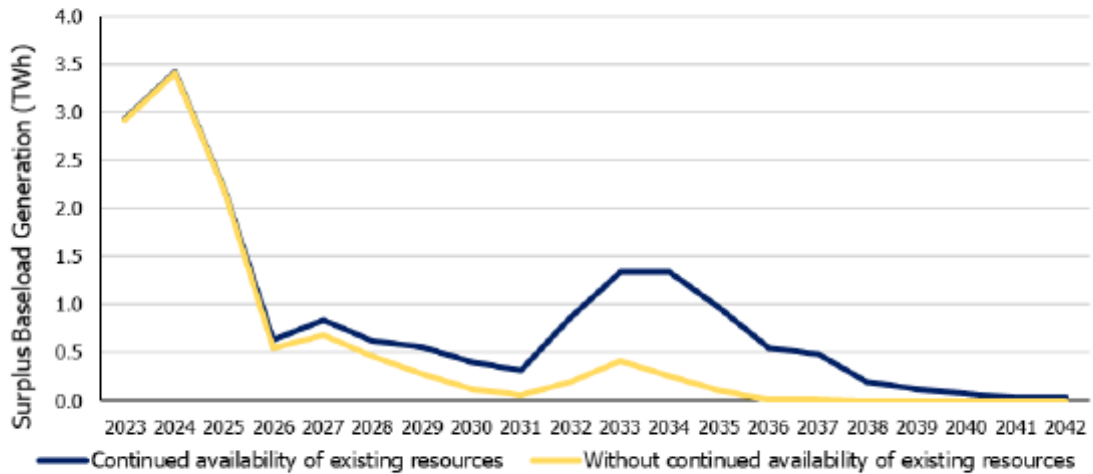
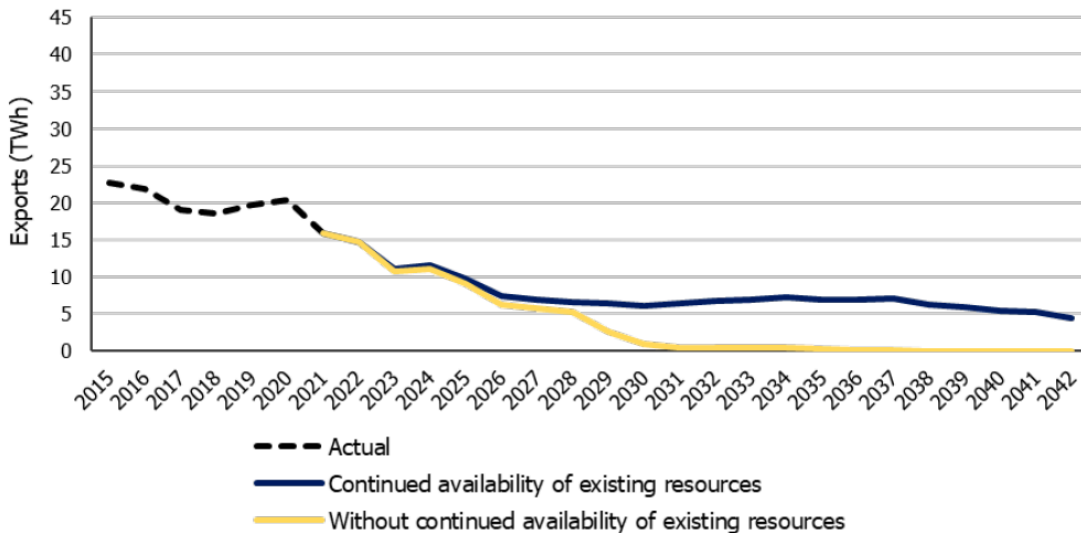


Figure 27 | Energy Production Outlook, Exports²⁰



Source: <https://ieso.ca/-/media/Files/IESO/Document-Library/planning-forecasts/apo/Dec2021/2021-Annual-Planning-Outlook>