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Frank D'Andrea Vice President, Reliability Standards and Chief Regulatory Officer

BY EMAIL AND RESS

May 13, 2022

Ms. Nancy Marconi Registrar Ontario Energy Board Suite 2700, 2300 Yonge Street P.O. Box 2319 Toronto, ON M4P 1E4

Dear Ms. Marconi,

# EB-2021-0243 – Generic Hearing on Uniform Transmission Rates-Related Issues and the Export Transmission Service Rate – Interrogatory Responses

Pursuant to the OEB's Procedural Order No. 1 dated November 30, 2021, please find enclosed responses to interrogatories from the IESO and Hydro One. Please note that each interrogatory indicates the organization and/or expert who has answered the interrogatory.

An electronic copy of the responses has been submitted using the Board's Regulatory Electronic Submission System.

Sincerely,

Frenk Dancher

Frank D'Andrea

cc. George Dimitropoulos, IESO Patrick Duffy, Stikeman Elliott LLP EB-2021-0243 parties

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#### **OEB STAFF INTERROGATORY - 01** 1 2 3 Reference: ETS Rate Submission<sup>1</sup>, Page 3 4 5 Preamble: 6 The ETS (Export Transmission Service) Rate Submission states that one of the issues that emerged 7 since the market opening is "What ought to be an appropriate charge level to help defray the 8 costs to domestic customers for the use of the network transmission facilities to facilitate export 9 and wheel-through transactions?" 10 11 Interrogatory: 12 a) In Hydro One's view, what is the purpose of the ETS? What problem is the ETS intended to 13 solve? 14 15 The following questions, parts b) to g), are for the IESO: 16 17 b) In the IESO's view, what is the purpose of the ETS? What problem is the ETS intended to solve? 18 19 c) Please explain and clarify a wheel-through transaction including any differences with an 20 export transaction. 21 22 d) Please provide annual Ontario export and wheel-through quantities (TWh) from 2012 to 2021 23 by neighbouring jurisdictions. 24 25 e) Please confirm if all export and wheel-through transactions in Ontario are subject to ETS 26 charges. If not, please specify which transactions are not subject to ETS charges, their 27 quantity, and the rationale. 28 29 f) Please confirm if all export and wheel-through transactions in Ontario are subject to the 30 Intertie Congestion Price (ICP). If not, please specify which transactions are not subject to ICP 31 charges, their quantity, and the rationale. 32

<sup>&</sup>lt;sup>1</sup> ETS Rate Submission is the Joint Report filed by Hydro One and IESO on October 14, 2021. Where references are made to attachments in the Joint Report, they are referred to as Submissions on the ETS Rate with the specific attachment number identified.

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g) Please confirm and specify if there are any other charges that export and wheel-through
 transactions are subject to in Ontario (e.g., "uplifts"). If so, please specify which transactions
 are subject to these other charges. their quantity and the rationale.

4

### 5 Response:

6 *Response from Hydro One:* 

7

a) In Hydro One's view, the purpose of the ETS rate is to recover the cost of export customers' 8 use of the transmission system from which they benefit. This is consistent with section 3.8.2 9 of the OEB's decision in RP-1999-0044 where the OEB states that exporters: "in addition to 10 paying to the IMO the specific transaction costs, also utilize the assets and facilities of the 11 Ontario transmission system. The issues is how to assess transmission costs to these 12 transactions." As noted on page 180 of the OEB's decision in Hydro One's 2020-2022 13 transmission application (EB-2019-0082), "the OEB agrees that... export service should 14 continue to be viewed as a separate class." Therefore, the ETS rate limits any cross-15 subsidization between Ontario transmission customers and export customers. As discussed 16 in Hydro One's response to VECC Interrogatory 1, the OEB may consider and balance other 17 factors when considering the degree of cross-subsidization that is appropriate when setting 18 the specific value of the ETS rate. 19

20

21 *Responses from IESO:* 

22

b) The IESO's understanding is that the ETS was established as a compromise between the 23 competing objectives discussed in the Board's decision in RP-1999-0044 - in particular, the 24 recovery of a portion of the total transmission system costs from exporters while allowing for 25 the development of larger, open power markets where trade can take place with the 26 minimum of impediments. Consistent with this purpose and as discussed in its report, the 27 IESO believes that, when setting the ETS, consideration should be given to maximizing the 28 operational and economic benefits provided by exports by minimizing transaction costs. Any 29 increase in the ETS rate will reduce the value of interties, leading to less system flexibility and 30 higher costs for Ontario consumers. 31

		rage 5 01 4
1	c)	The IESO allows 'linked wheel-through' intertie transactions, where a market participant
2		simultaneously imports energy into Ontario and exports the same quantity to another
3		jurisdiction. For settlement purposes, both exports and wheel-throughs are subject to similar
4		uplift and ETS charges <sup>2</sup> .
5	۹)	Places see Table 1 Ontaria Export Volumes by Jurisdiction and Table 2 Ontaria Export
6 7	u)	Volumes Considering Wheel-Throughs in Attachment 1 to this interrogatory. Annual imports
, 8		and exports by jurisdiction are available on IESO's public webpage <sup>3</sup> .
9		
10	e)	Confirmed.
11		
12	f)	All exports and wheel-through transactions in Ontario are subject to the Intertie Congestion
13		Price.
14		
15	g)	Export and wheel-through transactions are subject to uplift charges. Generally, uplift charges
16		are allocated based on the transaction's volumetric share of demand for the applicable time
17		period. Uplift charges include:
18		a Hourly Unlift - CMSC
20		b. Hourly Uplift $= 10G$
21		c. Hourly Uplift – Other
22		d. Daily Uplifts
23		e. Monthly Uplift
24		f. IESO Administration Fee (for Exports)
25		g. Wholesale Transmission Charge
26		
27		These uplifts can vary from month to month, and are provided in the Monthly Market
28		Summary Report <sup>₄</sup> .

<sup>&</sup>lt;sup>2</sup>For further information, please see the following link: <u>https://ieso.ca/-/media/Files/IESO/Document-Library/engage/mrp-edd/edd-20191115-linked-wheel-transactions.ashx</u>

<sup>&</sup>lt;sup>3</sup> Found here: <u>https://www.ieso.ca/en/Power-Data/Supply-Overview/Imports-and-Exports</u>

<sup>&</sup>lt;sup>4</sup> <u>https://www.ieso.ca/en/Power-Data/Monthly-Market-Report</u>

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# **OEB STAFF INTERROGATORY – 01, ATTACHMENT 1**

1 2

<sup>3</sup> This exhibit has been filed separately in MS Excel format.

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# **OEB STAFF INTERROGATORY - 02**

1

2		
3	Ref	ference:
4	ETS	Rate Submission. Page 8
5		
6	Pre	amble:
7	In t	he 2021 Elenchus Report, Elenchus surveyed whether other jurisdictions use cost allocation
8	prir	nciples for the purpose of allocating shared network costs between domestic and export
9	clas	ises.
10		
11	Inte	errogatory:
12	a)	Please confirm which jurisdictions use cost allocation principles for the purpose of allocating
13		shared network costs between domestic and export classes.
14		
15	b)	For those jurisdictions that use cost allocation principles for the purpose of allocating shared
16		network costs between domestic and export classes, please specify the principles used, the
17		amount of the allocation and the rate charges.
18		
19	c)	Are there any directional-based approaches (e.g., value-based, market-based) in other
20		jurisdictions for the purpose of allocating shared network costs including ICP? If yes, please
21		specify.
22		
23	d)	$\label{eq:constraint} Are there any settlement-based approaches in other jurisdictions for the purpose of allocating$
24		shared network costs? If, yes please specify.
25		
26	e)	Are there any other approaches in other jurisdictions for the purpose of allocating shared
27		network costs? If, yes please specify.
28		
29	Res	sponse:
30	Res	ponse from Elenchus for a)-e):
31		

No jurisdictions surveyed expressly allocate costs between domestic and export classes.

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1

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# **OEB STAFF INTERROGATORY - 03**

2		
3	Re	ference:
4	ETS	Rate Submission, Page 10
5		
6	Pre	eamble:
7	Нус	dro One engaged CRA to update its 2012 Jurisdictional Review to reflect current export
8	tra	nsmission service rates in other jurisdictions, the rationale behind those rates and how market
9	imp	plications are considered in the setting of export transmission service rates in those
10	juri	sdictions. Most jurisdictions included in the 2021 CRA Study apply Open Access Transmission
11	Tar	iff (OATT) rates for export services, which promote competitive and non-discriminatory
12	trai	nsmission access.
13		
14	Int	errogatory:
15	a)	Are there any directional based approaches in other jurisdictions for the setting of export
16		transmission service rates including ICP? If yes, please specify.
17		
18	b)	Are there any settlement-based approaches in other jurisdictions for the setting of ETS rates?
19		ir, yes please specify.
20	c)	Are there any other approaches in other jurisdictions for the setting of ETS rates? If yes please
21	Cj	specify
22		Specify.
24	d)	Please provide the rationale behind ETS rates in other jurisdictions.
25		
26	e)	Please provide how market implications are considered in the setting of ETS rates in those
27		jurisdictions.
28		
29	f)	Which of Ontario's neighbouring jurisdictions have import transmission service rates? Please
30		provide the rationale behind import transmission service rates in those jurisdictions and how
31		market implications are considered in the setting of import transmission service rates in those
32		jurisdictions.
33		
34	g)	vinich of Unitario's neighbouring jurisdictions have do not have import transmission service
35		indices: Flease provide the rationale bening no import transmission service rates in those invicdictions
30		וויידאוננוטוז מות נופ וומוגבו וווטונמנוטוז וו נווטצפ ועווגעוננטוג.

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|--|

2	Re	sponse from Charles River Associates:
3		
4	a)	CRA is not aware of any directional based approaches in other jurisdictions for the setting of
5		export transmission service rates including ICP.
6		
7	b)	CRA is not aware of any settlement-based approaches in other jurisdictions for the setting of
8		ETS rates.
9		
LO	c)	CRA is not aware of any other approaches in other jurisdictions for the setting of ETS rates.
11		
12	d)	See response to OEB Staff Interrogatory 19, part (g). Also see ETS Rate Submissions,
13		Attachment 2.
14		
15	e)	CRA has not identified any ETS rates in other jurisdictions that are set based on market
16		implications.
17		
.8	f)	CRA has not studied whether import transmission rates exist in any neighbouring jurisdictions
9		and therefore cannot respond to this question definitively. Imposing an import charge where
20		one does not exist (all else equal) would have the effect of adding to the marginal cost of
21		supply faced by potential importers.
22		
3	g)	See response in part (f) above.

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#### **OEB STAFF INTERROGATORY - 04** 1 2 3 Reference: 4 ETS Rate Submission, Page 11 5 Preamble: 6 Hydro One is the only Ontario transmitter that owns and operates the intertie facilities that are 7 accounted for in the approved ETS rates. Based on the current ETS rate of \$1.85/MWh. Hydro 8 One's forecasted ETS revenues during the 2023 to 2027 period are approximately \$37 million per 9 year. 10 11 Interrogatory: 12 a) Please confirm the 2021 Elenchus Report proposal is for ETS revenue to apply to all Ontario 13 14 transmitters. 15 b) Please confirm the export load forecast for Hydro One's revenue requirement in EB-2021-16 0110 is based on a three-year rolling average of forecast load volume. 17 18 c) Please provide Hydro One's forecasted annual revenue requirement, ETS revenues and load 19 forecast for each year from 2023 to 2027 and the resultant ETS rates based on the 2014 20 Elenchus Report methodology and based on each of the three options to allocate shared 21 22 network asset-related costs to export customers in the 2021 Elenchus Report. 23 d) Please provide all other Ontario transmitters forecasted annual revenue requirement, load 24 forecasts and ETS revenue for each year from 2023 to 2027 and the resultant ETS rates from 25 2023 to 2027 based on the 2014 Elenchus Report methodology and based on each of the 26 three options to allocate shared network asset-related costs to export customers in the 2021 27 Elenchus Report. 28 29 e) If other Ontario transmitters forecasted annual revenue requirement, load forecasts and ETS 30 revenue for each year from 2023 to 2027 are not available please apply the 2021 Elenchus 31 Report adjustment for other transmitters approved revenue requirement to determine the 32 resultant ETS rates from 2023 to 2027 based on the 2014 Elenchus Report methodology and 33 based on each of the three options to allocate shared network asset-related costs to export 34 customers in the 2021 Elenchus Report. 35

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1 f) Please provide, if any, the Hydro One variance account established and explain the 2 reconciliation process if the annual ETS revenue forecast is not met for Hydro One.

3 4

g) Please explain if any variance accounts will be required if the ETS revenue forecast is not met for the other Ontario transmitters. What will be the reconciliation process?

5 6

7 **Response:** 

- 8 Response from Elenchus:
- 9

a) The 2021 Elenchus Report used the revenue requirement of Hydro One to calculate the
 proposed ETS rates, as it did in the 2014 Report. Elenchus proposes to increase the calculated
 ETS rate in order to reflect the total cost of all transmission facilities in Ontario. As stated in
 page 35 of 44 of Attachment 1 to the ETS rate submission:

As in the May 2014 suggested methodology, Elenchus suggests that the three proposed methodologies in this report to calculate an ETS rate be adjusted to include other transmitters' approved revenue requirement.

18

14

19 *Responses from Hydro One:* 

20

Elenchus has not proposed a mechanism for settlement of the ETS revenue or that other 21 transmitters should also collect ETS revenue. For purposes of settlement, Hydro One's view 22 is that the ETS revenue should continue to apply only to Hydro One as the only Ontario 23 transmitter that owns and operates the intertie facilities that are accounted for in the ETS 24 rate. From a customer and rate perspective the outcome is the same since any ETS revenues 25 that would flow to other transmitters would have to be deducted from their approved 26 revenue requirement for the purpose of calculating UTR rates. Maintaining the existing 27 process achieves the same outcome for customers while ensuring that the settlement process 28 remains simple to administer. Other transmitters will not be impacted by maintaining the 29 existing ETS methodology as their revenue requirements are fully recovered through the UTR. 30

31

b) Confirmed.

33

c) The table below provides Hydro One's forecasted revenue requirement and Export MWh for
 2023 to 2027 and the resultant ETS Revenue based on the five methodologies in Table 14 of
 the 2021 Elenchus Report.

	2023	2024	2025	2026	2027
Total Revenue Requirement (\$M)	\$1,823.2	\$1,937.8	\$2,027.5	\$2,140.3	\$2,219.0
Export MWh	20,193,730	20,057,676	20,138,360	20,129,922	20,108,653
ETS Revenue (\$M)					
OEB 2020 Approved ETS Rate (\$1.85/MWh)	\$37.4	\$37.1	\$37.3	\$37.2	\$37.2
2014 Report Methodology (\$1.67/MWh)	\$33.7	\$33.5	\$33.6	\$33.6	\$33.6
2021 Report- Allocation on Basis of 100% of Shared Net Fixed Assets (\$6.07/MWh)	\$122.6	\$121.8	\$122.2	\$122.2	\$122.1
2021 Report – Allocation on Basis of 50% of Shared Net Fixed Assets (\$3.40/MWh)	\$68.7	\$68.2	\$68.5	\$68.4	\$68.4
2021 Report – Allocation on Basis of 80% of Shared Net Fixed Assets (\$5.03/MWh)	\$101.6	\$100.9	\$101.3	\$101.3	\$101.1

1

d) The forecast revenue requirement and load forecast for 2023-2027 of the other transmitters

is not available to Hydro One and as such, the requested information cannot be provided. As

<sup>4</sup> noted in the response to part a) other transmitters are not impacted by the existing ETS

5 methodology as their revenue requirements are fully recovered through the UTR.

6

7 e) The table below shows the resultant ETS Revenue based on the methodologies in Table 15 of

8 the 2021 Elenchus Report. These are the ETS rates adjusted to include other transmitter's

- 9 revenue requirement.
- 10

	2023	2024	2025	2026	2027
Adjusted ETS Revenue (\$M)					
2021 Report- Allocation on Basis of 100% of Shared Net Fixed Assets (\$6.54/MWh)	\$132.1	\$131.2	\$131.7	\$131.6	\$131.5
2021 Report – Allocation on Basis of 50% of Shared Net Fixed Assets (\$3.66/MWh)	\$73.9	\$73.4	\$73.7	\$73.7	\$73.6
2021 Report – Allocation on Basis of 80% of Shared Net Fixed Assets (\$5.42/MWh)	\$109.5	\$108.7	\$109.1	\$109.1	\$109.0

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f) As described in EB-2021-0110, Exhibit G, Tab 1, Section 3.8, the Excess Export Service Revenue 1 Variance Account (Account 2405) was originally approved in the OEB's decision for Hydro 2 One's 2009 and 2010 Transmission revenue requirement on May 28, 2009 (EB-2008-0272). In 3 the OEB's decision for 2020-2022 Transmission revenue requirement (EB-2019-0082), the 4 OEB approved the continuance of this account. The OEB required that Hydro One 5 Transmission continue to capture any differences between forecast export service revenue 6 approved by the OEB, as part of its 2020-2022 transmission rates, and the actual export 7 service revenue. The balance in this account reflects these differences. 8

9

The balance in this account is reported to the OEB on an annual basis, consistent with the OEB's Reporting and Record Keeping Requirements. Forecast interest is included in the balance submitted for approval to reflect carrying charges anticipated through to the proposed effective date, net of drawdowns from approved dispositions.

14

g) See response in part (a). Hydro One proposes that Hydro One should continue to be the only
 transmitter to receive ETS revenue. As such, no variance accounts will be required for other
 Ontario transmitters.

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#### **OEB STAFF INTERROGATORY - 05** 1 2 3 Reference: 4 ETS Rate Submission, Page 11 5 Preamble: 6 The joint submission states that any changes in the approved ETS Rate would have a neutral 7 impact on Hydro One's overall transmission revenues because an increase or decrease in the ETS 8 Rate would result in an equal and opposite increase or decrease in the amount by which Hydro 9 10 One's rates revenue requirement is offset for purposes of recovery through UTRs. 11 Interrogatory: 12 a) Please confirm that Hydro One expects that any decrease in the ETS rate will be recovered 13 from Ontario transmission customers through the UTR. 14 15 b) Please specify who Hydro One expects to recover the revenue that it would otherwise obtain 16 through the ETS rate from and the mechanism if the ETS rate is set to zero. 17 18 19 Response: Response from Hydro One: 20 21 a) Confirmed. 22 23 b) If the ETS rate is set to zero, the revenue that Hydro One would otherwise obtain through the 24 25 ETS rate would be collected through higher Uniform Transmission Rates for Ontario transmission customers. Hydro One's revenue requirement used to calculate the UTRs would 26 by higher by the amount that would otherwise be collected from ETS revenues. 27

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# **OEB STAFF INTERROGATORY - 06**

1		OEB STAFF INTERROGATORY - 06
2		
3	Re	ference:
4	ETS	S Rate Submission, Pages 11-12
5		
6	Pre	eamble:
7	Нус	dro One states that it understands from the IESO's comments that changes in the ETS Rate can
8	imp	pact the volume of export transactions in the Ontario electricity market and that changes in the
9	арр	proved ETS Rate would have a neutral impact on Hydro One's overall transmission revenues.
10		
11	Int	errogatory:
12	a)	Please confirm that the volume of export transactions will change inversely proportional to
13		changes in the ETS rate. If not, please quantify and explain the impact of changes to the ETS
14		rate on the volume of export transactions.
15		
16	b)	Please confirm that Hydro One is expecting that with the volume of export transactions
17		changing on an inversely proportional basis to changes in the ETS rate, there will be a neutral
18		impact on Hydro One's overall transmission revenues. If this is not the case, please explain
19		and quantify how Hydro One proposes that changes in the ETS rate would have a neutral
20		Impact on Hydro One's overall transmission revenues?
21	De	
22	Res	sponse:
23	Res	ponse from IESU:
24	2)	There is an inverse relationship between the ETS rate and volume of expert transactions
25	aj	Intertie transactions are driven by expected price differences between jurisdictions net of
20		transaction costs Since the ETS is a transaction cost as transaction costs increase the
27		expected net price difference between jurisdictions decreases which reduces export
29		volumes.
30		
31	Res	sponse from Hydro One:
32		
33	b)	Please refer to the IESO's response in part a). Currently, the revenue generated by ETS is an
34	-	off-set to reduce Hydro One's transmission rates revenue requirement, which is used for UTR
35		setting. Hydro One expects that changes to the ETS rate will have a neutral impact on Hydro
36		One's overall transmission revenue due to the corresponding change in the UTR. If the ETS
37		rate goes up, the ETS revenue will go up proportionally, which will off-set Hydro One's

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- 1 transmission rates revenue requirement by a larger amount, resulting in lower UTRs for
- 2 Ontario's rate payers. The opposite is true if ETS rates go down. Any variances in export
- <sup>3</sup> volume during the rate term would be captured in the variance account described in Hydro
- 4 One's response to OEB Staff Interrogatory #4, part f).

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1		OEB STAFF INTERROGATORY - 07
2		
3	Re	ference:
4	Sub	omissions on the ETS Rate, Attachment 1, Page 3
5	Sub	pmissions on the ETS Rate, Attachment 1, Page 6
6	Sub	pmissions on the ETS Rate, Attachment 1, Pages 10-12
7	Sub	pmissions on the ETS Rate, Attachment 1, Page 26
8		
9	Pre	eamble:
10	In t	he 2014 Report, Elenchus proposed a cost allocation methodology to determine the ETS rate
11	tha	t was based on cost causality.
12		
13	The	e assumptions used in developing the 2014 methodology were that:
14		<ul> <li>Export is only served when there is spare capacity available,</li> </ul>
15		• Generators and importers in Ontario do not pay for the use of the Transmission
16		System
17		Hydro One's planning of the Network transmission system does not take into
18		consideration the capacity needs of export customers,
19		<ul> <li>Export is treated as "Interruptible" for cost allocation purposes.</li> </ul>
20		
21	Ele	nchus divided assets into the functions:
22		Dedicated to Domestic
23		Dedicated to Interconnect
24		Shared
25	and	allocated to either export or domestic customers.
26		
27	The	2021 Elenchus Report updates the ETS Rate to \$1.67/MWh based on the 2014 Report
28	me	thodology.
29		
30	Int	errogatory:
31	a)	Please provide the allocation amount and ETS rate for the asset costs and OM&A expenses
32		allocated separately to export and domestic customers for the Dedicated to Interconnect and
33		Shared functions in the 2014 Report.
34	<b>ه</b> ۱	Diagon undete the values in question a) for the 2021 Flanchus Depart and surface and
35	(ט	Prease update the values in question a) for the 2021 Elenchus Report and explain any
36		variances between the 2014 Elenchus Report and the 2021 Elenchus Report.

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c) If the updated ETS rate in question b) is not \$1.67/MWh, please explain why.

2

### 3 Response:

4 *Response from Elenchus:* 

5

a) Please see the table below which provides a derivation of the 2013 ETS rate of \$1.77/MWh
 from the 2014 Report. The ETS rate is derived by dividing the amount allocated to Export by
 forecast volumes 15,500,000 MWh.

9

Cost Category	Function	Domestic Allocation		Export Alloca	ETS Rate	
		\$	%	\$	%	
OM&A & Other	Shared	\$277,797,769	94.5%	\$16,150,368	5.5%	\$1.04
Expenses	Interconnect	\$0	0.0%	\$3,662,002	100.0%	\$0.24
Asset-Related	Shared	\$599,165,567	100.0%	\$0	0.0%	\$0.00
Costs	Interconnect	\$0	0.0%	\$7,594,330	100.0%	\$0.49
		I	1	ETS	5 \$/MWh=	\$1.77

10

b) Please see the table below. The ETS rate is derived by dividing the amount allocated to Export
 by volumes of 20,377,407 MWh. Variances are caused by changes in revenue requirements
 and Export demand since 2013. The ETS has decreased due to an increase in MWh billing
 determinants, which more than offsets increases in allocated costs due to higher Export
 demand.

16

Cost Category	Function	Domestic Allocation		Export Alloc	FTS Rate	
	- unction	\$	%	\$	%	
OM&A & Other	Shared	\$267,279,644	92.3%	\$22,260,645	7.7%	\$1.09
Expenses	Interconnect	\$0	0.0%	\$3,063,343	100.0%	\$0.15
Asset-Related	Shared	\$807,660,588	100.0%	\$0	0.0%	\$0.00
Costs	Interconnect	\$0	0.0%	\$8,629,802	100.0%	\$0.42
				ET	S \$/MWh=	\$1.67

17

c) The updated ETS rate in response to question b) is \$1.67/MWh.

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# **OEB STAFF INTERROGATORY - 08**

1	OEB STAFF INTERROGATORY - 08
2	
3	Reference:
4	Submissions on the ETS Rate, Attachment 1, Page 14
5	
6	Preamble:
7	In the 2014 Report methodology, Elenchus recommended that 12 CP be used to allocate shared
8	assets between domestic and export customers using the last year for which information was
9	available.
10	
11	The load forecast used for setting the ETS rate is the 3-year historical rolling average volume of
12	electricity exported from or wheeled through Ontario.
13	
14	Interrogatory:
15	a) Please explain why the last year 12 CP is used to allocate assets instead of the 3-year historical
16	rolling average 12 CP.
17	
18	b) Please propose rationale as to how often the 12 CP cost allocation value should be revised

after the ETS is set. 19

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# 1 Response:

- 2 *Response from Elenchus:*
- 3
- a) The most recent year 12 CP was selected to reflect the most recent relative Domestic and
- 5 Export demands and to correspond with the time period of the MWh volumes used as the
- 6 billing determinant.
- 7
- 8 b) Please see the response to OEB Staff Interrogatory 15, part (a).

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# **OEB STAFF INTERROGATORY - 09**

1

Dedicated to Interconnect

Total

100.00%

2					
3	<u>Reference:</u>				
4	Submissions on the ETS Rate, Attachment 1, Pages 13-14				
5					
6	Preamble:	Preamble:			
7	The asset functions identified were apportioned between domestic and export customers using				
8	the 12 CP allocator based on 2012 actual hourly data to develop composite allocators used to				
9	allocate shared OM&A expenses to domestic and export customer classes in the 2014				
10	methodology. Table 3 inclu	udes the con	nposite allocators use	d in the 2014 i	methodology. Table 1
11	indicates a 10.06% export a	allocator for	2012. Table 3 indicate	es a 7.11% exp	ort allocator for 2012.
12					
13	Interrogatory:				
14	a) Please provide detailed	calculation	s of how the 7.11% co	mposite allocat	or is derived from the
15	10.06% export allocate	or.			
16					
17	Response:				
18	Response from Elenchus:				
19					
20	a) In the 2014 Report, the	composite a	allocator was derived b	based on the Ex	port rate class's share
21	of all net fixed assets,	including ass	sets functionalized as	Shared, Dedica	ited to Domestic, and
22	Dedicated to Interconnect. Shared assets were allocated by the 10.06% export allocator,				
23	Dedicated to Domestic assets were allocated 100% to Domestic, and Dedicated to				
24	Interconnect assets were allocated 100% to Exports. The derivation of the 7.11% composite				
25	allocator is provided in	the table be	elow.		
26					
	Function	Export	Functionalized Rate	Share of	Weighted Composite
		Share	Base	Rate Base	Allocator
	Shared	10.06%	\$5,919,440,609	62.88%	6.32%
	Dedicated to Domestic	0.00%	\$3,419,815,008	36.33%	0.00%

\$74,231,166

\$9,413,486,782

0.79%

100.00%

0.79%

7.11%

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### **OEB STAFF INTERROGATORY - 10**

- 2 3 Reference: 4 Submissions on the ETS Rate, Attachment 1, Page 15 5 Preamble: 6 The 2021 Elenchus Report states that the IESO does not factor exports into its reliability planning 7 assessments. This means that the IESO does not procure generation or transmission assets to 8 serve future export demand. 9 10 11 Interrogatory: a) Please confirm the IESO does not factor exports into its reliability planning assessments and 12 that it does not procure generation or transmission assets to serve future export demand. 13 14 Response: 15 Response from IESO: 16 17 a) The IESO undertakes reliability assessments to ensure the system meets the needs of 18 domestic consumers. Ontario's interties provide reliability benefits (e.g., supply and demand 19 balancing, frequency and regulation control, and other emergency measures), and the IESO 20 plans the system, in accordance with established planning standards, to ensure export 21 capability (if needed) is sufficient to maintain system reliability and operability. However, the 22 needs and activities of competitive exporters (e.g., volume and direction of transactions) as a 23 result of normal market conditions are not considered when planning the transmission 24
- system, and so are not a driver of investment decisions.

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#### **OEB STAFF INTERROGATORY - 11** 1 2 Reference: 3 4 Submissions on the ETS Rate, Attachment 1, Page 19 5 **Preamble:** 6 The IESO considers exporters to be a "curtailable" rather than "interruptible" class, consistent 7 with the North American Reliability Council (NERC) definition of interruptible. 8 9 10 As domestic peak demands have declined in recent years, the approximate number of hours when exports curtailments were active have also fallen. In the first ten months of 2020, the IESO 11 curtailed exports in approximately 18% of all hours to manage reliability. 12 13 Interrogatory: 14 a) Please provide an update on the number of hours the IESO curtailed exports for 2020 and 15 2021. 16 17 Response: 18 Response from IESO: 19 20 21 a) In 2020, the IESO curtailed exports in 1510 out of 8784 hours (17%). In 2021, the IESO curtailed

exports in 2126 out of 8760 hours (24%).

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### **OEB STAFF INTERROGATORY - 12**

- 2 3 Reference: Submissions on the ETS Rate, Attachment 1, Page 20 4 5 Preamble: 6 Elenchus states that transmission rate-setting in Ontario differs considerably from the processes 7 used in other jurisdictions. Elenchus did not find any jurisdictions in which cost allocation 8 principles are used for the purpose of allocating shared network costs between domestic and 9 export classes. Furthermore, cost allocation principles are not used to determine differential firm 10 and non-firm charges. 11 12 These jurisdictions have postage stamp "Network Service charges" that are analogous to Ontario's 13 domestic transmission tariff. Exports are analogous to "Point-to-Point" transmission service, 14 which are applied to the transmission of energy along specific paths, from a point of receipt to a 15 point of delivery. Unlike Ontario's Domestic and Export rates, which are set based on an allocation 16 basis, Point-to-Point charges are calculated based on the Network Service charge. 17 18 Interrogatory: 19 a) Please discuss and clarify the principles used for the purposes of allocating asset costs and 20 OM&A expenses to export and domestic customers for the Dedicated to Interconnect and 21 Shared functions in other jurisdictions in the 2021 Elenchus Report. 22 23 b) In Elenchus' experience are there any jurisdictions that it is aware of that use the 24 methodologies proposed by Elenchus to allocate asset costs and OM&A expenses to export 25 and domestic customers for the Dedicated to Interconnect and Shared functions. If not, 26 please explain whether, in Elenchus' professional judgment, the proposed methodology is 27 sound practice. 28 29 Response: 30 Response from Elenchus: 31 32 a) As stated in the preamble, Elenchus did not find any jurisdictions in which costs are 33 allocated between domestic and export classes and therefore do not have separate 34
- 35 domestic and export rates.

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- b) Elenchus is not aware of any jurisdictions that use the methodologies proposed in the
   2021 Elenchus Report as these jurisdictions did not explicitly consider cost allocation for
   the purposes of setting Domestic and Export transmission rates and generally do not
   have Export-specific rates.
  - As described on page 5 of Attachment 1 of the ETS Rate Submissions (2021 Elenchus Report), in EB-2019-0082 the OEB stated in its Decision and Order:

Hydro One supported intervenor arguments that a cost allocation 9 methodology that includes the allocation of shared network costs to 10 exporters should be provided in Hydro One's next transmission rebasing 11 application. The OEB agrees. This study should include different scenarios 12 to take into consideration the fact that exporters do not receive the same 13 priority access as domestic service until they are scheduled. The OEB 14 agrees with the OEB panel for the ETS Decision that export service should 15 continue to be viewed as a separate class. This study should be filed with 16 Hydro One's next transmission rebasing application. 17

- 19The 2021 Elenchus Report addresses this direction by providing methodologies to allocate20shared network costs based on cost allocation principles.
- 22 With consideration of the OEB's decision that Export Transmission Service is a separate 23 class which should be allocated shared network costs despite being a curtailable class, the 24 methodologies used in other jurisdictions are not applicable. It is Elenchus's opinion that 25 the methodologies described in the 2021 Elenchus Report are sound practice given the 26 OEB's direction.
- In Elenchus' view, a ratemaking methodology such as the proposed approach for ETS rates, that adheres to the central principle of establishing rates that are informed by the principle of cost causality is sound practice regardless of the prevalence of practices in other jurisdictions that are not informed by the principle of cost causality.

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# **OEB STAFF INTERROGATORY - 13**

2			
3	Ref	ference:	
4	Sub	missions on the ETS Rate, Attachment 1, Pages 11, 25-26	
5			
6	Pre	amble:	
7	The	2014 Elenchus Report methodology recommended allocating all assets and costs for functions	
8	Dec	dicated to Interconnect to the export class because importers do not pay for the use of the	
9	transmission system.		
10			
11	In t	he 2021 Report, Elenchus states that since importers also use interconnection assets, not all	
12	ass	et-related costs and OM&A expenses related to interconnection should be allocated only to	
13	the	export class.	
14			
15	Elei	nchus proposes in the 2021 Report to allocate assets and OM&A expenses that are categorized	
16	as [	Dedicated to Interconnect by the Intertie 12CP between domestic and export class.	
17			
18	Inte	errogatory:	
19	a)	Please explain if Elenchus is proposing an import charge in its 2021 Report by allocating	
20		28.29% of Dedicated to Interconnect assets and expenses to Domestic and if so, what is the	
21		proposed charge(s).	
22			
23	b)	If Elenchus is not proposing an import charge in its 2021 Report for Dedicated to Interconnect	
24		assets and expenses, please explain how Elenchus is proposing that the assets and expenses	
25		be recovered?	
26			
27	Res	sponse:	
28	Res	ponse from Elenchus:	
29			
30	a)	Elenchus is not proposing an import charge in its 2021 report. Section 6.2 of Elenchus Report	
31		states that:	
32			
33		Assets dedicated to interconnect serve both exports and imports. The May 2014	
34 35		methodology recommended allocating all assets and costs for functions dedicated to interconnect to the Export class because importers do not have for	
36		the use of the transmission system.	
		'	

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Since importers also use interconnection assets not all asset-related costs and OM&A related to interconnection should be directly allocated only to the Export class. Energy is imported to serve domestic load therefore a portion of interconnection assets, asset-related costs, and OM&A should be allocated to the Domestic class. Elenchus recommends that the intertie 12CP be used to allocate Dedicated to Interconnect assets and costs to the Export and Domestic classes.

7

b) The dedicated Interconnected Assets and expenses allocated to in the proposed ETS
 methodology are allocated to exporters or domestic customers. The assets and expenses
 allocated to Domestic are recovered through the Uniform Transmission Rates.

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1		OEB STAFF INTERROGATORY - 14	
2			
3	Re	ference:	
4	Sub	missions on the ETS Rate, Attachment 1, Table 12	
5			
6	Pre	eamble:	
7	Table 12 shows the allocators using 2020 Actual Hourly Data		
8			
9	Int	errogatory:	
10	a)	In Table 12, it appears that the Dedicated to Interconnect Domestic allocator is incorrect.	
11		Please confirm if this is the case, and if so, update the table.	
12			
13	<u>Re</u>	sponse:	
14	Res	ponse from Elenchus:	
15			
16	a)	Confirmed, the Domestic allocation should be 28.29%. The models used to derive the ETS	
17		Rates in Tables 14 and 15 use the correct 28.29% figure. A revised Table 12 is provided below:	
18			

19

# Table 1 - Allocators using 2020 Actual Hourly Data

Allocator	Basis	Export	Domestic	Total
Shared Net Fixed Assets	Transmission System 12CP	10.69%	89.31%	100.00%
Dedicated to Domestic	Direct Allocation	0.00%	100.00%	100.00%
Dedicated to Interconnect	Intertie 12CP	71.71%	28.29%	100.00%

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# **OEB STAFF INTERROGATORY - 15**

1		OEB STAFF INTERROGATORY - 15		
2				
3	Re	ference:		
4	Sul	omissions on the ETS Rate, Attachment 1, Tables 2, 3, 11, 13, 14		
5	Sul	omissions on the ETS Rate, Attachment 1, Page 12		
6				
7	Pre	eamble:		
8	In t	the 2014 Elenchus Report, the OM&A costs related to the use of shared assets were allocated		
9	between domestic and export customers using 12 coincident peak allocators in Table 2 and the			
10	composite allocators in Table 3 for 2013. In Table 2, the shared assets 12 coincident peak factor			
11	for	export is 10.59%.		
12				
13	In t	the 2021 Elenchus Report, the OM&A costs related to the use of shared assets were allocated		
14	between domestic and export customers using the 2012 coincident peak allocators in Tables 11			
15	and	d 13 for 2020. In Table 11, the shared assets 12 coincident peak factor for export is 10.69%.		
16				
17	Int	errogatory:		
18	a)	Please recommend the frequency that the allocators should be updated taking into		
19		consideration among other things the change in coincident peak factors between 2013 and		
20		2020.		
21				
22	b)	Please explain in detail why the 12 coincident peak factor is used to allocate 2020 Shared		
23		Network asset costs in Tables 12 and 13 while a composite allocation factor is used to allocate		
24		Shared Network asset costs in the 2014 report.		
25	c١	Please provide the composite factors, if any that were used in developing the proposed ETS		
26	CJ	rease provide the composite factors, if any, that were used in developing the proposed ETS		
21				

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#### 1 Response:

- 2 Response from Elenchus:
- 3

a) For rate stability reasons, Elenchus recommends that the allocators should be updated every
3 to 5 years, depending on the time frame that Hydro One's transmission revenue
requirement has been approved by the OEB. For example, if the OEB approves a 5-year time
frame for Hydro One's transmission revenue requirement, then it is Elenchus' views that the
allocators should also be updated after 5 years.

9

b) For clarity, the allocators in Tables 12 and 13 are used to allocate 2023 Shared Network asset
 costs, not 2020. The selection of 12 CP as the allocator for Shared Asset-related costs in the
 2021 Report is described in Section 3.4 of Attachment 1 (2021 Elenchus Report). In the 2014
 Report, Shared Network asset-related costs were allocated 100% to Domestic.

14

c) A composite allocator based on each class's share of the Revenue Requirement, excluding
 other revenues and DVA balances, is used to allocate deferral and variance account balances
 as described in section 6.3.4 of the 2021 Elenchus Report.
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## **OEB STAFF INTERROGATORY - 16**

11	a) In Table 13, it appears that the columns labelled "Hybrid Model" and "Curtailment % Model"				
12		are transposed. Please confirm if	this is the case, and if so, update	e the table.	
13					
14	Res	ponse:			
15	Resp	oonse from Elenchus:			
16					
17	a)	Confirmed. Please see the revised	d Table 13 below.		
18					
19		Table 1 - Shared N	etwork Asset Allocation Metho	dologies	
		Net Fixed Assets	Hybrid Model	Curtailment % Model	

	Net Fixed Assets			Hybrid Model		Curtailment % Model		Vodel	
	Export	Domestic	Total	Export	Domestic	Total	Export	Domestic	Total
12CP	28,428	237,606	266,034	14,214	237,606	251,820	22,742	237,606	260,348
%	10.69%	89.31%	100.00%	5.64%	94.36%	100.00%	8.74%	91.26%	100.00%

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#### **OEB STAFF INTERROGATORY - 17**

Reference:
Submissions on the ETS Rate, Attachment 1, Pages 29-31
Submissions on the ETS Rate, Attachment 1, Table 14, Page 31
Preamble:
Table 14 shows the ETS rates for the 2014 Report methodology and for each of the three costbased methodologies considered by Elenchus to be appropriate options to allocate Shared Network Asset-related costs to export customers.
Interrogatory:
a) Please provide, using the table below, for each of the four ETS rates in Table 14 the dollar amount of the allocation of costs and the contribution to ETS rates separately for export and domestic customers. Also, break down the allocation by capital costs and OM&A expenses separately for each of the categories Dedicated to Domestic, Dedicated to Interconnect and

17 Shared Network.

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ETS Rate – (\$xx)	Allocated Costs (\$million)	ETS Rate Contribution (\$)
Dedicated to Domestic – Export Capital Costs		
Dedicated to Domestic – Domestic Capital Costs		
Dedicated to Domestic – Export OM&A Expenses		
Dedicated to Domestic – Domestic OM&A Expenses		
Dedicated to Interconnect – Export Capital Costs		
Dedicated to Interconnect – Domestic Capital Costs		
Dedicated to Interconnect – Export OM&A Expenses		
Dedicated to Interconnect – Domestic OM&A Expenses		
Shared Network – Export Capital Costs		
Shared Network - Domestic Capital Costs		
Shared Network – Export OM&A Expenses		
Shared Network – Domestic OM&A Expenses		

1

b) Please provide for each of the four ETS rates in Table 14 the dollar amount of the allocation
 of costs and the contribution to ETS rates of external revenues received by Hydro One related
 to the use of Shared Network assets separately for export and domestic customers.

5

c) Please clarify if external revenue of Shared Network assets should include other Ontario
 transmitters' approved revenue requirements similar to the proposed ETS rate adjustment in
 Table 15. If so, please provide for each of the four ETS rates in Table 14 the dollar amount of
 the allocation of costs and the contribution to ETS rates of external revenues received by
 other Ontario transmitters related to the use of Shared Network assets separately for export
 and domestic customers.

12

d) Please clarify if export customers are allocated a portion of Shared Network assets in otherjurisdictions.

e) If yes, are the export customers allocated a portion of external revenues received by the
 transmitter related to the use of those assets? If so, please specify which jurisdictions and the
 amounts.

4

#### 5 Response:

6 *Response from Elenchus:* 

7

a) The requested table has been completed for each of the four ETS rates provided in Table 14.

2014 Methodology ETS Rate – (\$1.67)	Allocated Costs (\$million)	ETS Rate Contribution (\$/MWh)
Dedicated to Domestic – Export Capital Costs		
Dedicated to Domestic – Domestic Capital Costs	\$517.55	
Dedicated to Domestic – Export OM&A Expenses		
Dedicated to Domestic – Domestic OM&A Expenses	\$196.76	
Dedicated to Interconnect – Export Capital Costs	\$8.63	\$0.4235
Dedicated to Interconnect – Domestic Capital Costs	\$-	
Dedicated to Interconnect – Export OM&A Expenses	\$3.06	\$0.1503
Dedicated to Interconnect – Domestic OM&A Expenses	\$-	
Shared Network – Export Capital Costs	\$-	\$-
Shared Network – Domestic Capital Costs	\$807.66	
Shared Network – Export OM&A Expenses	\$22.26	\$1.0924
Shared Network – Domestic OM&A Expenses	\$267.28	

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Shared Net Fixed Assets (12CP) ETS Rate – (\$6.07)	Allocated Costs (\$million)	ETS Rate Contribution (\$/MWh)
Dedicated to Domestic – Export Capital Costs		
Dedicated to Domestic – Domestic Capital Costs	\$517.55	
Dedicated to Domestic – Export OM&A Expenses		
Dedicated to Domestic – Domestic OM&A Expenses	\$196.76	
Dedicated to Interconnect – Export Capital Costs	\$6.19	\$0.3037
Dedicated to Interconnect – Domestic Capital Costs	\$2.44	
Dedicated to Interconnect – Export OM&A Expenses	\$2.20	\$0.1078
Dedicated to Interconnect – Domestic OM&A Expenses	\$0.87	
Shared Network – Export Capital Costs	\$86.31	\$4.2353
Shared Network – Domestic Capital Costs	\$721.36	
Shared Network – Export OM&A Expenses	\$30.94	\$1.5183
Shared Network – Domestic OM&A Expenses	\$258.60	
External Revenues – Allocated to Export	-\$2.09	-\$0.1027
DVA Balances – Allocated to Export	\$0.06	\$0.0031

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Hybrid Model (50%) ETS Rate – (\$3.40)	Allocated Costs (\$million)	ETS Rate Contribution (\$/MWh)
Dedicated to Domestic – Export Capital Costs		
Dedicated to Domestic – Domestic Capital Costs	\$517.55	
Dedicated to Domestic – Export OM&A Expenses		
Dedicated to Domestic – Domestic OM&A Expenses	\$196.76	
Dedicated to Interconnect – Export Capital Costs	\$6.19	\$0.3037
Dedicated to Interconnect – Domestic Capital Costs	\$2.44	
Dedicated to Interconnect – Export OM&A Expenses	\$2.20	\$0.1078
Dedicated to Interconnect – Domestic OM&A Expenses	\$0.87	
Shared Network – Export Capital Costs	\$45.59	\$2.2372
Shared Network – Domestic Capital Costs	\$762.07	
Shared Network – Export OM&A Expenses	\$16.34	\$0.8020
Shared Network – Domestic OM&A Expenses	\$273.20	
External Revenues – Allocated to Export	-\$1.11	-\$0.0543
DVA Balances – Allocated to Export	\$0.04	\$0.0017

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20% Curtailment ETS Rate – (\$5.03)	Allocated Costs (\$million)	ETS Rate Contribution (\$/MWh)
Dedicated to Domestic – Export Capital Costs		
Dedicated to Domestic – Domestic Capital Costs	\$517.55	
Dedicated to Domestic – Export OM&A Expenses		
Dedicated to Domestic – Domestic OM&A Expenses	\$196.76	
Dedicated to Interconnect – Export Capital Costs	\$6.19	\$0.3037
Dedicated to Interconnect – Domestic Capital Costs	\$2.44	
Dedicated to Interconnect – Export OM&A Expenses	\$2.20	\$0.1078
Dedicated to Interconnect – Domestic OM&A Expenses	\$0.87	
Shared Network – Export Capital Costs	\$70.55	\$3.4623
Shared Network – Domestic Capital Costs	\$737.11	
Shared Network – Export OM&A Expenses	\$25.29	\$1.2412
Shared Network – Domestic OM&A Expenses	\$264.25	
External Revenues – Allocated to Export	-\$1.71	-\$0.0840
DVA Balances – Allocated to Export	\$0.05	\$0.0026

1 2

3

b) Shared network costs and External Revenues allocated to Domestic and Export are provided in the following four tables.

2014 Methodology ETS Rate – (\$1.67)	Allocated (\$million) Domestic	Allocated (\$million) Export	ETS Rate Contribution (\$/MWh)
Shared Network costs	\$1,074.94	\$22.26	\$1.0924
Shared External Revenues	\$(19.59)	\$-	\$-

4

Shared Net Fixed Assets (12CP) ETS Rate – (\$6.06)	Allocated (\$million) Domestic	Allocated (\$million) Export	ETS Rate Contribution (\$/MWh)
Shared Network costs	\$979.96	\$117.25	\$5.7537
Shared External Revenues	\$(17.49)	\$(2.09)	\$(0.1027)

Hybrid Model (50%) ETS Rate – (\$3.40)	Allocated (\$million) Domestic	Allocated (\$million) Export	ETS Rate Contribution (\$/MWh)
Shared Network costs	\$1,035.27	\$61.93	\$3.0392
Shared External Revenues	\$(18.48)	\$(1.11)	\$(0.0543)

1

20% Curtailment ETS Rate – (\$5.03)	Allocated (\$million) Domestic	Allocated (\$million) Export	ETS Rate Contribution (\$/MWh)
Shared Network costs	\$1,001.36	\$95.84	\$4.7035
Shared External Revenues	\$(17.88)	\$(1.71)	\$(0.0840)

2

c) External revenues of other Ontario transmitters' approved revenue requirements are
 reflected in the adjusted ETS rates provided in Table 15. The adjustment from the HONI specific ETS rates provided in Table 14 to the ETS rates in Table 15 is based on revenue
 requirements that are already net of External Revenues.

7

d) Other jurisdictions surveyed by Elenchus do not allocate costs specifically between domestic
 and export customers.

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11 e) See response to part d).

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<b>OEB STAFF INTERROGATORY - 18</b>	
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1		OEB STAFF INTERROGATORY - 18
2		
3	Re	ference:
4	Sub	pmissions on the ETS Rate, Attachment 1, Pages 26-29
5		
6	Pre	eamble:
7	In t	the 2021 Report, Elenchus considered the following three cost-based methodologies to be
8	арр	propriate options to allocate Shared Network Asset-related costs to export customers:
9		
10		Fully allocate Shared Network Asset-related costs on the basis of Shared Net Fixed
11		Assets.
12		Apply an adjusted Shared Net Fixed Assets allocator with export 12CP discounted by
13		50%, as a proxy for a hybrid model, half-way between no allocation and full allocation
14		of Shared Network Asset-related costs to exports.
15		• Apply an adjusted Shared Net Fixed Assets allocator with a percentage of export
16		demand discounted based on the service curtailment that affected exports in the last
17		few years. Assuming that exports were curtailed 20% of the hours in the last few
18		years, adjust export volumes to 80%.
19		
20	Int	errogatory:
21	a)	Please confirm if the first option to fully allocate Shared Network Asset-related costs includes a
22		curtailment of exports by using 12 CP as an allocator. If yes, please explain how the second and
23		third options do not already include curtailment prior to their respective 50% and 20% discounts
24		and whether an adjustment should be made.
25	L)	Disconsistent and the merity of each of the three present options
26	D)	Please explain the ments of each of the three proposed options.
27	c)	On balance, which of the proposed options would Elenchus recommend and why?
28	C)	on balance, which of the proposed options would eleficitus recommend and why?

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<u>R</u> R	<b>esponse</b> esponse j	<u>e:</u> from Elenchus:	
a)	To an e include interru rates b these e	extent there are curtailments in peak hours which impact the monthly Export peak demands ed in the 12CP calculations. The second and third options recognize that curtailable and uptible customers typically receive a lower allocation of demand-related costs and pay lower because capacity-related investments are made without consideration of the demands of customers.	
b) The three options identified by Elenchus in its report are based on the following criteria:			
	a.	Option 1: Fully allocate Shared Network Asset-related assets and costs to exporters on the basis of Shared Net Fixed Assets. The merit of this option is that exporters are allocated their share of Shared Network Assets that they use even when curtailed by the IESO. This means that the proposed cost allocation methodology option is based	

18 b. Option 2: Apply an adjusted Shared Net Fixed Assets allocator with export 12CP 19 discounted by 50%, as a proxy for a hybrid model, half-way between no allocation 20 and full allocation of Shared Network Asset-related costs to exports. The merit of 21 this option is that it is similar to the concept applied by the OEB in determining Pole 22 Attachment charges. 23

consideration that exporters are curtailed, if required by system demand.

on how assets are currently used in order to calculate an ETS rate, taking into

- 25 c. Option 3: Apply an adjusted Shared Net Fixed Assets allocator with a percentage of export demand discounted based on the service curtailment that affected exports in 26 the last few years. Assuming that exports were curtailed 20% of the hours in the last 27 few years, adjust export volumes to 80%. The merit of this option is that it 28 compensates exporters for the fact that they are curtailed. 29
- 30

24

Elenchus recommends option one, based on cost causality. This option reflects how exporters c) 31 use the transmission system, which accounts for curtailments in peak hours, and allocates 32 Shared Network Assets and costs to exporters. This option also is similar to how exporters are 33 charged in jurisdictions surveyed by Elenchus, where the export charges are based on domestic 34 revenue requirement. 35

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## **OEB STAFF INTERROGATORY - 19**

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2	
3	Reference:
4	ETS Rate Submission, Page 6
5	Submissions on the ETS Rate, Attachment 2, Page 5
6	
7	Preamble:
8	In the 2014 Elenchus Report, the key parameters of Elenchus' recommended methodology for
9	allocating costs to ETS service (the May 2014 Methodology) were as follows:
10	Allocate dedicated assets used to serve export customers and related expenses to the
11	export customer class;
12 13	<ul> <li>Shared Network OM&amp;A expenses are allocated to export customers, but no Shared Network Asset related costs are allocated to export customers;</li> </ul>
14 15	<ul> <li>Allocate OM&amp;A expenses related to the use of shared assets to export customers using composite assets as allocator; and</li> </ul>
16	• Utilize the 12 Coincident Peak (CP) as the allocator in apportioning assets between
17	domestic and export customers in order to develop composite allocators to allocate
18	shared expenses.
19	
20	The 2021 Elenchus report presents cost-based methodologies that build on the principles of the
21	May 2014 Methodology by allocating Shared Network Asset-related costs to export customers.
22	Footnote 1 on page 5 of the report states that "Asset-related costs include depreciation, interest,
23	ROE, and taxes."
24	
25	In Section 1.2 on page 5 of the report, CRA states that:
26	Appendix A summarizes the 2020 rates in each jurisdiction for Firm and Non-Firm Point-to-Point
27	(PTP) Export Transmission Services (ETS). Also shown for comparative purposes is the approved
28	export tariff for Ontario. The rates are reported on an annual, monthly, weekly, and daily basis,
29	consistent with how they appear in the relevant tariff.
30	
31	Interrogatory:
32	Please answer the following for each of the eight jurisdictions summarized in the CRA report.
33	
34	a) Does the methodology allocate dedicated assets used to serve export customers and related
35	expenses to the export customer class?
36	b) Deep the methodology ellegate shared not york ON48 A supersests supert suctors and
37	D) DOES THE METHODOLOGY Allocate Shared Network OIVI&A expenses to export customers?

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1 2 3	c)	Does the methodology allocate OM&A expenses related to the use of shared assets to export customers using composite assets as allocator?
4 5	d)	Does the methodology use the 12 coincident peaks as the allocator in apportioning assets between domestic and export customers in order to develop composite allocators to allocate shared expenses?
ь 7		silared expenses:
8	e)	Does the methodology allocate shared network asset costs including depreciation, interest, ROF.
9	-,	and taxes?
10		
11 12	f)	Is the methodology a cost-based methodology? If not, please explain how the methodology differs from a cost-based methodology.
13	a)	Please explain whether and on what basis the methodology is comparable with the
14	6/	methodologies identified by Elenchus
16		
17	h)	For those jurisdictions that use any of the May 2014 Methodology key parameters, specify the
18	,	amount of the allocation separately to domestic and export customers and contribution to the
19		ETS rate.
20		
21	Res	sponse:
22	Res	ponse from Charles River Associates:
23		
24	The	e responses below refer to methodology as the approach used to allocate costs to ETS service.
25		
26	a)	CRA's research did not identify any jurisdictions where the methodology allocates dedicated
27		assets used to serve export customers and related expenses to the export customer class.
28		
29	b)	CRA's research did not identify any jurisdictions where the methodology allocates shared network
30		OM&A expenses to export customers.
31	c)	CRA's research did not identify any jurisdictions where the methodology allocates ONASA
32	C)	expenses related to the use of shared assets to expert sustemers using composite assets as
24		allocator
35		
36	d)	CRA's research did not identify any jurisdictions where the methodology uses the 12 coincident
37	,	peaks as the allocator in apportioning assets between domestic and export customers in order to

- e) CRA's research did not identify any jurisdictions where the methodology allocates shared network
   asset costs including depreciation, interest, ROE, and taxes.
- 3 4

5 6

9

- f) Only to the extent that export transmission tariffs reported recover annual transmission revenue requirements which in themselves are costs, the rates are cost based.
- g) CRA's research did not identify any jurisdictions where the methodology was directly comparable
   to those identified in the Elenchus report.

All the jurisdictions surveyed by CRA in the US set ETS rates in accordance with FERC Orders 888, 889, 890 and 2000. The methodology allocates each transmission owner's annual transmission revenue requirement by their peak load contribution on specific timeframe. (See ETS Rate Submissions, Attachment 2, page 5 of 24).

14

For Canadian jurisdictions, the Ontario ETS rate currently in place was established as an 15 outcome of a settlement process and not based on an established methodology. Moreover, 16 the Ontario ETS rate was set via an OEB approved settlement (EB-2014-0149) and 17 subsequently approved in succeeding proceedings (EB-2016-0160 for 2017 and 2018 effective 18 periods; and EB-2018-0130 for 2019 effective period). The original settlement did not include 19 any specific approval of a cost allocation approach. See EB-2021-0110, Exhibit H, Tab 9, 20 Schedule 1, page 2 of 6, 12-16. In effect, there is no specific cost allocation methodology 21 underlying the current Ontario ETS rate. 22

23

The Trans-Energie Non-Firm rate does not reflect any specific cost allocation approach; our understanding is that the rate is derived using the transmission owner's total annual revenue requirement divided by peak system load. Any deviation from this rate is most likely attributable to discounting that may be offered by Hydro-Quebec for some transactions that are unlikely to clear at the full tariff rate. See ETS Rate Submissions, Attachment 2, page 13 of 24.

30

The Alberta export rate is derived by applying components of the Demand Transmission Service (DTS) rate. See ETS Rate Submissions, Attachment 2, pages 23 and 24. CRA is not aware of any specific cost allocation methodology used to derive the underlying DTS rate other than a determination of overall transmission/bulk system revenue requirement divided by peak demand/capacity.

36

h) CRA did not identify any jurisdictions that use the May 2014 Methodology parameters.

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1		<b>OEB STAFF INTERROGATORY - 20</b>
2		
3	Re	ference:
4	Sub	missions on the ETS Rate, Attachment 2, Page 4
5		
6	Pre	amble:
7	On	page 4 of the report, CRA states that:
8		
9		The regulatory rationale for rate design differs across markets studied. For certain
10		established U.S. jurisdictions including ISO-NE, NYISO, PJM, and MISO, the OATT
11		and rates currently in place for transmission service, including service for exports,
12		A 4 [sic] Current ETS rate design was "inherited" from the former power pools
13		that were in place in those regions prior to ISO/RTO implementation. These rates
15		are designed to recover the total annual transmission revenue requirement
16		(ATRR) over the forecasted annual billing units (12 Coincident Peak (CP) or zonal
17		peak demand, or another basis). In these cases, the rates for export service are
18		designed to recover total ATRR and there is no specific rate design step applied
19 20		to encourage a particular export market result. [Citation omitted.]
20	lot	orrogaton <i>u</i>
21	<u>int</u>	<u>errogatory:</u>
22	a)	Please explain what the principles affirmed by the FERC Order No. 888-A are?
23	b)	Please evaluin what is meant by "rates - appear to have developed from principles affirmed by
24	D)	the EEPC Order No. 899 A"2
25		the ferc of del No. 888-A !
20	c)	Please explain how the response to part b) relates to the "former power pools that were in place
29	C)	in those regions prior to ISO/RTO implementation"?
29		
30	d)	Please explain what is included in the "total annual transmission revenue requirement (ATRR)"?
31		
32	e)	Please explain how the ATRR, as described in response to part d) compares to the May 2014
33	-,	Methodology and additional methodologies included in the 2021 Elenchus report?
34		
35	f)	Please explain in more detail the sentence "These rates are designed to recover the total annual
36	,	transmission revenue requirement (ATRR) over the forecasted annual billing units (12 Coincident
37		Peak (CP) or zonal peak demand, or another basis)." If possible, please provide an equation(s) and
38		sample calculation(s).

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- g) Please provide the ATRR for each of the transmitters covered by the CRA report and the amount 1 of the ATRR recovered by their ETS rates for the most recent year available. 2
- 3

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#### 4 Response:

- Response from Charles River Associates: a) FERC Order 888-A considers the following attributes in the design of the rules: Remedy undue discrimination in access to the monopoly owned transmission wires ٠ that control whether and to whom electricity can be transported in interstate commerce; and Address recovery of the transition costs of moving from a monopoly-regulated regime • to one in which all sellers can compete on a fair basis and in which electricity is more competitively priced.<sup>1</sup> Based on CRA's understanding, in order for the established transmission rates to be enforced, they b) have to be approved by the FERC. The FERC will only approve transmission rates that meet the requirements described in part (a). Based on CRA's understanding, Order 888 required all public utilities that own, operate and c) control interstate transmissions facilities to offer network and point to point transmission services 20 under the same rates, terms and conditions. The FERC allowed flexibility in the design of the rates
- 21 for the recovery of transmission costs as long they meet the primary attributes. We understand 22 most of the rates design post-888 to be similar to pre-888. 23

<sup>1</sup> FERC Order 888, p. 1.

The annual transmission revenue requirement is the amount of revenue a company must recover 1 d) annually for costs associated with its transmission system. At high level, it is comprised by the 2 following: 3 • Investment Return and Associated Income Taxes; 4 Transmission Depreciation and Amortization Expense; • 5 Transmission Related Amortization of Loss on Reacquired Debt; 6 • Transmission Related Amortization of Investment Tax Credits; 7 • Transmission Related Municipal Tax Expense (if applicable); • 8 Transmission Related Payroll Tax Expense; • 9 Transmission Operation and Maintenance Expense; • 10 Transmission Related Administrative and General Expense; • 11 Transmission Related Integrated Facilities Charges; • 12 • Transmission Support Revenue; 13 • Transmission Support Expense; 14 Transmission Related Expense from Generators; 15 • Transmission Related Taxes and Fees Charge; 16 ٠ Revenue for Short-Term service under the OATT; and • 17 Transmission Rents Received from Electric Property. • 18 19 e) See response to OEB Staff Interrogatory 19, part (g). 20 21 The rate is calculated as follows:  $Rate = \frac{A + A + C + C}{Coincident Peak (MW)}$ f) 22 23 As an example, consider an ATRR of \$600 million and a 12 CP of 30,000 MW – This will result 24 in  $Rate = \frac{\$600,000,000}{30,000 MW} = \$20,000 MW$ - year or \$20 kW-year. 25 26 This request requires CRA to conduct significant new research which is well beyond the scope 27 g) of its original report and a response to this request would not significantly clarify any aspects 28 of the ETS rates as filed in CRA's report. Moreover, CRA is not able to provide the requested 29 information with reasonable effort. The requested information is not readily available. To 30 provide this information, CRA would need to identify, retrieve, analyze, extract and compile 31 the relevant data from the latest ATRR filings of dozens of separate transmission owners that 32 are active in the jurisdictions covered by the CRA Study. The level of effort and time required 33 to meet this request would be very significant such that, even with an extraordinary level of 34 effort, CRA does not expect it would be able to provide the requested information within the 35 time frame of this interrogatory process. 36

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# **OEB STAFF INTERROGATORY - 21**

1

2								
3	Ref	teference:						
4	Sub	missions on the ETS Rate, Attachment 2, Page 5						
5								
6	<u>Pre</u>	amble:						
7	On	page 5 of the report, CRA states the rationale for adding CAISO to the study as being "CAISO						
8	init	iated operations of the Western Energy Imbalance Market (WEIM) in 2014 which provides the						
9	opp	portunity to make valuable observations as to how export pricing within an imbalance market						
10	cou	Id operate."						
11								
12	Int	errogatory:						
13	a)	Please explain what an "imbalance market" is, and how it relates to Ontario.						
14								
15	b)	Please summarize CRA's observations as to how export pricing within an imbalance market could						
16		operate, and comment on the value of these observations in the Ontario context.						
17								
18	Res	sponse:						
19	Res	ponse from Charles River Associates:						
20								
21	a)	The Energy Imbalance Market (EIM) is a wholesale electricity market construct that allows						
22		market participants to export/import energy from/to their territories. Similar to the Ontario						
23		market, the EIM is administered by a centralized independent entity (CAISO) that manages						
24		the wholesale market. Although the EIM is not directly comparable with the Ontario market,						
25		it was considered in CRA's survey as a structure that applies no charges to export transactions.						
26								
27	b)	As mentioned in the report, in 2014, FERC waived wheeling charges for exports participating						
28		in the EIM market. This "no-charge" framework was instituted under the principle of						
29		reciprocity between the different EIM participants. EIM Entities and CAISO allow transmission						
30		to be shared and used on a reciprocal basis in the EIM. Some transmission used in the EIM						
31		has already been procured while some comes from available transmission capacity that would						
32		have gone unused. Energy imbalance markets operate primarily to enhance reliability and						
33		increase operational visibility across electric grids; these markets seek to reduce the amount						
34		of cost reserves participants in the EIM would otherwise need to carry. Therefore, EIM carries						
35		different market objectives than those of an export market and these markets are not directly						
36		comparable. To the extent that an EIM in Ontario could impact the overall level of excess						
37		supply otherwise available for exports, some second order effect upon the export market						

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- 1 conditions could occur; however, the degree and direction of this impact would be unknown
- 2 without further significant study.

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1		OEB STAFF INTERROGATORY - 22					
2							
3	Re	ference:					
4	Sub	pmissions on the ETS Rate, Attachment 2, Page 5					
5							
6	Preamble:						
7	On	page 5 of the report, CRA states:					
8							
9		demand-based rates range from \$8.69/kW-year (SPP) to					
10		\$163.62/kW-year (ISO-NE). Energy-based rates, on the other					
11		hand, range from \$1.85/MWh (Ontario) to \$15.84/MWh (CAISO).					
12							
13	Int	errogatory:					
14	a)	Please explain what are demand-based rates? Please confirm which of the eight jurisdictions have					
15		demand-based rates.					
16	<b>ل</b> م)	Disco overlain what are anowny based wates? Disco confirm which of the sight invisibilities have					
17	D)	explain what are energy-based rates? Please commit which of the eight jurisdictions have					
10		energy-based rates.					
20	c)	Please explain in detail whether it is appropriate to compare the Optario ETS rate to demand-					
21	0)	based rates, or to energy-based rates, or both, and why?					
22							
23	Re	sponse:					
24	Res	ponses from Charles River Associates:					
25							
26	a)	"Demand-based" refers to the kW or power level as the denominator part of the ratio (as					
27		opposed to energy base or MWh). Jurisdictions with demand-based rates include MISO, PJM,					
28		ISO-NE, SPP, and Trans-Energie.					
29							
30	b)	"Energy-based" refers to the MWh or energy level as the denominator part of the ratio (as					
31		opposed to demand base or kW). Jurisdictions with energy-based rates include MISO, PJM,					
32		NYISO, SPP, Trans-Energie, Alberta, and Ontario.					
33							
34	c)	Demand-based rates provide a price signal for scarcity of maximum line capacity, whereas					
35		energy-based rates provide a price signal for scarcity of average usage. CRA does not endorse					
36		one convention over the other. Demand charges can tend be provide a more stable revenue					
37		stream relative to the transmission system owner relative to energy based charges however					

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- both approaches can adequately recover the costs through rates; and, most formula and
- 2 stated rate based transmission rates in the U.S. are set on a demand basis.

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1	<b>OEB STAFF INTERROGATORY - 23</b>
2	
з <u>Re</u>	ference:
4 Sub	omissions on the ETS Rate, Attachment 2, Pages 5-6
5	
6 <u>Pre</u>	eamble:
7 On	pages 5-6 of the report, CRA states that:
0	Table 2 presents rates in the currency and rate format (capacity or energy) as they
9 10	appear in posted tariffs: Table 4 presents the same but all in Canadian dollars:
10	and Table 5 presents the rates in Canadian dollars and in an energy-based format
12	(assuming a 100% load factor conversion) to allow for comparability to the
13	current Ontario ETS rate of \$1.85/MWh.
14	
15 <u>Int</u>	errogatory:
16 a)	Please explain how the rates in Table 4 were converted to the rates in Table 5. Please provide
17	equation(s) and a sample calculation, if possible.
18	
19 b)	Please explain what is meant by "(assuming a 100% load factor conversion)".
20	
21 C)	Please comment on the reasonableness of the 100% load factor assumption.
22	
23 d)	Please comment on what the rates in Table 5 would be if the load factor were lower. Please
24	provide a sample calculation, if possible.
25	
26 e)	Please provide the Ontario load factor. Please provide the rates in Table 5 if the load factor were
27	the same as the Ontario load factor.
28	
29 <b>f)</b>	Please explain why the rates in Table 5 are comparable to the Ontario ETS rate.
30	
31 <b>Re</b>	sponse:
32 Res	sponses from Charles River Associates:
33	
34 a)	Rates per kW were converted to energy basis, for example: (\$/kW-yr) x (1000kW/MW) / (8760
35	hours/vear) = (\$/MWh).
36	
37	Penest for 730 bours per month (8760/12), 168 5 bours per week (8760/52), and 24 bours
	(6700/32), and 24 hours

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b) Load factor is defined as (Avg Use/Peak Use). A 100% load factor assumes an energy user's average use on an hourly basis is the same as its peak use. Use of a 100% load factor conversion is one industry convention used to convert a demand based rate to an energy based cost at an assumed load factor usage. The resulting energy based cost from such a conversion represents what a customer's unit costs would be under a demand charge if their usage were at a 100% load factor. See below for the conversion equation.

7

11

14

c) Actual load factor experience for any customer will of course be based on that customer's
 particular load profile. The use of 100% load factor conversion is one industry convention used
 to re-state demand based rates on a unit kWh basis assuming a load factor usage. basis.

- d) If load factor used for conversion were lower, MWh would be lower, and the resulting
   quotient in Table 5 (where converted) would be higher.
- For example: (\$/kW-yr) x (1000kW/MW) / (8760 hours/year) x (% load factor/100) =
   (\$/MWh)
- 17
- e) CRA assumes the question seeks to convert demand based rates to energy based equivalents
   based on the intertie capacity profile. In 2021, export flows averaged 49%<sup>1</sup> of intertie
   capability. The following table shows all rates re-priced assuming the 49% factor.

<sup>&</sup>lt;sup>1</sup> The 49% capacity factor was provided by the IESO.

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SUMMARY OF ENERGY-ONLY RATES FOR EXPORT TRANSMISSION SERVICE (CAD\$/MWh)									
	ANNUAL SERVICE MONTHLY SERVICE WEEKLY SERVICE DAILY ON-PEAK DAILY OFF-PEAK HOL						HOURLY ON-PEAK	HOURY OFF-PEAK	
		\$/MWh	\$/MWh	\$/MWh	SERVICE \$/MWh	SERVICE \$/MWh	CHARGE (\$/MWh)	CHARGE (\$/MWh)	
MISO	Firm	12.2263	12.2261	12.2264	17.1683	12.2277			
i i i i i i i i i i i i i i i i i i i	Non-Firm		12.2261	12.2264	17.1683	12.2277	12.6154	5.9909	
DIM	Firm	5.5700	5.5700	5.5696	7.8145	5.5864			
F 31M	Non-Firm		5.5700	5.5696	7.8145	5.5864	5.7468	2.7342	
MORO <sup>3</sup>		The energy-based rate for the Firm PTP service is different for each transmission company at the seam of NYISO, and it ranges between \$4.11							
INTISO		per MWh (Hydro Québec) to \$7.75 per MWh (PJM).							
ISO-NE <sup>1</sup>		38.1191							
5.00	Firm	2.0257	2.0256	2.0257	2.8416	2.0B44			
3111	Non-Firm		2.0256	2.0257	2.8416	2.0B44	2.0899	0.9924	
CAISO <sup>4</sup>		15.8482							
	Firm	18.1856	18.1996	18.1717	25.3	5102			
i ransene rgie	Non-Firm		18.1996	18.1717	17.8	8571	8.9	100	
Alberta <sup>4</sup>			8.2800					800	
Ontario		Energy based rate currently set at \$1.35/MWh							

<sup>1</sup> ISO: NE does not distinguish between Firm and Non-Firm transactions and does not offer monthly, weekly or daily transmission services. It offers hourly transmission <sup>2</sup> Transfergie offers the same daily transmission service irrespective of time of day.

<sup>3</sup>Non-firm service not offered

<sup>4</sup> Firm service not offered

Converted at 49% load factor which has been provided by IESO.

All US market USD values Converted at January 20, 2021 rate of 0.79 CAD/USD. (By comparison, average CAD/USD for 2017-2020 is 0.76)

1

The rates presented in Table 5 represent the results of the ETS jurisdictional rates review f) 2 commissioned by Hydro One to meet OEB's request for this proceeding (See ETS Rate 3 Submissions, Attachment 2, pp 5-6). The rate level and structure of ETS rates varies 4 significantly across the jurisdictions reviewed as displayed in Table 1 of the Attachment 2 to 5 the ETS Rate Submissions. CRA notes these are not presented to convey any particular 6 comparability to the Ontario ETS rate since the table reports what was currently effective at 7 the time of the study in the various jurisdictions reviewed. Many factors influence the 8 resulting export rate or any network service rate on any system of which each and all can 9 contribute to various resulting rate outcomes. These factors include but are not limited to, 10 system design and cost, system usage, age of system, generation supply and demand 11 conditions, intertie availability with neighboring systems, rate setting policy, and other 12 factors. Given these facts, CRA believes it is difficult to draw any direct comparison between 13 rates presented in Table 5 with the Ontario ETS rate. 14

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1		<b>OEB STAFF INTERROGATORY - 24</b>
2		
3	<u>Re</u>	ference:
4	Sub	omissions on the ETS Rate, Attachment 2, Page 6
5		
6	Int	errogatory:
7	Tab	ble 1 shows rates for both Firm and Non-Firm transmission service for several jurisdictions. For
8	ead	ch of those jurisdictions:
9		
10	a)	Please explain the difference between Firm and Non-Firm transmission service specifically for that
11		jurisdiction.
12	Ы	Are either of the Firm or Nen Firm rates comparable to Ontario's ETS2 Please evolution why or why
13	U)	not
15		
16	Re	sponse:
17	Res	sponse from Charles River Associates:
18		
19	a)	"Firm" is a term within the context of a FERC 888 type tariff as commonly seen in U.S.
20		jurisdictions, where firm implies a higher priority service and therefore when curtailments for
21		reliability reasons are needed, transactions scheduled under non-firm service would be
22		curtailed prior to firm service.
23		
24	Res	sponse from IESO:
25		
26	b)	Ontario does not offer, or require the purchase of, different classes of intertie transmission

service.

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1		<b>OEB STAFF INTERROGATORY - 25</b>
2		
3	Re	ference:
4	Sul	omissions on the ETS Rate, Attachment 2, Pages 6-7
5		
6	Int	errogatory:
7	a)	Please explain the difference between Table 1 and Table 2.
8		
9	b)	Please provide a version of Table 2 using the January 2021 exchange rate of C\$1.0 = US \$0.79.
10		
11	c)	Please compare the table produced in response to part b) with Table 1.
12		
13	d)	Please specify which years since 2012, that the export rates have been adjusted in domestic
14		currency for the jurisdictions in Table 2 including the amount, reason, and methodology.
15	_	
16	<u>Re</u>	sponse:
17	Res	sponse from Charles River Associates:
18		
19	a)	Table 1 shows the ETS rate results per the 2020 analysis. Table 2 shows the 2012 ETS rates
20		from the 2012 Jurisdictional Review report. Note that Table 1 includes the additional
21		jurisdictions included in the updated 2020 review (CAISO, SPP, AESO), as well as Ontario's
22		current ETS rate for comparability.
23		
24	b)	Please see the table below that is another version of Table 2 using the January 2021 exchange
25		rate of C\$1.0 = US \$0.79.

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		Annual \$/kW- year	Month \$/kW- month	Week \$/kW- week	Day- Peak \$/kW- day	Day-Off- Peak \$/kW- day	Hour- Peak \$/MWh	Hour- Off- Peak \$/MWh
MISO	Firm	37.6194	3.1350	0.7234	0.1447	0.1031		-
IVIISO	Non-Firm		3.1350	0.7234	0.1447	0.1031	9.0423	4.2941
DIM	Firm	23.9081	1.9927	0.4597	0.0919	0.0657		
PJIVI	Non-Firm		1.9927	0.4597	0.0919	0.0657	5.7468	2.7342
NYISO			\$3.743	37/MWh - \$7	.0507/MWh			
	Firm	00 05 20					0 2205	
ISO-INE	Non-Firm	80.8528					9.2295	
Trans-	Firm	72.45	6.04	1.39	0.	28		
Énergie	Non-Firm	72.45	6.04	1.39	0.	20	8.24	

1

The differences between the two tables (Table 1 and Table 2-revised per OEB Staff 2 c) Interrogatory 25, part (b)) represent the effects of the passage of time (2011-2020) since 3 4 currency exchange rates have been equalized between the two tables/periods in this example. Except for PJM rates that have been stable during the period, all others in Table 1 5 (2020) are higher than Table 2 -revised and reflect the update to rates during the nearly 10-6 year intervening period. Please refer to ETS Rate Submissions, Attachment 2, page 6 of 24: 7 "ETS rate levels have increased since 2012, most likely attributable to system growth and 8 inflation effects over the time." 9

10

d) CRA did not investigate any adjustments in domestic currency for the jurisdictions in Table 2,
 the amount, reason, and methodology.

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1	<b>OEB STAFF INTERROGATORY - 26</b>									
2										
3	<u>Reference:</u>									
4	Submissions on the ETS Rate, Attachment 2, Pages 6, 13									
5										
6	Interrogatory:									
7	a)	Please explain the difference between Table 1 and Table 3.								
8										
9	b)	Comparing the Trans-Energie rows between Table 1 and Table 3, why do two of the values								
10		change between Table 1 and Table 3, and the others do not?								
11										
12	c)	Please confirm the accuracy of Table 1 and Table 3 or provide a corrected version of the								
13		table(s), if required.								
14	_									
15	Response:									
16	Response from Charles River Associates:									
17										
18	a)	Table 1 provides a summary of the 2020 ETS rates in CAD. Table 3 provides a summary of the								
19		2020 ETS rates in their native tariff. For US jurisdictions, the rates are provided in USD, while								
20		for Canadian jurisdictions in CAD.								
21	1.3									
22	0)	Please find an errata Table 3 which corrects the rate entries for TransEnergie Non-Firm								
23		(schedule 10) nourly and daily service rates. All other rates in the errata Table 3 provided								
24										

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		Annual Service \$/kW-year	Monthly Service \$/kW- month	Weekly Service \$/kW- week	Daily On- Peak Service \$/kW-day	Daily Off- Peak Service \$/kW-day	Hourly On- Peak Charge \$/MWh	Hourly Off- Peak Charge \$/MWh
MICO	Firm	41.4593	3.4549	0.7973	0.1595	0.1136		
WIISO	Non-Firm		3.4549	0.7973	0.1595	0.1136	9.9662	4.7328
DIA	Firm	18.888	1.574	0.3632	0.0726	0.0519		
PJIVI	Non-Firm		1.574	0.3632	0.0726	0.0519	4.54	2.16
NYISO <sup>3</sup>		The energy-based rate for the Firm PTP service is different for each transmission company at the seam of NYISO, and it ranges between \$3.25 per MWh (Hydro-Québec) to \$6.12 per MWh (PJM).						
ISO-NE <sup>1</sup>		129.26182						
SPP <sup>5</sup>	Firm	6.8691	0.5724	0.1321	0.0264	0.0189		
511	Non-Firm		0.5724	0.1321	0.0264	0.0189	1.651	0.784
CAISO⁴								12.5201
Trans-	Firm	78.06	6.51	1.50		0.30		
Énergie <sup>2</sup>	Non-Firm		6.51	1.50		0.21		8.91
Alberta⁴								8.28
Ontario <sup>6</sup>								1.85

\*Please refer to ETS Rate Submissions, Attachment 2, page 6 for the footnotes in the above table.

1

2 c) Please see response to part (b) above.

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1		<b>OEB STAFF INTERROGATORY - 27</b>								
2										
3	Re	ference:								
4	Sub	 bmissions on the ETS Rate, Attachment 2, Pages 6, 13								
5										
6	<u>Int</u>	errogatory:								
7	a)	Referring to the format of Table 1 and Table 3, please explain why the Ontario ETS rate, as								
8		well as the Alberta rate, and the Trans-Energie Non-Firm rate, are presented in a column that								
9		merges the "Hourly On-Peak Charge \$/MWh" and "Hourly Off-Peak Charge \$/MWh"								
10		columns?								
11										
12	b)	Are the Ontario ETS rate, the Alberta rate, and the Trans-Energie Non-Firm rate comparable,								
13		i.e., are they based on consistent methodologies? Please explain why, or why not.								
14										
15	c)	For the jurisdictions (MISO, PJM, SPP and CAISO) that have entries in one or both of the								
16		"Hourly On-Peak Charge \$/MWh" or "Hourly Off-Peak Charge \$/MWh" columns, please								
17		explain whether and on what basis one or both of these rates are comparable with the Ontario								
18		ETS rate.								
19										
20	Re	sponse:								
21	Res	sponse from Charles River Associates:								
22										
23	a)	These regions present a single rate and make no distinction between on and off-peak rates.								
24										
25	b)	CRA does not believe that these rates are based on consistent methodologies. The Ontario								
26		ETS rate was set via an OEB approved settlement (EB-2014-0149) and subsequently approved								
27		in succeeding proceedings (EB-2016-0160 for 2017 and 2018 effective periods; and EB-2018-								
28		0130 for 2019 rate effective period). The original settlement did not include any specific								
29		approval of a cost allocation approach. See EB-2021-0110, Exhibit H, Tab 9, Schedule 1, page								
30		2 of 6, 12-16. In effect, there is no specific cost allocation methodology underlying the current								
31		Untario Ers rate.								
32		The Trans-Energie Non-Eirm rate does not reflect any specific cost allocation approach, our								
33		understanding is that the rate is derived using the transmission owner's total appual revenue								
34		requirement divided by neak system load. Any deviation from this rate is most likely								
30		requirement divided by peak system load. Any deviation from this rate is most likely								

<sup>36</sup> attributable to discounting that may be offered by Hydro-Quebec for some transactions that

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are unlikely to clear at the full tariff rate. See ETS Rate Submissions, Attachment 2, page 13 of 1 24. 2 3 The Alberta export rate is derived by applying components of the Demand Transmission 4 Service (DTS) rate. See ETS Rate Submissions, Attachment 2, pages 23 and 24. CRA is not 5 aware of any specific cost allocation methodology used to derive the underlying DTS rate 6 other than a determination of overall transmission/bulk system revenue requirement divided 7 by peak demand/capacity. 8 9 Since CRA has not identified any specific cost allocation methodology to be underlying any of 10 the referenced ETS rates referenced in this question, it cannot agree that they are all based 11 on a consistent methodology. 12 13 c) Ontario provides a single rate implying all-hours. On-peak hours are broadly defined as hours 14 ending 0700-2200 Monday-Saturday, excluding holidays. There could be small exceptions per 15 specific ISO definitions. 16 17 https://www.naesb.org//pdf/weg\_iiptf050504w6.pdf 18
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1		<b>OEB STAFF INTERROGATORY - 28</b>
2		
3	Re	ference:
4	Sub	pmissions on the ETS Rate, Attachment 2
5		
6	Int	errogatory:
7	a)	Please explain in detail whether the May 2014 Methodology and/or the additional
8		methodologies identified in the 2021 Elenchus report are consistent with those in
9		neighbouring markets.
10		
11	b)	In CRA's view, of the rates shown in Table 1, which rate is the best comparator for the Ontario
12		ETS rate? Please explain why, in detail.
13	,	
14	C)	For the jurisdictions included in CRA report, please explain what charges wheel-through
15		transactions are subject to?
16	Po	
17	<u>re</u>	sponse.
18	Res	sponse from churles River Associates:
19	2)	See response to OEB Staff Interrogatory 19
20	aj	see response to orbistan interrogatory 19.
21	h)	See response to OEB Staff Interrogatory 23 part (f)
23	~/	
24	c)	Based on CRA's jurisdictional survey, wheel-though transactions are assessed the same rates
25	,	as the rest of the ETS transactions.

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1	OEB STAFF INTERROGATORY - 29
2	
3	Reference:
4	EB-2019-0082 Decision and Order, April 23, 2020, Page 180
5	
6	Preamble:
7	The OEB's 2019 Decision and Order states that:
8	
9	The OEB would also be assisted by an updated jurisdictional
10	review that provides the rates in other jurisdictions, rationale
11	behind those rates and market implications.
12	
13	Interrogatory:
14	a) Please explain the market implications of the rates contained in the jurisdictional review.
15	
16	Response:
17	Response from Charles River Associates:
18	
19	a) In its review of ETS rates for 2020, CRA did not find any evidence that specific market based
20	outcomes were considered in the setting of ETS rates. Please refer to OEB Interrogatory 3(e).

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1		<b>OEB STAFF INTERROGATORY - 30</b>
2		
3	Re	ference:
4	Sul	omissions on the ETS Rate, Attachment 2, Page 8
5		
6	Pre	eamble:
7	Pa	ge 8 of the Charles River Associates (CRA) report states:
8		
9		ISO-NE and NYISO have entered into a reciprocal agreement, in the form of a
10		memorandum of understanding (MOU), that has adopted an exception to the
11		rule such that the Through or Out Service (TOUT) rate is reduced to zero for any
12		TOUT transaction that goes through or out of the New England Control Area and
13		has the New England/New York Control Area boundary as its Point of Delivery.
14	lot	orrogotory.
15	<u>int</u>	errogatory:
16	a)	Please clarify if this applies only to wheel-through transactions.
17		
18	b)	Please clarify if this applies for all imports and exports between ISO-NE and NYISO.
19	_	
20	<u>Re</u>	sponse:
21	Res	sponse from Charles River Associates:
22		
23	a)	Based on CRA's understanding, this MOU applies to wheel-through transactions between ISO-
24		NE and NYISO.
25		
26	b)	Based on CRA's understanding, this applies to all imports and exports between ISO-NE and
27		NYISO.

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1		<b>OEB STAFF INTERROGATORY - 31</b>
2		
3	Re	ference:
4	Sub	omissions on the ETS Rate, Attachment 2, Page 9
5		
6	Pre	eamble:
7	The	e CRA reports states that the Border Rate does not apply to any point-to-point transmission
8	ser	vice or network service to serve load in the Midcontinent Independent System Operator, Inc.
9	(M	ISO). This reciprocal arrangement falls under the Joint Agreement between MISO and PJM.
10		
11	Int	errogatory:
12	a)	Please clarify if this applies only to wheel-through transactions.
13		
14	b)	Please clarify if this applies for all imports and exports between MISO and PJM.
15		
16	Re	sponse:
17	Res	sponse from Charles River Associates:
18		
19	a)	Based on CRA's understanding, this arrangement applies to wheel-through transactions
20		between MISO and PJM. <sup>1</sup>
21		
22	b)	Based on CRA's understanding, this applies to all imports and exports between MISO and PJM.

#### <sup>1</sup> <u>https://www.pjm.com/directory/merged-tariffs/miso-joa.pdf</u>

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## **OEB STAFF INTERROGATORY - 32**

2	
3	<u>Reference:</u>
4	Submissions on the ETS Rate, Attachment 2, Appendix B, Pages 5-9
5	
6	Preamble:
7	Appendix B provides Rate Adders including Ancillary Services and Other Charges Applicable to ETS
8	Transactions.
9	
10	Interrogatory:
11	a) Please provide IESO rate adders including uplift charges, ancillary services, and other charges
12	applicable to ETS transactions.
13	
14	Response:
15	Response from IESO:
16	

a) Please see the response to OEB Staff Interrogatory 1 g).

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- 3 <u>Reference:</u>
- 4 EB-2012-0031, Exhibit H1-5-2, Appendix B, Page 24
- 5

1 2

## 6 **Preamble:**

- 7 Table 2 provides the export charge, uplift/administration costs, and all-in costs for 2011 from-to
- <sup>8</sup> jurisdictions included in the 2012 ETS Tariff Study.
- 9

#### 10 Interrogatory:

a) Please provide a similar table containing data relevant to the 2021 jurisdictional review.

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## 1 Response:

2 Response from Charles River Associates:

- 3
- a) Please see the following table.

4 5

ETS Rates with Uplift (\$/mWh, native tariff currency) 2020					
From To		Hourly On-Peak/Off- Peak/All	Export Charge*	Uplift/ Administrative Costs	All-In Costs for 2020
	New York	On-Peak	\$1.85	\$3.94	\$5.79
	New York	Off-Peak	\$1.85	\$3.94	\$5.79
Ontario	Quebec	On-Peak	\$1.85	\$3.94	\$5.79
Ontario	Quebec	Off-Peak	\$1.85	\$3.94	\$5.79
	MISO	On-Peak	\$1.85	\$3.94	\$5.79
	MISO	Off-Peak	\$1.85	\$3.94	\$5.79
	Ontario	All	\$5.89	\$1.87	\$7.76
No. vod	PJM	All	\$6.12	\$1.87	\$7.99
New York	Quebec	All	\$3.25	\$1.87	\$5.12
	ISO-NE	All	\$0.00	\$1.87	\$1.87
cnn **	MISO	On-Peak	\$1.65	\$1.03	\$2.68
SPP**	MISO	Off-Peak	\$0.78	\$0.55	\$1.33
	SPP	On-Peak	\$9.97	\$1.82	\$11.79
	SPP	Off-Peak	\$4.73	\$0.98	\$5.71
MICO	Ontario	On-Peak	\$9.97	\$1.82	\$11.79
IVII30	Ontario	Off-Peak	\$4.73	\$0.98	\$5.71
	PJM	On-Peak	\$0.00	\$1.82	\$1.82
	PJM	Off-Peak	\$0.00	\$0.98	\$0.98
	MISO	All	\$0.00	\$1.86	\$1.86
PJM	New York	On-Peak	\$4.54	\$1.86	\$6.40
	New York	Off-Peak	\$2.16	\$1.86	\$4.02
	New York	All	\$0.00	\$0.32	\$0.32
ISU-INE	Quebec	All	\$14.76	\$0.32	\$15.08
	Ontario	All	\$8.91	\$0.28	\$9.19
Quebec	New York	All	\$8.91	\$0.28	\$9.19
	ISO-NE	All	\$8.91	\$0.28	\$9.19

\* Refer to Table 3 of CRA Errata in response to OEB #26b.

\*\* SPP Uplift/Administrative Cost Adder is the midpoint of a provided range in CRA Report Appendix B.

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## **OEB STAFF INTERROGATORY - 34**

2		
3	Re	ference:
4	Sub	omissions on the ETS Rate, Attachment 3, Page 2
5		
6	Pre	eamble:
7	The	e IESO states that intertie traders exporting energy from Ontario pay the Intertie Congestion
8	Pri	ce (ICP), a dynamic charge set based on its market value to traders, administered through the
9	IES	O-administered market. ICP revenues are collected entirely from intertie importers and
10	exp	porters for the purpose of offsetting transmission service charges paid for all transmission
11	cus	tomers. Since 2017, an average of \$160 million per year of ICP revenue has been returned in
12	rec	luced transmission costs, the majority of which has gone to domestic consumers.
13		
14	Int	errogatory:
15	a)	Please explain when the IESO established the ICP, and on what basis? Was this before or after
16		the ETS was established?
17		
18	b)	In the IESO's view, is the purpose of the ICP the same as the purpose of the ETS? Please explain
19		whether and how the ETS and the ICP address the same or different issues.
20	_	
21	c)	If the ICP was established after the ETS, and if the purpose of the ICP is the same as the
22		purpose of the ETS, why did the IESO establish the ICP? Please explain.
23	N	
24	d)	Are there incremental costs that arise specifically due to managing congestion, as opposed to
25		costs that arise from export transactions?
26	2	Fundain and supertify have the ICD revenue has been distributed. Is it different from other
27	e)	Explain and quantity now the ICP revenue has been distributed. Is it different from other
28		Junsaictions
29	f)	Which of the adjoining jurisdictions (Manitoba Quebec New York Minnesota and Michigan)
30	''	have at least some (i.e., non-zero) regulated transmission network tariff charge applicable to
32		all exports out of the jurisdiction?
33		
34	g)	Please clarify if the ICP charges are analogous to other and ancillary charges in other
35	0,	jurisdictions and/or are uplift charges analogous to other and ancillary charges in other
36		jurisdictions?

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- h) Please explain how ICP supports open access.
- 1 2
- i) In the IESO's view, what would be the advantage for Ontario ratepayers and export
  transmission service users of relying on ICP in lieu of an ETS rate to charge for export service?
- 5 6
  - j) In the IESO's view, what would be the disadvantage for Ontario ratepayers and export transmission service users of relying on ICP in lieu of an ETS rate to charge for export service?
- 7 8
- k) In the IESO's view, would relying on ICP (in lieu of the ETS rate) present risk (e.g., financial
  risk) to Ontario ratepayers and to those who use the transmission system in Ontario to deliver
  electricity to outside of Ontario? Does the IESO consider this risk appropriate? Please explain.
- I) What financial, system reliability and operability protections, if any, exist now and/or ought
  to exist for Ontario ratepayers and export transmission service users if Ontario were to rely
  on ICP in lieu of an ETS rate?
- 16

12

17 **Response:** 

18 Responses from IESO:

19

a) Both the ICP and ETS have been in place since market opening in May 2002. The role of the
 ICP was the subject of extensive discussion by the Board in its decision in RP-1999-0044 when
 it established the ETS.

23

Both mechanisms are intended to offset intertie infrastructure costs to Ontario customers. 24 b) However, they differ in their application. The purpose of the ICP mechanism is to 25 competitively, fairly, and transparently allocate access to an intertie when there is more 26 demand than capability, resulting in efficient use as part of the operation of the wholesale 27 electricity market. By allocating transmission capacity to traders on a willingness to pay basis, 28 it ensures that any surplus funds collected from traders are returned to Ontario consumers 29 to reduce transmission service charges. The key difference between the ICP and the ETS is 30 that the ICP is dynamic and adjusts automatically to changing market conditions (hour to 31 hour) ensuring there are no adverse impacts on economically efficient trade. By contrast the 32 ETS is a fixed charge and will invariably either under collect if price differences are greater 33 than the ETS, or limit otherwise efficient transactions if the ETS is greater than the price 34 spreads. In practice, both the ETS and ICP have worked together to facilitate trade and offset 35 costs for Ontario consumers. However, as stated in the IESO submission, it is the IESO's view 36 37 that the ETS should be set at a rate that does not interfere with efficient trade which is a critically important tool for managing the reliable operation of the Ontario grid. 38

c) Please see answer a) above. The ICP was not established after the ETS. 1 2 d) There are no incremental costs to managing intertie congestion. As described in IESO 3 submission<sup>1</sup>, IESO analysis has indicated that exports result in substantial system savings as 4 opposed to costs. 5 6 e) The IESO's approach is generally aligned with other jurisdictions in distributing transmission 7 rights auction revenue (where this occurs), as the benefits of congestion revenue accrue to 8 those responsible for paying for the transmission system. Please see Table 4 – Transmission 9 Rights Clearing Account Flows & Table 5 – TRCA Disbursements Between Loads and Exporters 10 in Attachment 1 of OEB Staff Interrogatory 1 for more detail. 11 12 Response from Charles River Associates: 13 14 All adjoining jurisdictions have at least some (i.e non-zero) regulated transmission tariff f) 15 charge to all exports out of the jurisdiction. Please refer to New York, MISO (for Minnesota 16 and Michigan), and Trans-Energie in the ETS Rate Submissions, Attachment 2, Table 1. 17 18 Responses from IESO: 19 20 The ICP reflects the real-time value of transmission access based on competition (exporters 21 g) willingness to pay for access) and market conditions in Ontario and neighbouring jurisdictions. 22 Uplift charges are related to specific out-of-market costs incurred required to operate a 23 system reliably that is shared by all users. 24 25 h) The ICP mechanism allocates scarce intertie access in a fair and transparent way, based on a 26 market-based (willingness-to-pay) approach. All registered traders have an equal opportunity 27 to access the interties. 28 29 Relying upon the ICP in lieu of the ETS rate would provide advantages in the form of improved i) 30 system operability. Exports provide a range of operational benefits and enhance system 31 reliability for Ontario consumers. As described in the IESO submission, the fixed rate nature 32 of the ETS can prevent otherwise economic transactions from occurring, limiting exports on 33 the interties. The ICP mechanism is more supportive of efficient trade because it does not 34 prevent transactions from occurring and charges users a premium based on their willingness 35

<sup>&</sup>lt;sup>1</sup> "Market Implications of the Export Transmission Service Rate July 2021", "Table 1: Value from Exports 2017-2020",

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to pay. As such, there would be more hours when trades are economic in the absence of the
 ETS, which in turn would generate greater revenue for Ontario and potentially avoid the need
 to curtail Ontario generation.

4

j) A potential disadvantage of relying solely upon the ICP in lieu of the ETS rate is that the ICP is
 only collected when there is congestion, i.e., when there is sufficient competition and excess
 demand for access to an intertie. In the absence of congestion, an ICP price is not generated
 and no congestion rent is collected. Therefore, on ties that are less competitive, it is possible
 that less revenue would be collected for Ontario ratepayers if some level of ETS did not remain
 in place.

k) The IESO views the financial risk to Ontario ratepayers of relying upon the ICP in lieu of the
 ETS to be low. The ICP depends on many factors including constantly changing market
 conditions, competition, supply outages, and weather. As a result, ICP collection is variable
 and harder to predict than a fixed charge like the ETS. However, as detailed in the IESO
 submission, the amount of ICP distributed to Ontario ratepayers has historically exceeded the
 amount collected from exporters through the ETS. This indicates that the financial risk to
 Ontario ratepayers of relying solely upon the ICP in lieu of the ETS is low.

19

11

Relying on the ICP in lieu of an ETS rate would improve system reliability and operability by
 incenting a greater volume of efficient export transactions.

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# **OEB STAFF INTERROGATORY - 35**

2					
3	Ref	erence:			
4	Submissions on the ETS Rate, Attachment 3, Page 2				
5					
6	Pre	amble:			
7	The	ELESO states that due to market design changes, ICP revenues are now distributed on a semi-			
8	ann	ual basis and the Transmission Rights (TR) market has increased the amount of revenues			
9	ava	ilable to be disbursed and changed the proportion of the distribution to return almost all			
10	ava	ilable funds to domestic consumers.			
11					
12	Inte	errogatory:			
13	a)	Please provide the amount of ICP revenue returned on an annual basis to domestic customers.			
14		Are there any applicable settlement charges associated with the ICP that is returned to domestic			
15		customers?			
16					
17	b)	Please explain in detail how the ICP revenue is returned. Is it through the Global Adjustment, to			
18		transmitters, directly to domestic consumers or through some other means?			
19					
20	c)	Please provide the frequency that the ICP revenue is returned and the basis for that frequency. Is			
21		the basis a practice or prescribed? If it is prescribed, where is it prescribed and by whom? What is			
22		the process for changing the frequency?			
23					
24	d)	Please provide the amount of transmission rights clearing account (TRCA) disbursements returned			
25		on an annual basis to domestic customers. Are there any applicable settlement charges associated			
26		with the TRCA dispursements that are returned to domestic customers?			
27		Plassa avalain in datail have TPCA disburgaments are returned to it through the Clabel			
28	e)	Adjustment to transmitters, directly to demostic consumers or through some other means?			
29		Aujustment, to transmitters, directly to domestic consumers of through some other means?			
30	f)	Please provide the frequency that TRCA disbursements are returned and the basis for that			
32	')	frequency is the basis a practice or prescribed? If it is prescribed where is it prescribed and by			
32		whom? What is the process for changing the frequency?			
34					
35	g)	Does the IESO consider TRCA disbursements to domestic customers cross-subsidization? If not.			
36	.,	why not?			

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Please provide Ontario ICP revenue from 2012 to 2021. h) 1 2 i) Please provide forecast Ontario ICP revenue from 2022 to 2027. 3 4 Please provide Ontario TR Auctions Revenue from 2012 to 2221. 5 j) 6 7 k) Please provide forecast Ontario TR Auctions Revenue from 2022 to 2227. 8 I) Please provide Ontario TRCA Disbursements from 2012 to 2221. 9 10 m) Please provide forecast Ontario TRCA Disbursements from 2022 to 2027. 11 12 n) Please provide Hydro One's export transmission load forecast and ETS revenue forecast from 2012 13 to 2021 and Hydro One's actual export transmission load and actual ETS revenue from 2012 to 14 15 2021. 16 o) Please provide for each Ontario transmitter forecast annual load, ICP revenues and TRCA 17 disbursements from 2022 to 2027. 18 19 p) Please explain what would happen if the ICP forecast is not met for Ontario transmitters if the ETS 20 is eliminated. Would there be a revenue reconciliation process for Ontario transmitters and how 21 it would work? Will variance accounts be required? 22 23 Response: 24 Responses from IESO: 25 26 a) The ICP is returned as part of the Transmission Rights Clearing Account Disbursement as an 27 energy market uplift payment, for an explanation of the proportion of disbursements that are 28 returned to domestic customers, please see Figure 1 below. Please also see Table 4 -29 Transmission Rights Clearing Account Flows & Table 5 – TRCA Disbursements Between Loads 30 and Exporters in Attachment 1 of OEB Staff Interrogatory 1. 31 32 b) The ICP is returned as part of the Transmission Rights Clearing Account Disbursement as an 33 energy market uplift payment. Please see Figure 1 below. 34

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The TRCA account comprises of the congestion rents collected via the Intertie Congestion Price as well as the proceeds from the Transmission Rights Auction. Withdrawals from the account are from monthly payouts to Transmission Rights holders. A \$20 million minimum balance is maintained in the TRCA account and any surplus above that balance is paid out to Ontario loads (98%) and exporters (2%).

6 7

The TRCA surplus is divided between the load and exporter classes based on the proportion of transmission costs paid over the last six months. This methodology results in Ontario loads receiving approximately 98% of the TRCA surplus funds<sup>1</sup>.



8



11		Figure 1: Transmission Rights Clearing Account Disbursement Methodology
12		
13		Notes:
14		IESO Market Rules Chapter 9, Section 4.7 describes the TRCA disbursement methodology.
15		IESO Market Manual 5.5, Section 1.6.27 contains the frequency on when TRCA disbursements are made.
16		The IESO recently implemented the current TRCA disbursement methodology in June 2021. Prior to this
17		change, the TRCA disbursement was based on a proportionate share of volume instead of transmission
18		costs paid, resulting in an approximately 87%/13% split of surplus funds to load versus exporters.
19		
20	c)	ICP revenue is returned as part of the Transmission Rights Clearing Account Disbursement.
21		The IESO reviews the Transmission Rights Clearing Account balance on a semi-annual basis
22		and disburses the surplus funds when the balance exceeds the reserve threshold of \$20M by

at least \$5M; or as directed by the IESO Board. In order to change the distribution frequency,

<sup>&</sup>lt;sup>1</sup>For further information please see:

https://www.ieso.ca/-/media/Files/IESO/Document-Library/engage/Transmission-Rights-Market/trmr-20210630-final-report.ashx

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1		the IESO would need to follow its baseline process to amend the applicable Market Manual
2		5.5, Sec. 1.6.27.
3		
4	d)	Please see the response to OEB Staff Interrogatory 34 e). There are no applicable settlement
5		charges associated with the TRCA disbursements other than the disbursement itself, which is
6		returned as an uplift payment.
7		
8	e)	Please see the response to b) above.
9		
10	f)	Please see the response to c) above.
11	,	
12	g)	No. The IESO believes that it is appropriate for TRCA surplus funds to be returned to the
13		customers that are responsible for the costs of the transmission system. As detailed in the
14		TESO ETS Rate Submission Attachment 3, the TESO has refined its methodology for distributing
15		congestion funds available to be disbursed to domestic consumers and exporters from the
10		
18		
19	h)	Please see the response to a) above.
20	,	
21	i)	The IESO does not produce an ICP forecast because it does not forecast interjurisdictional
22		trading conditions at the required level of intraday granularity. However, given the high share
23		of baseload generation resources in Ontario's supply mix, Ontario wholesale prices have been
24		and are expected to be lower than many of our trading partners for the foreseeable future,
25		creating the base conditions for exports and collection of ICP.
26		
27	j)	Please see the response to a) above.
28		
29	k)	The IESO does not have an ICP forecast because it does not forecast interjurisdictional trading
30		conditions at the required level of intraday granularity.
31		
32	I)	Please see Table 4 - Transmission Rights Clearing Account Flows in Attachment 1 of OEB Staff
33		Interrogatory 1.
34	,	
35	m)	The IESO does not have a forecast because it does not forecast interjurisdictional trading
36		conditions on an intraday granularity.

- 1 Responses from Hydro One:
- 2 3
  - n) Hydro One's forecasted and actual export transmission load and ETS revenue from 2012 to 2021
- 4 are shown in the table below.
- 5

	Estimated		Actual	
Year	Export Revenue (\$M)	Export MWh	Export Revenue (\$M)	Export MWh
2012	\$16.0	8,000,000	\$30.2	15,101,765
2013	\$27.0	13,478,603	\$38.0	18,980,713
2014	\$34.1	17,036,127	\$39.5	19,761,648
2015	\$30.9	16,702,703	\$42.8	23,138,052
2016	\$31.7	17,135,135	\$41.0	22,157,981
2017	\$39.2	21,172,973	\$35.8	19,346,599
2018	\$40.1	21,648,649	\$34.7	18,771,464
2019	\$40.1	21,648,649	\$37.1	20,073,511
2020	\$35.9	19,403,359	\$38.1	20,601,892
2021	\$35.9	19,422,279	\$32.0	17,320,341

Notes on estimated values:

2012 as per EB-2010-0002 Decision with Reasons dated December 23, 2010 2013-2014 as per EB-2012-0031 Decision with Reasons dated November 30, 2012 2015-2016 as per EB-2014-0140 Settlement Agreement, approved December 2, 2014 2017-2018 as per EB-2016-0160 Decision and Order dated December 1, 2017 2019 as per EB-2018-0130 Decision and Rate Order dated June 13, 2019 2020-2021 as per EB-2019-0082 Decision and Order dated April 23, 2020

6 7

o) The forecasted annual load for Hydro One Transmission for 2022-2027 is shown in the table below

- at the generation level. The forecasted load for other transmitters is not available.
- 8 9

Year	HONI Tx (GWh)
2022	131,691
2023	133,209
2024	133,560
2025	133,188
2026	132,848
2027	133,644

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1 *Response from IESO:* 

2

p) The IESO does not have a forecast because it does not forecast interjurisdictional trading
 conditions on an intraday granularity. Just like today, if ICP were to drop the only impact would be
 that the semi-annual disbursements from the TRCA to Ontario loads would be reduced. Given that
 TRCA disbursements are not made to transmitters, there would be no impact on UTRs or need for
 variance accounts.

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## **OEB STAFF INTERROGATORY - 36**

2		
3	Re	ference:
4	Sub	missions on the ETS Rate, Attachment 3, Page 3
5		
6	Pre	eamble:
7	The	e IESO states that the ICP and ETS have an offsetting relationship such that an increase in the
8	ETS	will lead to a proportionate decrease in the ICP.
9		
10	Int	errogatory:
11	a)	Please confirm that this is a dollar-for-dollar proportional relationship. If not please clarify the
12		increase in the ETS and the decrease in the ICP.
13		
14	Re	sponse:
15	Res	ponse from IESO:
16		
17	a)	There is a strong inverse relationship between the ETS rate and the ICP but the IESO would
18		not characterize it as a dollar-for-dollar proportional relationship in all cases. For example,
19		higher ETS rates have a disproportionally large impact on otherwise economic exports from
20		occurring. Not only would no ETS or ICP revenues be collected from reduced transactions but
21		the IESO may need to curtail Ontario generation to ensure reliability, which is both costly and

<sup>22</sup> undesirable from an operational and market participant perspective.

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1

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# **OEB STAFF INTERROGATORY - 37**

2			
3	Re	ference:	
4	Sub	omissions on the ETS Rate, Attachment 3, Page 7	
5		, , , , , , , , , , , , , , , , , , ,	
6	Pre	eamble:	
7	The	E IESO states that its planning assessments do consider maintaining export capability where	
8	required to ensure system reliability and operability, but do not specifically consider competitive		
9	exporter activity. On this basis, competitive exports are not a key driver of investment cost to the		
10	tra	nsmission system in Ontario.	
11			
12	Int	errogatory:	
13	a)	Please confirm that system reliability and operability will be maintained by the IESO regardless of	
14		ETS rate.	
15			
16	b)	If the ETS is reduced to \$0/MWh, what assurances are there that the ICP would be at a minimum	
17		of \$1.85/MWh for every hour at every intertie in Ontario?	
18			
19	c)	In the IESO's view, what protections exist or should be put in place to ensure that any reduction	
20		in the ETS rate is received by Ontario consumers and not received by exporters?	
21			
22	d)	Please confirm that through a TR Auction the successful TR holder is entitled to all the ICP revenue	
23		for an intertie for the specific period and quantity of the TR. If yes, please clarify how ICP revenue	
24		is returned to domestic consumers and the amount. If not, please explain otherwise.	
25			
26	Res	sponse:	
27	Res	ponse from IESO:	
28			
29	a)	Consistent with the IESO's mandate to support the objectives of the Electricity Act, 1998 and the	
30		promotion of an efficient and reliable electricity market and power grid, system reliability and	
31		operability will be maintained by the IESO regardless of the ETS rate. However, as noted in the	
32		IESO's ETS Rate Submission Attachment 3, exports provide Ontario with operational and economic	
33		benefits. A higher ETS rate would have the effect of reducing energy exports from Ontario and by	
34		extension the operational and economic benefits that those lost exports provide. In the case of	
35		losses in exports, the IESO would rely on other mechanisms to ensure reliability, such as	
36		curtailments of Ontario generation.	

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b) ICP is set by market conditions that vary on an hour- to-hour basis so it is not easy to predict with
 certainty how much ICP will be collected on a go-forward basis. However, based on Ontario's
 current and future supply mix (which includes a high proportion of baseload generation resources)
 relative to our trading partners it is reasonable to assume that Ontario's wholesale prices will
 remain competitive, driving significant export volumes with the IESO's neighbours and generating
 significant ICP for Ontario consumers.

7

c) The recent market design changes described in the IESO's ETS Rate Submission Attachment 3
 mean that the benefits from a reduction of the ETS rate to \$0/MW would be received by Ontario
 consumers. The disbursement of TRCA surplus funds to domestic consumers and exports is based
 on the proportionate amount that each class contributes to transmission costs in the form of
 Provincial Transmission Service (PTS) and ETS. As a result of this structure, Ontario consumers
 would receive a larger share (100%) of the TRCA disbursement if the ETS is eliminated.

14

d) TRs are a financial contract that entitles their holder to congestion rents on the path specified in the contract, and the amount of congestion rent returned to TR holders depends on the number of TRs sold on a specific intertie path. TRs are offered on long-term (annual) and short-term (monthly) durations through quarterly and monthly TR auctions, and the auction revenue, as well as any residual congestion rent collected (for line capacity that is not sold as TRs) is added to the TRCA. Disbursements from the TRCA are then paid to domestic consumers and exports in proportion to the amount each class contributes to transmission costs in the form of PTS and ETS.

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# **OEB STAFF INTERROGATORY - 38**

2		
3	Ref	erence:
4	Sub	missions on the FTS Rate, Attachment 3, Table 1, Page 8
5	Sub	missions on the ETS Rate. Attachment 3, Page 3
6	0010	
7	Pre	amble:
8	The	ELESO states that prior analysis demonstrates that in one case increasing the ETS rate from \$0.
9	to S	5.80/MWh would cause a 50% reduction in export volumes.
10		
11	The	e maximum increase from \$1.85 to \$6.54/MWh proposed by Elenchus is an increase in the ETS
12	rate	e of \$4.69/MWh. The proposed increase is calculated by OEB staff, at existing export volumes
13	to g	generate \$134 million in annual ETS revenue which is an increase of about \$96 million per year.
14		
15	Tab	le 1 indicates congestion rents have declined annually since 2017 by \$109 million, from \$208
16	mil	lion in 2017 to \$99 million in 2020. The ETS revenue for 2020 is \$38 million for a combined ETS
17	rev	enue and congestion rent of \$137 million in 2020. The 2021 Elenchus report proposed ETS rate
18	of \$	6.54/MWh would increase the ETS revenue from \$38 million in 2020 to about \$134 million
19	bas	ed on existing volumes.
20		
21	Int	errogatory:
22	a)	Please explain how the \$38 million in ETS revenue would be recovered in future if the ETS is climinated
23		
24	h)	Please explain and quantify any impacts other than a \$3 million (\$137 million minus \$134 million)
25	5)	annual difference between the combined 2020 FTS revenue and ICP revenue in Table 1 and the
20		2021 Elenchus Report proposed FTS revenue
28		
29	c)	Please provide a forecast of the annual ICP and TRCA disbursements for the next five years
30	-,	including a detailed analysis of any changes based on the ETS rate remaining at a fixed charge of
31		\$1.85/MWh.
32		
33	d)	Please provide a forecast of the annual ICP and TRCA disbursements for the next five years
34	-	including a detailed analysis of any changes based on the ETS rate increasing to a fixed charge of
35		\$6.54/MWh.

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e) Please provide a forecast of the annual ICP and TRCA disbursements for the next five years
 including a detailed analysis of any changes based on the ETS rate decreasing to a fixed charge of
 \$0.00/MWh.

4

f) Please contrast how the dynamic nature of the ICP applied on some exports, compared to the
 fixed ETS charge applied on all exports regardless of market conditions, assures transmission
 customers will benefit financially.

8

g) In the IESO's view, does this volatility in ICP revenue present risk to Ontario ratepayers and
 exporters? Please explain.

- h) How would the ETS annual revenue for Ontario transmitters be guaranteed if exports wereuneconomic?
- 14

11

i) As proposed by the 2021 Elenchus Report methodology the ETS rate should apply not only to
 Hydro One transmission assets but to all Ontario transmitters' transmission assets. Please explain
 the additional impact on the ICP of this proposal including if the ETS is set to zero.

18

#### 19 **Response:**

- 20 Response from Hydro One
- 21

a) If the ETS rate is eliminated, the revenue would be recovered from Ontario transmission
 customers through an increase to the UTR.

24

25 Response from IESO

26 b) While the IESO has not assessed in detail the potential impacts on intertie trade based on an ETS 27 rate value of \$6.54/MWh, it expects a significantly higher ETS rate will materially reduce trade 28 volumes, reducing operational and economic benefits of exports to Ontario. For example, an ETS 29 rate set to \$6.54/MWh would have a dramatic impact on trade on the New York interties where 30 trading margins are typically slim and many existing trades would be uneconomic based on such 31 a rate. In turn, output from Ontario's nuclear and hydroelectric plants would be impacted. 32 Curtailing output from baseload facilities is both costly and challenging. For example, if a nuclear 33 unit is shut down it typically takes 3 days to restart, during which time Ontario must rely on higher 34 cost resources such as natural gas generation to make up for the significant energy shortfall while 35 the nuclear unit is offline. The 2021 proposed revenue in the study assumed existing export 36 37 volumes would not change. The IESO does not agree with this assumption based on its experience as Ontario's system operator. Exports are highly price sensitive, and an increase in transaction 38

costs would have an impact on export volumes. As export volumes fall, revenues from ETS charge 1 2 would also fall, not increase. 3 The IESO does not have a forecast because it does not forecast interjurisdictional trading c) 4 conditions at the required level of intraday granularity. 5 6 d) Please see the answer to c) above. However, as explained in response to OEB Staff Interrogatory 7 37 b), directionally the IESO would expect disbursements to significantly decrease due to lower 8 export volumes than would otherwise have been the case. 9 10 Please see the answer to b) above. However, as explained in response to OEB Staff 37 e) 11 Interrogatory b), directionally the IESO would expect disbursements to increase due to higher 12 export volumes than would otherwise have been the case. 13 14 The ICP and ETS rate are designed such that the proceeds of both directly benefit transmission f) 15 customers. The ICP is a robust mechanism to maximize the value of interties (both import and 16 export) when there is competition. The ETS, in contrast, supports some revenue collection but 17 only on export paths and as noted, a higher ETS can prevent exports altogether on these paths 18 which also leads to the loss of operational and reliability benefits. The ETS rate (at historical and 19 current levels) and ICP have worked well over the last 20 years to the benefit of transmission 20 customers. 21 22 The IESO does not believe the volatility in ICP revenue presents risks to ratepayers and exporters. 23 g) Disbursements are determined every 6 months based on the accrued surplus in the Transmission 24 Rights Clearing Account. While the disbursement value can be higher or lower there would be no 25 impact on transmitter rates, or need for variance accounts. Furthermore, since ICP is applied 26 dynamically (the amount collected rises and falls depending on market conditions) it guarantees 27 28 that Ontario ratepayers capture full value from the interties, but also ensures exporters have maximum opportunity to schedule economic transactions. 29 30 ETS charges are applied based on exports and used to offset Ontario transmitter rates paid by h) 31 Ontario consumers. If there was no ETS rate revenue, transmitter rates would stay the same but 32 there would be no corresponding ETS rate offset. However, all other things being equal, the losses 33 of ETS revenue would in turn be offset by higher collection of ICP revenue, which would lead to 34 increased surpluses in the TRCA. Those surpluses would be distributed to transmission customers 35 as described in the IESO ETS Rate Submission Attachment 3. 36

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1 Response from Hydro One

- i) Please see response in Staff 4, part a. Hydro One's view is that the ETS revenue should continue
- 4 to apply only to Hydro One. As such, there is no additional ETS revenue for other Ontario
- 5 transmitters and there is no additional impact on the ICP revenue.

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#### **OEB STAFF INTERROGATORY - 39** 1 2 Reference: 3 4 Submissions on the ETS Rate, Attachment 3, Table 1, Page 8 5 Preamble: 6 Table 1 shows avoided system costs varying from \$180 million to \$153 million from 2017 to 2020. 7 Footnote 13 indicates an avoided nuclear and renewable resource curtailment, equal to 14TWh, 8 12TWh, 13TWh and 14TWh for 2017 to 2020 respectively. 9 10 Interrogatory: 11 a) Please provide the annually avoided system costs and energy separately for each of avoided 12 nuclear maneuvering, hydroelectric water spillage and renewable resource curtailment from 13 2017 to 2020. 14 15 **Response:** 16 Response from IESO: 17 18 a) The annual avoided energy costs from 2017-2020 is provided in Table 9 - Annual Avoided 19 Energy Costs by Resource Type and Year of Attachment 1 of OEB Staff Interrogatory 1, by 20 regulated and contracted resource categories. A more granular breakdown cannot be 21 provided for confidentiality purposes. 22

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2		
3	Re	ference:
4	Sub	missions on the ETS Rate, Attachment 3, Table 1
5	Sub	missions on the ETS Rate, Attachment 3, Pages 8-9
6	Sub	missions on the ETS Rate, Attachment 3, Pages 8-9
7		
8	Pre	eamble:
9	The	e IESO typically collected between \$34 and 38 million per year through ETS tariffs and \$38 to
10	\$52	2 million per year through uplift charges from 2017 to 2020. In the IESO examples on page 12
11	the	uplift charges are shown as \$1/MWh.
12		
13	Int	errogatory:
14	a)	Please confirm if uplifts are a fixed charge applied on all exports regardless of market
15		conditions and the uplift rates. If not, please confirm what export activities uplift charges
16		apply to and the rates.
17		
18	b)	Please confirm if uplifts are a fixed charge applied on all imports regardless of market
19		conditions and the uplift rates. If not, please confirm what import activities uplift charges
20		apply to and the rates.
21		
22	c)	Please provide the annual revenue and volume of export uplift charges and import uplift
23		charges since 2017.
24		
25	Re	sponse:
26	Res	ponse from IESO:
27		
28	a)	Please see the response to OEB Staff Interrogatory 1 g).
29		
30	b)	Uplifts are not fixed charges and are variable based on the out-of-market costs incurred over
31		a specified time period. Imports are not subject to uplifts.
32		
33	c)	Please see Table 6 - Export Uplift Revenue and Volumes in Attachment 1 of OEB Staff
34		Interrogatory 1. Imports are not subject to uplifts.

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## **OEB STAFF INTERROGATORY - 41**

2					
3	Reference:				
4	Submissions on the ETS Rate, Attachment 3, Page 9				
5					
6	Pre	amble:			
7	The	ELESO states that The ICP is set hourly based on competitive trader bids indicating how much			
8	the	y would be willing to pay to export over the intertie for a specific hour.			
9					
10	Int	errogatory:			
11	a)	Please confirm that the ICP is determined in the market schedule whereas the actual schedule			
12	•	of exports and imports is determined in the dispatch schedule. Please describe how these			
13		processes work.			
14					
15	b)	Please confirm that intertie congestion in the market schedule may not be the same as intertie			
16		congestion in the dispatch schedule. Please further confirm that the traders pay the ICP only for			
17		exports and imports that actually flow in the dispatch schedule. If this statement is not accurate,			
18		please provide an accurate version. Please elaborate on the circumstances that might give rise to			
19		a situation where there is congestion in one schedule but not in the other schedule.			
20					
21	c)	Please provide data on the degree of correlation between hours that are congested in the market			
22		schedule and hours that are congested in the dispatch schedule.			
23					
24	d)	Is it possible for an intertie to be congested in the dispatch schedule even if it is not congested in			
25		the market schedule? If this scenario can arise, please explain the implications for ICP payment			
26		flows.			
27					
28	e)	Please describe the methods used to manage intertie congestion in the markets with which			
29		Ontario does its electricity trading			
30					
31	Res	sponse:			
32	Res	ponse from IESO:			
33					
34	a)	The ICP is determined in the IESO market schedule. Physical export quantities are determined			
35		in the IESO's dispatch schedule. The ICP for exports is set hourly based on competitive trader			
36		bids indicating how much they would be willing to pay to export over an intertie for a specific			
37		hour. When there are more economic bids than intertie capability, the highest-priced bids are			

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accepted, and the congestion premium is set by the marginal bidder. The exporters scheduled
 in the IESO's dispatch schedule would be subject to the ICP charge. Congestion rent collected
 for an intertie path would be equal to ICP X volume for that hour.

- 4
  - b) Please see the response to a) above.
- 5 6
  - c) Please see the response to a) above.
- 7 8
- 9 d) Please see the response to a) above.
- 10

e) Jurisdictions use their own methodology to manage transmission allocation, and by extension, intertie congestion. Approaches range from a market-based willingness to pay approach similar to Ontario, to first-come first-served methods similar to PJM, to a single trader monopoly approach similar to Quebec. An analysis of the TRCA surplus allocation methodology by Brattle confirms that the current IESO approach for managing transmission congestion is a "best" practice<sup>1</sup>.

<sup>&</sup>lt;sup>1</sup>For further details, please see: <u>https://www.ieso.ca/-/media/Files/IESO/Document-Library/engage</u>/mdag/mdag-20191004-Analysis-of-the-TRCA-Surplus.ashx
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# **OEB STAFF INTERROGATORY - 42**

<ul> <li>Reference:</li> <li>Submissions on the ETS Rate, Attachment 3, Pages 9 -10</li> <li>Preamble:</li> <li>The IESO states that an important feature of the ICP is that it is dynamic and automatically adju</li> <li>with the value of the intertie capacity, which itself is dependent upon hourly market conditio</li> <li>If hourly wholesale market prices are expected to be lower in Ontario relative to its neighbour</li> <li>jurisdictions, traders will compete against one another by bidding up the price for intertie acc</li> <li>relative to expected profit conditions. Increased competition and willingness-to-pay to flow felectricity out of Ontario will increase the ICP for which exports are charged.</li> <li>Interrogatory:</li> <li>a) Please describe the methods used to manage intertie congestion in the markets with wh</li> <li>Ontario does its electricity trading.</li> <li>b) Do these markets use the economic methodology of intertie congestion pricing that the IE</li> </ul>	
<ul> <li>Submissions on the ETS Rate, Attachment 3, Pages 9 -10</li> <li>Preamble:</li> <li>The IESO states that an important feature of the ICP is that it is dynamic and automatically adju</li> <li>with the value of the intertie capacity, which itself is dependent upon hourly market conditio</li> <li>If hourly wholesale market prices are expected to be lower in Ontario relative to its neighbour</li> <li>jurisdictions, traders will compete against one another by bidding up the price for intertie acc</li> <li>relative to expected profit conditions. Increased competition and willingness-to-pay to flow selectricity out of Ontario will increase the ICP for which exports are charged.</li> <li>Interrogatory:</li> <li>a) Please describe the methods used to manage intertie congestion in the markets with wh</li> <li>Ontario does its electricity trading.</li> <li>b) Do these markets use the economic methodology of intertie congestion pricing that the IE</li> </ul>	
<ul> <li><sup>5</sup></li> <li>Preamble:</li> <li>The IESO states that an important feature of the ICP is that it is dynamic and automatically adju</li> <li>with the value of the intertie capacity, which itself is dependent upon hourly market conditio</li> <li>If hourly wholesale market prices are expected to be lower in Ontario relative to its neighbour</li> <li>jurisdictions, traders will compete against one another by bidding up the price for intertie acc</li> <li>relative to expected profit conditions. Increased competition and willingness-to-pay to flow</li> <li>electricity out of Ontario will increase the ICP for which exports are charged.</li> <li>Interrogatory:</li> <li>a) Please describe the methods used to manage intertie congestion in the markets with wh</li> <li>Ontario does its electricity trading.</li> <li>b) Do these markets use the economic methodology of intertie congestion pricing that the IE</li> </ul>	
<ul> <li>Preamble:</li> <li>The IESO states that an important feature of the ICP is that it is dynamic and automatically adju</li> <li>with the value of the intertie capacity, which itself is dependent upon hourly market conditio</li> <li>If hourly wholesale market prices are expected to be lower in Ontario relative to its neighbour</li> <li>jurisdictions, traders will compete against one another by bidding up the price for intertie acc</li> <li>relative to expected profit conditions. Increased competition and willingness-to-pay to flow</li> <li>electricity out of Ontario will increase the ICP for which exports are charged.</li> <li>Interrogatory:</li> <li>a) Please describe the methods used to manage intertie congestion in the markets with wh</li> <li>Ontario does its electricity trading.</li> <li>b) Do these markets use the economic methodology of intertie congestion pricing that the IE</li> </ul>	
<ul> <li>The IESO states that an important feature of the ICP is that it is dynamic and automatically adju</li> <li>with the value of the intertie capacity, which itself is dependent upon hourly market conditio</li> <li>If hourly wholesale market prices are expected to be lower in Ontario relative to its neighbour</li> <li>jurisdictions, traders will compete against one another by bidding up the price for intertie acc</li> <li>relative to expected profit conditions. Increased competition and willingness-to-pay to flow</li> <li>electricity out of Ontario will increase the ICP for which exports are charged.</li> <li>Interrogatory:         <ul> <li>a) Please describe the methods used to manage intertie congestion in the markets with wh</li> <li>Ontario does its electricity trading.</li> </ul> </li> <li>b) Do these markets use the economic methodology of intertie congestion pricing that the IE</li> </ul>	
<ul> <li>with the value of the intertie capacity, which itself is dependent upon hourly market condition</li> <li>If hourly wholesale market prices are expected to be lower in Ontario relative to its neighbour</li> <li>jurisdictions, traders will compete against one another by bidding up the price for intertie acc</li> <li>relative to expected profit conditions. Increased competition and willingness-to-pay to flow</li> <li>electricity out of Ontario will increase the ICP for which exports are charged.</li> <li>Interrogatory:         <ul> <li>a) Please describe the methods used to manage intertie congestion in the markets with wh</li> <li>Ontario does its electricity trading.</li> </ul> </li> <li>b) Do these markets use the economic methodology of intertie congestion pricing that the IE</li> </ul>	sts
<ul> <li>If hourly wholesale market prices are expected to be lower in Ontario relative to its neighbour</li> <li>jurisdictions, traders will compete against one another by bidding up the price for intertie acc</li> <li>relative to expected profit conditions. Increased competition and willingness-to-pay to flow</li> <li>electricity out of Ontario will increase the ICP for which exports are charged.</li> <li>Interrogatory:         <ul> <li>a) Please describe the methods used to manage intertie congestion in the markets with wh</li> <li>Ontario does its electricity trading.</li> </ul> </li> <li>b) Do these markets use the economic methodology of intertie congestion pricing that the IE</li> </ul>	ns.
<ul> <li>jurisdictions, traders will compete against one another by bidding up the price for intertie acc</li> <li>relative to expected profit conditions. Increased competition and willingness-to-pay to flow</li> <li>electricity out of Ontario will increase the ICP for which exports are charged.</li> <li>Interrogatory:         <ul> <li>a) Please describe the methods used to manage intertie congestion in the markets with wh</li> <li>Ontario does its electricity trading.</li> </ul> </li> <li>b) Do these markets use the economic methodology of intertie congestion pricing that the IE</li> </ul>	ing
<ul> <li>relative to expected profit conditions. Increased competition and willingness-to-pay to flow</li> <li>electricity out of Ontario will increase the ICP for which exports are charged.</li> <li>Interrogatory:         <ul> <li>a) Please describe the methods used to manage intertie congestion in the markets with wh</li> <li>Ontario does its electricity trading.</li> </ul> </li> <li>b) Do these markets use the economic methodology of intertie congestion pricing that the IE</li> </ul>	ess
<ul> <li>electricity out of Ontario will increase the ICP for which exports are charged.</li> <li>Interrogatory:         <ul> <li>a) Please describe the methods used to manage intertie congestion in the markets with wh</li> <li>Ontario does its electricity trading.</li> </ul> </li> <li>b) Do these markets use the economic methodology of intertie congestion pricing that the IE</li> </ul>	he
<ul> <li>13</li> <li>14 Interrogatory: <ul> <li>a) Please describe the methods used to manage intertie congestion in the markets with wh</li> <li>Ontario does its electricity trading.</li> </ul> </li> <li>17 <ul> <li>18 b) Do these markets use the economic methodology of intertie congestion pricing that the IE</li> </ul> </li> </ul>	
<ul> <li>Interrogatory:         <ul> <li>a) Please describe the methods used to manage intertie congestion in the markets with wh</li> <li>Ontario does its electricity trading.</li> </ul> </li> <li>b) Do these markets use the economic methodology of intertie congestion pricing that the IE</li> </ul>	
<ul> <li>a) Please describe the methods used to manage intertie congestion in the markets with wh</li> <li>Ontario does its electricity trading.</li> <li>b) Do these markets use the economic methodology of intertie congestion pricing that the IE</li> </ul>	
<ul> <li>Ontario does its electricity trading.</li> <li>b) Do these markets use the economic methodology of intertie congestion pricing that the IE</li> </ul>	ich
<ul> <li>b) Do these markets use the economic methodology of intertie congestion pricing that the IE</li> </ul>	
b) Do these markets use the economic methodology of intertie congestion pricing that the IE	
	SO
19 uses for Ontario?	
20	
c) If not please explain, to the extent possible, why not.	
22	
23 <b>Response:</b>	
24 Response from IESO:	
a) Please see the response to OEB Staff Interrogatory 41 e).	
b) Please see the response to OEB Staff Interrogatory 41 e).	
29	<b>±</b>
the IESO believes it has an efficient mechanism for the Ontario neuror system	Jut

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<b>OEB STAFF INTERROGATORY</b>	- 43
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1		OEB STAFF INTERROGATORY - 43
2		
3	Re	ference:
4	Sub	omissions on the ETS Rate, Attachment 3, Pages 9 -10
5		
6	Pre	eamble:
7	The	e IESO states that the ICP is set hourly based on competitive trader bids indicating how much they
8	wo	uld be willing to pay to export over the intertie for a specific hour. The highest bids are accepted to
9	exp	ort over the intertie during the given hour. For example, the ICP on the intertie to Michigan (where
10	the	re has historically been high demand to export) averaged \$19/MWh in 2017 while annual prices on
11	the	Minnesota and New York interties are in the range of \$7-9/MWh.
12		
13	Int	errogatory:
14	a)	Please provide the number of hours annually that the ICP was collected and the annual ICP
15		revenue from 2017 to 2020 for each of the Michigan, Minnesota, and New York interties.
16		
17	b)	Please explain the historical variability and provide a graph showing the monthly variability in
18		the ICP at each intertie and for each jurisdiction.
19	_	
20	Res	sponse:
21	Res	sponse from IESO:
22	,	
23	a)	Please see Table 8 – Export Congestion Rent by Jurisdiction in Attachment 1 of OEB Staff
24		Interrogatory 1.
25	<b>h</b> )	ICD is driven by expected price differences between jurisdictions on an bourly basis, there are
26	D)	a number of drivers that can influence this opportunity and drive variability, such as outages
21 28		supply mix fuel prices weather and seasonal changes Please see Table 12 – Average Monthly
20		ICP by the Michigan Minnesota and New York Export ties in Attachment 1 of OEB Staff
30		Interrogatory 1.

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# **OEB STAFF INTERROGATORY - 44**

2		
3	<u>Ref</u>	erence:
4	Sub	missions on the ETS Rate, Attachment 3, Table 2, Page 10
5		
6	<u>Pre</u>	amble:
7	The	IESO states that TRs are a financial contract that entitle their holder to a share of the ICP revenue.
8	The	EVEN IESO pays the TR holders from the ICP revenues. Revenues from the TR auction plus any residual
9	ICP	revenues after payments to TR holders are disbursed, subject to a TRCA balance threshold, to
10	don	nestic consumers and exporters to offset transmission costs. As shown in Table 2, approximately
11	\$11	8 million was paid out in disbursements in 2020.
12		
13	The	footnote to Table 2 states that congestion rents apply to exports and imports.
14		
15	Inte	errogatory:
16	a)	Please clarify the share and amount of the ICP provided to TR holders.
17		
18	b)	Please confirm that imports are subject to congestion rents and explain how these rents are
19		calculated.
20		
21	c)	Please provide the amount of congestion rents received from imports.
22		
23	d)	Please clarify if uplift charges apply only to exports and if they apply to all exports. If not,
24		please confirm what transactions uplifts charges apply to and the volume.
25		Disco analisi the times and leasting where ICD revenue has been an would be says for
26	e)	imports and expects
27		imports and exports.
28	Pos	inonso:
29	Res	ponse.
30	nes	ponse from leso.
22	<b>a</b> )	The annual amount naid to TR holders from the TRCA is set out in Table 4 - Transmission Rights
32	u)	Clearing Account Flows in Attachment 1 of OEB Staff Interrogatory 1
34		eleaning needen chows in Actual ment 1 of 025 start interrogatory 1.
35	b)	Imports are subject to ICP. The ICP for imports is set hourly based on competitive trader offers
36	,	indicating how much they would be willing to accept to import over an intertie for a specific

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hour. When there are more economic offers than intertie capability, the lowest-priced offers
 are accepted, and the congestion premium is set by the marginal offer.

- 3
- c) Please see Table 4 Transmission Rights Clearing Account Flows in Attachment 1 of OEB Staff
   Interrogatory 1.
- 6
- 7 d) Please see the response to OEB Staff Interrogatory 40 b) and OEB Staff Interrogatory 1 g).
- 8

e) ICP is a dynamic mechanism based on market conditions between Ontario and neighbouring
 jurisdictions. Since market conditions change constantly, the ICP also adjusts for each
 individual intertie on a continuous basis. The ICP may be zero on a particular intertie path for
 a given hour before changing to a non-zero price in the next hour. On a different intertie path,
 the ICP may be zero for a long stretch. On yet another path, the ICP might have high price for
 most hours. There might be hourly, daily, or even seasonal trends in these prices.

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# **OEB STAFF INTERROGATORY - 45**

2					
3	Re	<u>Reference:</u>			
4	Suk	omissions on the ETS Rate, Attachment 3, Table 2			
5	Sub	omissions on the ETS Rate, Attachment 3, Pages 10-11			
6					
7	Pre	eamble:			
8	The	e IESO states that it pays the TR holders from the ICP revenues. Revenues from the TR auction			
9	plu	s any residual ICP revenues after payments to TR holders are disbursed, subject to a TRCA			
10	bal	ance threshold, to domestic consumers and exporters to offset transmission costs. As shown			
11	in 1	Table 2, TRCA disbursements have steadily declined since 2018 to approximately \$118 million			
12	in 2	2020.			
13					
14	The	e IESO has stated the TRCA methodology effective 2021 will increase TRCA funds to be			
15	dist	tributed to domestic load.			
16					
17	Int	errogatory:			
18	a)	Please confirm if annual payments to TR holders have exceeded congestion rents received			
19		from the market. If, so please explain why and provide the year(s), amount, and reason. Also,			
20		clarify where the revenue is obtained from to provide excess TR payments.			
21					
22	b)	Please explain why the annual congestion rents in Table 2 are higher than the annual			
23		payments to TR holders. Clarify what happens to the excess amount of congestion rents.			
24					
25	c)	Please explain the changes in TRCA methodology that will increase disbursements to domestic			
26		loads.			
27					
28	d)	Please define domestic load.			
29	,				
30	e)	Please provide the 2021 actual and 5-year forecast TRCA disbursement to domestic loads.			
31	0				
32	t)	Please confirm that ICP revenues are sufficient to cover any shortfall between the revenue			
33		that the IESO receives from TR auctions and the payments the IESO is obligated to make to TR			
34		noiders.			
35	(۔	In the IECO/s view, what are the advantages and directions for Outputs and			
36 37	g)	export transmission service users of continuing with financial transmission rights?			

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- h) In the IESO's view, what are the advantages and disadvantages for Ontario ratepayers and
   export transmission service users of discontinuing financial transmission rights?
- 3
- i) In the IESO's view, what would be the disadvantage of eliminating TR auctions? Would this
   reduce ICP by an equivalent amount?
- 6
- 7 **Response:**
- 8 Response from IESO:
- 9

a) Yes, there have been historical instances when annual payments to TR holders have exceeded
 congestion rent from the market. Please see Table 4 - Transmission Rights Clearing Account
 Flows of Attachment 1 in OEB Staff Interrogatory 1. Auction revenues are also used to cover
 TR payments. Please see the response to OEB Staff Interrogatory 35 b) for an overview of the
 TRCA disbursement methodology.

15

b) Payments to TR holders are a function of both the quantity of TRs purchased by Market 16 Participants and the ICP. The MW quantity of TRs sold can be less than the capacity of the 17 intertie resulting in more congestion rent collected than paid out. For example, ICP may be 18 collected on the entire capacity on a 1000MW intertie, but if only 600MW of TRs are sold on 19 that intertie then TR payments will be less than congestion rents collected. Surpluses in the 20 Transmission Rights Clearing Account are disbursed to load and exporters in accordance with 21 the TRCA disbursement methodology. Please see the response to OEB Staff Interrogatory 35 22 b), as well as OEB Staff Interrogatory 37 c) and 37 d). 23

24

c) The disbursement methodology for the TRCA was changed from a proportionate share of
 volume methodology to a proportionate share of transmission costs paid methodology. This
 has shifted the split of TRCA disbursements from approximately 87%/13% split to domestic
 load versus exporters; to 98%/2% split to domestic load versus exporters. This change came
 into effect in May 2021.

- 30
- d) For the purposes of TRCA disbursement, the IESO considers "domestic load" as participants
   that withdrew energy from the IESO-administered market.
- 33

e) The IESO does not forecast TRCA disbursements. Please see the data provided in response to
 OEB Staff 35 Interrogatory d).

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The IESO confirms that ICP revenues and TR Auction revenues have been sufficient to cover f) 1 payments to TR holders since the start of the wholesale market. Please see Table 4 -2 Transmission Rights Clearing Account Flows of Attachment 1 in OEB Staff Interrogatory 1 for 3 a historical breakdown. The IESO has implemented mechanisms in its Market Rules to protect 4 revenue sufficiency in the TRCA account, such as managing the quantity of TRs sold. 5 6 TRs support intertie trade with neighboring jurisdictions by providing a mechanism for market 7 g) participants to hedge against congestion cost risks at the interties. TRs are necessary for 8 efficient trade. Analysis and stakeholder consultations confirm that intertie congestion is 9 volatile and unpredictable, and TRs play a critical role in facilitating intertie trades by providing 10 a valuable price hedge to traders. As detailed in the IESO's ETS Rate Submission Attachment 11 3, intertie trading provides significant benefits to Ontario ratepayers. 12 13 h) The IESO completed a comprehensive TR Market review in 2020/20211 which found that TRs 14 are necessary for efficient trade at Ontario's interties. The IESO has no plans to discontinue 15 TRs. 16 17 See response to g) above. Eliminating TR Auctions would result in less participation and 18 i) competition in intertie trading, reducing intertie congestion revenues, reduce the operability 19 benefits of interties and eliminate auction revenues. The IESO has no plans to discontinue TRs 20 21 and TR Auctions.

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# **OEB STAFF INTERROGATORY - 46**

2	_				
3	<u>Reference:</u>				
4	Sub	missions on the ETS Rate, Attachment 3, Page 12			
5					
6	Pre	eamble:			
7	The	ElESO states it expects that any increase in revenue resulting from a higher ETS would be offset by			
8	an	equivalent reduction in revenue from the ICP, which in turn will decrease the amount that is			
9	dist	pursed from the TRCA to Ontario consumers. The ICP and ETS have an offsetting relationship such			
10	tha	t an increase in the ETS will lead to a proportionate decrease in the ICP. This offsetting relationships			
11	me	ans that, assuming the quantity of exports remains constant, the overall value that Ontario			
12	rate	epayers derive from exports would remain unchanged even if the ETS rate is increased.			
13					
14	The	e 2021 Elenchus Report presents three ETS rate options based on different cost allocation			
15	me	thodologies (\$6.54/MWh, \$3.66/MWh, and \$5.42/MWh respectively). Each ETS rate option			
16	represents a significant increase over the approved 2020 ETS rate of \$1.85/MWh.				
17					
18	Int	errogatory:			
19	a)	Please clarify if the ICP is fully reimbursed to TR holders. What is the percentage of ICP revenue			
20		that is provided to TR holders?			
21					
22	b)	If the ICP is fully reimbursed to TR holders, how does a reduction in ICP revenue decrease the			
23		amount of disbursements from the TRCA paid to Ontario consumers?			
24					
25	c)	Please confirm that the increase in revenue from a higher ETS would result in a decrease by an			
26		equal amount in the UTR collected from transmission customers.			
27					
28	d)	Please provide the number of hours, volume, and revenue amount of ICP collected annually since			
29		2017 at each of the interties with Michigan, Minnesota, and New York when the ICP was equal to			
30		or greater than \$4.69/MWh (\$6.54/MWh minus \$1.85/MWh).			
31					
32	e)	Please provide the number of hours, volume, and revenue amount of ICP collected annually since			
33		2017 at each of the interties with Michigan, Minnesota, and New York when the ICP was equal to			
34		or greater than \$1.81/MWh (\$3.66/MWh minus \$1.85/MWh).			

Filed: 2022-05-13 EB-2021-0243 Exhibit I Tab 1 Schedule 46 Page 2 of 2 f) Please provide the number of hours, volume, and revenue amount of ICP collected annually since 1 2017 at each of the interties with Michigan, Minnesota, and New York when the ICP was equal to 2 or greater than \$3.53/MWh (\$5.42/MWh minus \$1.89/MWh). 3 4 Response: 5 Responses from IESO: 6 7 a) ICP is not directly reimbursed to TR holders, it is a credit to the TRCA account with TR Auction 8 revenues. Payments to TR holders are a credit to the TRCA account. Please see Table 4 -9 Transmission Rights Clearing Account Flows in Attachment 1 of OEB Staff Interrogatory 1. 10 Please see the response to OEB Staff Interrogatory 45 c), and the response to OEB Staff 11 Interrogatory 45 g). 12 13 b) Please see a) above. A decrease in the ICP revenue collected should result in a decrease in the 14 amount disbursed back to Ontario consumers. 15 16 Responses from Hydro One: 17 18 c) Higher ETS revenue would result in an equivalent decrease in the revenue requirement used 19 to calculate the UTR. 20 21 Responses from IESO: 22 23 d) Please see Table 13 – Revenue, Volume and Number of Hours of ICP at each intertie – ICP >= 24 4.69 in Attachment 1 of OEB Staff Interrogatory 1. 25 26 e) Please see Table 14 – Revenue, Volume and Number of Hours of ICP at each intertie – ICP >= 27 1.81 in Attachment 1 of OEB Staff Interrogatory 1. 28

- f) Please see Table 15 Revenue, Volume and Number of Hours of ICP at each intertie ICP >=
- 31 3.53 in Attachment 1 of OEB Staff Interrogatory 1.

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### **OEB STAFF INTERROGATORY - 47**

- 2 **Reference:** 3 4 Submissions on the ETS Rate, Attachment 3, Page 13 5 **Preamble:** 6 The IESO states that any increase in the ETS rate will reduce the value of interties, leading to less 7 system flexibility to reliability manage the grid and higher costs for Ontario consumers. 8 9 10 Interrogatory: a) Please explain how a decrease in the ETS rate which could increase the transmission rates 11 that Ontario consumers pay, would not be considered as benefitting customers in 12 neighbouring jurisdictions at the expense of Ontario consumers. 13 14 Response: 15 16 *Response from IESO:* 17 a) The ETS rate is used to offset the Provincial Transmission Service (PTS) rate. However, a 18 decrease in ETS would also increase the ICP revenues returned to transmission customers and 19 increase trade volumes between jurisdictions, which is generally beneficial for both Ontario 20
- and neighboring jurisdictions.

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1		ENERGY PROBE INTERROGATORY - 01
2		
3	Re	ference:
4	IES	O Report: Market Implications of the ETS Rate, Attachment 3
5		
6	Pre	eamble:
7		Exporters contribute to the cost of the Ontario transmission system
8		through two mechanisms. The first mechanism is through the fixed ETS
9		rate, and the second mechanism is through the dynamic ICP mechanism.
10		When considered together, exporters not only contribute approximately
11		\$30-40 million per year towards the transmission system through the ETS
12		rate but have also paid an average of \$160 million per year towards the
13		cost of the transmission system from the ICP mechanism.
14		
15	Int	errogatory:
16	a)	Please provide a schedule that shows how much ETS and ICP revenues flowed to Ontario
17		domestic customers from 2015-2020.
18		
19	b)	Please show how much revenue flowed to Transmission Rights Holders over the same period.
20		
21	c)	When was the ICP revenue allocation changed and what was/is the basis for this? Please
22		provide details and the change in revenue allocated to domestic customers.
23		
24	d)	Why is/is not the current Ontario ETS rate appropriate? Please discuss.
25		
26	e)	The Elenchus Report suggests three cost-based ETS rates. Which does the IESO believe to be
27		most appropriate (or does IESO prefer the status quo or zero ETS)? Please support your
28		response with market analysis.
29		
30	Re	sponse:
31	Res	sponse from IESO:
32		
33	a)	Please see Table 4 - Transmission Rights Clearing Account Flows in Attachment 1 of OEB Staff
34		Interrogatory 1. Please also see Table 7 - Annual ETS Collected for the historical ETS collection
35		data.

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- b) Please see Table 5 TRCA Disbursements Between Loads and Exporters in Attachment 1 of
   OEB Staff Interrogatory 1.
- 3 4

c) Please see the response to OEB Staff Interrogatory 45 c).

- 6 d) Please see the response to OEB Staff Interrogatory 1 b).
- 7

5

e) As the market and system operator, and as noted in the IESO's ETS Rate Submission, the IESO
 is of the view that any increase in the ETS will reduce the value of the interties, leading to less
 system flexibility and higher costs for Ontario consumers. The IESO expects a high ETS rate to
 decrease ICP revenues, and reduce the quantity of exports, adversely impacting operational
 and economic benefits. Quantitative analysis on the ETS rate has not been performed since
 the 2012 Charles River Associates report.

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<b>ENERGY</b>	PROBE	<b>INTERRO</b>	GATORY	- 02
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### 3 Reference:

1 2

5

4 Elenchus ETS Rate Cost Allocation Report, July 21, 2021, Attachment 1

## 6 Preamble:

The May 2014 methodology was based on how the transmission system is 7 designed and since exports needs are not considered in the planning of the 8 transmission system, exports would not be allocated a portion of Shared Network 9 Assets. The methodologies identified in this report account for how exports are 10 being treated by the IESO. Exports use the transmission system almost as much 11 as domestic customers use the system, including at peak times, therefore, 12 exports could be allocated a portion of Shared Network Asset-related costs. If 13 exports are to be allocated a portion of Shared Network Asset-related costs, 14 Elenchus is of the view that exports should also then be allocated a portion of 15 External Transmission Revenues received by HONI. 16

17

### 18 Interrogatory:

- a) Based on 100% cost causality and the HONI Transmission projected annual exports for 2023
   what would be:
- i. the revenue generated from Export Transmission Service,
- 22 ii. the allocation portion of External Transmission Revenues,
- iii. the net benefit to domestic transmission customers\$/MWh and Total,
- 24 iv. the net cost to Export Transmission service customers. \$/MWh?
- 25
- b) Based on 50% cost causality and the HONI Transmission projected annual exports for 2023
   what would be:
- i. the revenue generated from Export Transmission Service,
- 29 ii. the allocation portion of External Transmission Revenues,
- 30 iii. the net benefit to domestic transmission customers\$/MWh and Total,
- iv. the net cost to Export Transmission service customers. \$/MWh?
- 32
- c) If Exports had been priced under one of the current proposed 3 options, what would have
   been the revenue to Hydro One Transmission and domestic customers in each year from
   2015-2021 based on actual export volumes? Please provide a schedule showing the revenue
   for each year.

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1	Res	spor	ise:
2	a)	Res	ponse from Elenchus:
3			
4		i.	Forecast revenue generated from the \$6.07 ETS rate is \$122.6M. This value is derived by
5			multiplying the ETS rate by forecast 2023 Export MWh volume, which is provided in OEB
6			Staff Interrogatory 4.
7		ii.	The Export class is allocated \$2.1M, or 5.21%, of External Transmission Revenues.
8		iii.	The Net Benefit to Domestic Transmission Customers is the ETS revenue which reduces
9			the domestic HONI transmission revenue requirement, \$122.6M. Domestic customers are
10			not billed by MWh so Hydro One does not have a forecast of 2023 Domestic MWh
11			volumes.
12		iv.	The cost to Export transmission customers is \$6.07/MWh.
13			
14			
15	b)	Res	sponse from Elenchus:
16			
17		i.	Forecast revenue generated from the \$3.40 ETS rate is \$68.7M. This value is derived by
18			multiplying the ETS rate by forecast 2023 Export MWh volume, which is provided in OEB
19			Staff Interrogatory 4.
20		ii. 	The Export class is allocated \$1.1M, or 2.75%, of External Transmission Revenues.
21		III.	The Net Benefit to Domestic Transmission Customers is the ETS revenue which reduces
22			the domestic HONI Transmission revenue requirement, \$68.7M. Domestic customers are
23			not billed by MWh so Hydro One does not have a forecast of 2023 Domestic MWh
24		•	volumes.
25		IV.	The cost to Export transmission customers is \$3.40/MWN.
26	、	_	
27	C)	Res	bonse from Hydro Une:
28		<b>D</b>	
29		Base	ed on actual export volumes in 2015 – 2021, the table below shows the resultant EIS
30		reve	enue that would have been achieved under each of the three rates in Table 15 of the 2021
31		Eler	icnus study.

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		ETS Revenue (\$M)			
Year	Actual Export MWh	2021 Report- Allocation on Basis of 100% of Shared Net Fixed Assets (\$6.54/MWh)	2021 Report – Allocation on Basis of 50% of Shared Net Fixed Assets (\$3.66/MWh)	2021 Report – Allocation on Basis of 80% of Shared Net Fixed Assets (\$5.42/MWh)	
2015	23,138,052	\$151.3	\$84.7	\$125.4	
2016	22,157,981	\$144.9	\$81.1	\$120.1	
2017	19,346,599	\$126.5	\$70.8	\$104.9	
2018	18,771,464	\$122.8	\$68.7	\$101.7	
2019	20,073,511	\$131.3	\$73.5	\$108.8	
2020	20,601,892	\$134.7	\$75.4	\$111.7	
2021	17,320,341	\$113.3	\$63.4	\$93.9	

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1	ENERGY PROBE INTERROGATORY - 03			
2				
3	Re	ference:		
4	Joi	nt Submissions, Attachment 3, IESO Submission		
5				
6	Pre	eamble:		
7	Un	derstanding historic and future Export volumes provides qualitative evidence regarding		
8	opt	tions under Issue 1.		
9				
10	Int	errogatory:		
11	a)	Please provide a chart and graphs showing historical domestic and export volumes. Please		
12		refer to Elenchus Table 5 in your answer.		
13				
14	b)	Does IESO agree with Hydro One ETS revenue forecast in Table 1?		
15				
16	C)	Please provide a chart showing historical and forecast (2021-2027) domestic and export		
17		volumes, assuming the current ETS rate of \$1.85.		
18	d)	Brovide a projection of surplus baseload generation 2021 2025. Bloase provide one or more		
19	u)	scenarios Distinguish nuclear hydro and gas fired generation. List all assumptions		
20		scenarios. Distinguisi nuclear, nyaro ana gas nica generation. Eist an assumptions.		
22	e)	Please provide an update to Elenchus Table 6 Export Curtailment hours		
23	-,			
24	f)	Discuss in relative order of importance, the factors other than the ETS rate, which affect the		
25	-	future amount of Exports.		
26				
27	g)	If the ETS rate was zero, discuss directionally how this would impact the forecast volume of		
28		exports. If possible, prove qualitative estimates, such as 50% more.		
29				
30	Re	sponse:		
31	Res	sponse from IESO:		
32				
33	a)	Please see Table 1 – Ontario Export Volumes by Jurisdiction in Attachment 1 of OEB Staff		
34		Interrogatory 1.		
35				
36	b)	The IESO cannot locate the referenced material. In any case, the IESO does not forecast ETS		
37		rate revenue and therefore cannot comment on Hydro One's data.		

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 c) For historical data on export volumes, please see the response to a) above. Annual imports and exports by jurisdiction are available on IESO's public webpage at the following location: <u>https://www.ieso.ca/en/Power-Data/Supply-Overview/Imports-and-Exports</u>. The IESO does not predict future market and system conditions and therefore cannot forecast domestic and export volumes.

6

d) Surplus baseload generation (SBG) arises when the sum of projected baseload generation is
 greater than the grid demand at any given hour. SBG is forecasted in the 2021 Annual
 Planning Outlook for the period 2023 and beyond. Of the total SBG, about 30% is contributed
 to wind, 50% to hydro, and the remainder is exports.

e) Please see Table 3 – Curtailed Exports in Attachment 1 of OEB Staff Interrogatory 1. In 2020,
 the IESO curtailed exports in 1510 out of 8784 hours (17%); in 2021, the IESO curtailed exports
 in 2126 out of 8760 hours (24%).

15

11

f) Electricity trading over the interties in Ontario is a competitive marketplace driven by profit seeking traders transacting based on the expected electricity price differences between
 jurisdictions. Therefore, the future amount of exports can be influenced by fundamental
 drivers such as supply mix characteristics, weather, demand patterns as well as transaction
 costs such as the ETS and uplift charges. Since intertie trading occurs at an hourly granularity
 and the factors are dynamically changing, it is not possible to identify an order of importance
 for any one hour.

23

g) The IESO believes that if the ETS rate was zero, the volume of exports would increase. While
 quantitative estimates are not available, reducing transaction costs such as the ETS rate would
 increase export volumes during times when the transaction costs would otherwise limit
 economic exports.

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# **ENERGY PROBE INTERROGATORY - 04**

2		
3	Re	ference:
4	Sub	pmissions on the ETS Rate, Attachment 3, IESO Submission, Pages 11-14
5		
6	Pre	amble:
7	Un	derstanding the IESO's position regarding options under Issue 1.
8		
9	Int	errogatory:
10	a)	Please comment on how the following factors are important to setting the ETS Rate at zero.
11		Please provide analyses to support the lesos position.
12		Reduction in export volumes due to a potential ETS increase
13		generation to manage Surplus Baseload Generation)
15		• Estimated a 1:1 offset of increased revenue of ETS with decreases in ICP funding of TRCA
16		payments to domestic load
17		• Increased cost of generation curtailment would further limit benefits of increased ETS
18		revenue
19		
20	b)	What is IESO's position on parity and reciprocation with interconnected jurisdictions as this
21		relates to the ETS tariff? Please discuss.
22		
23	Re	sponse:
24	Res	ponse from IESO:
25		
26	a)	Please refer to section 3 page 7 of the IESO's ETS Rate Submission, Attachment 3 for an
27		explanation of the benefits from intertie trading.
28		
29	b)	The IESO does not set the ETS rate and does not have a position on the role of parity and
30		reciprocation with interconnected jurisdictions. As stated in the IESO's Rate Submission, the
31		IESO's view is that consideration should be given to maximizing the operational and economic
32		benefits provided by exports by minimizing transaction costs when setting the ETS rate.

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1		ENERGY PROBE INTERROGATORY - 05					
2							
3	Re	ference:					
4	Submissions on the ETS Rate, Attachment 3, IESO Submission, Various Pages						
5							
6	Pre	eamble:					
7	The	e Intertie Congestion Price is set during the hour ahead pre-dispatch run and is defined as:					
8							
9	ICP	= Intertie Zone Hour Ahead Price – Hour Ahead Ontario Zone Price (Real Time) Intertie					
10	Pri	ce = Ontario Market Clearing Price + ICP					
11	ICP	x#TRC = TRC Payment to Rights Holder					
12	_						
13	Int	errogatory:					
14	a)	Please confirm/modity EP's understanding of how ICP, clearing price and TRCs work.					
15	1. \						
16	D)	Please indicate now these components of export transactions work and provide quantitative					
1/		examples(s) for a range of pre-dispatch scenarios.					
10	c)	If exports are on average constrained 20% due to congestion, how does this affect the rate					
20	C)	for Exports Transmission Service? Please discuss. Please reference the Elenchus Report in the					
21		answer.					
22							
23	d)	What is the link between ETS and ICP? Please show one or more quantitative examples based					
24	-	on different ETS rates for one or two pre-dispatch scenarios.					
25							
26	<u>Re</u>	sponse:					
27	Res	sponse from IESO:					
28							
29	a)	The ICP is determined in the one hour ahead timeframe as: Intertie Zonal Price = Intertie					
30		Congestion Price + Ontario Market Price. The actual price paid at the intertie by exporters is					
31		the ICP determined in the hour ahead timeframe + the real-time $\ensuremath{Ontario}$ market clearing					
32		price. The payment to a TR holder is based on the MW quantity of TR times the ICP for the					
33		hour.					

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Precise references to how these are calculated can be found in the IESO Charge Types and
 Equations document available here: <u>https://www.ieso.ca/-/media/Files/IESO/Document-</u>
 <u>Library/Market-Rules-and-Manuals-Library/market-manuals/settlements/imo-charge-types-</u>
 <u>and-equations.ashx</u>

5

9

12

b) For a detailed overview of intertie trading with examples, please see the IESO training
 document "Interjurisdictional Energy Trading" available at: <u>https://www.ieso.ca/-</u>
 <u>/media/Files/IESO/Document-Library/training/WB-Interjurisdictional-Energy-Trading.ashx</u>

c) The ETS rate is charged as a fixed per MWh for transactions scheduled and does not change
 when there is intertie congestion.

d) The ETS is a fixed hourly \$/MWh charge applied to all export transactions. The ICP is a dynamic
 hourly charge based on willingness to pay when there is greater exporter demand than
 capability for intertie access. Please see the response to OEB Staff Interrogatory 36 a) on the
 relationship between the two. In Section 4 of the IESO's ETS Rate Submission, Attachment 3
 the IESO discussed the impact of the ETS rate in two scenarios – a wide price spread between
 markets scenario and a tight price spread between markets scenario.

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### **ENERGY PROBE INTERROGATORY - 06**

1 2

### 3 Reference:

- 4 Submissions on the ETS Rate, Attachment 3, IESO Submission, Page 8
- 5

### 6 Preamble:

7 The following Table shows historical Value from Exports

8

#### Table 1: Value from Exports 2017-2020

\$Millions	2017	2018	2019	2020
Congestion Rents Collected from Exports	208	191	134	99
Export Transmission Service Tariff (ETS)	35	34	37	38
Uplift collected from Exports	43	52	48	38
Avoided System Costs <sup>12</sup>	180	240	190	153
Total Value from Exports	466	517	409	327
Source: internal IESO analysis				

9 10

# 11 Interrogatory:

- 12 a) Please provide 2021 data.
- 13
- b) Please confirm Congestion Rents include revenues from TRCA and that Intertie Congestion
- Pricing revenues in the TRCA are allocated to entities besides domestic load customers. Please
   indicate amounts allocated to each.
- c) Please provide the underlying equations/calculations that result in each of the above revenue
   streams.
- d) Please provide a model and populate the equations with actual data for each year.
- 20

e) Please provide the results in Excel format.

- 22
- f) Assuming that ETS is a "plug/residual" please provide the total value from exports without
   ETS i.e., ETS=Zero
- 25
- g) Do exporters receive the added value or is it distributed to all market participants in lower
   UTS rates? Please discuss.

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	Sch Pag	iedule 6 ge 2 of 2
1	Re	sponse:
2	Res	sponse from IESO:
3		
4	a)	Please see Table 10 – Value from Exports 2021 in Attachment 1 of OEB Staff Interrogatory 1.
5		
6 7	b)	Disbursements from the Transmission Rights Clearing Account, which includes congestion rent revenues are disbursed to Ontario loads and exporters based on their proportionate
8		contribution to transmission service charges. Please see Table 5 – TRCA Disbursements
9		Between Loads and Exporters in Attachment 1 of OEB Staff Interrogatory 1.
10		
11	c)	Please refer to Section 3 pages 8-9 of the IESO's Evidence - Market Implications of the Export
12		Transmission Service Rate - July 2021 for an understanding of the analysis used for the
13		conclusions drawn in Table 1.
14		
15	d)	The IESO does not have a model for the underlying data in Table 1 and is not in a position to
16		create one.
17		
18	e)	Please see the response to Energy Probe Interrogatory 6 d).
19		
20	f)	Due to the complex nature of the Ontario electricity market and as well as uncertainties in
21		key variables such as the price elasticity of intertie trade to changes in ETS and the impact of
22		altered intertie flows on the locational marginal prices in adjacent jurisdictions, the IESO
23		cannot complete the analysis requested with sufficient precision to respond quantitatively to
24		this request at this time.
25	-1	Outputs consumers are the animal activity of the value streams through reduced costs
26	g)	both directly from the various costs oversitions of the value streams through reduced costs -
27		curtailments and more efficient operation of the grid. Experters henefit from the experturity
∠ŏ 29		to trade energy over the interties.

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1		ENERGY PROBE INTERROGATORY - 07
2		
3	Re	ference:
4	Sub	missions on the ETS rate, Attachment 1, Elenchus Report
5		
6	<u>Pre</u>	amble:
7	In c	order to understand the Elenchus Cost-Based approach to the ETS the Model and underlying
8	dat	a and assumptions are required in detail.
9		
10	Int	errogatory:
11	a)	Please provide a workbook for the Elenchus Cost Allocation Model in Excel Format:
12		<ul> <li>List of Input data -update for 2020 and 2021 actuals</li> </ul>
13		• Tabs corresponding to the runs for the 3 options proposed by Elenchus. (100%, 50% and
14		80% cost allocation).
15		
16	b)	Please provide explanatory notes.
17	2)	Did Flanchus conduct any consitivity analysis to its input assumptions. If so, places provide
18	C)	this/these scenario(s)
20		
20	Res	sponse:
22	Res	ponse from Elenchus:
23		
24	a)	Please see Attachments 2, 3, and 4 of VECC Interrogatory 24.4 for 2020 models. A workbook
25		corresponding to the 2021 models for the 3 options is provided as Attachment 1 to this
26		interrogatory response.
27		
28	b)	The structure of the HONI ETS model is based on the OEB's cost allocation model for electricity
29		distributors. Within each version of the model, Hydro One Transmission financial data is
30		entered in tab 'I3 TB Data', CP and other load data is included in tab 'I8 Demand Data',
31		allocators are derived in 'E2 Allocators', and the results are provided in 'O1 Revenue to
32		cost RR'.

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c) All data used in the cost allocation models are from Hydro One's 2023 revenue requirement
 and the IESO's load data. The range of adjusted 12CP allocators considered are provided in
 the three models attached to VECC Interrogatory 24.4. Elenchus also considered MWh or
 adjusted-MWh as an allocator for shared net fixed assets. Attachment 2 to this interrogatory
 response provides a version of the model with MWh as an allocator, with a drop-down list on
 tab 'O1 Revenue to cost | RR' to select an adjusted-MWh allocator.

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# SUMMARY OF 2021 COST ALLOCATION MODELS

1 2

<sup>3</sup> This exhibit has been filed separately in MS Excel format.

Filed: 2022-05-13 EB-2021-0243 Exhibit I Tab 2 Schedule 7 Attachment 2 Page 1 of 1

# ETS CAM MWH 2020 (2023 RR) - COST ALLOCATION MODELS

1 2

3 This exhibit has been filed separately in MS Excel format.

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1		ENERGY PROBE INTERROGATORY - 08					
2							
3	Ref	ference:					
4	Submissions on the ETS Rate, Attachment 1						
5	Ele	nchus ETS Rate Cost Allocation Report, July 21, 2021, Tables 8 -12					
6							
7	<u>Pre</u>	amble:					
8	The	ese requests are directed to both Elenchus and the IESO (as source of data)					
9							
10	Int	errogatory:					
11	a)	Please provide a table showing historic and expected future intertie capacity for Ontario up					
12		to 2027.					
13							
14	b)	Please update relevant Elenchus tables for the historic 1CP and 12CP actuals for 2020 and					
15		2021 actuals.					
16							
17	C)	Please update Tables 11, 12 for actuals.					
18	(ام	Discourse second subscription of the second					
19	a)	mere than E%					
20							
21	Ro	sponse:					
22	Rec	inonse from IESO:					
25	nes						
25	a)	The JESO regularly publishes Transmission Facility All in Service Limit Reports online, recent					
26	~)	historical reports can be found at the following location:					
27		http://reports.ieso.ca/public/TxLimitsAllInService0to34Days/ The IESO does not					
28		predict future market and system conditions and therefore the forward-looking intertie					
29		capacity cannot be determined.					

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- 1 *Responses from Elenchus:*
- 2
- b) Updated Tables 8, 9, and 10 are provided below with actual 2021 data. The tables included in
- 4 the Elenchus report reflect actual 2020 data.
- 5 6

Table 8 - Intertie Coincident	t peak 2019 to 2021
-------------------------------	---------------------

	2018			2019			2020		
	Export	Import	Total	Export	Import	Total	Export	Import	Total
1CP	3,556	1,589	5,145	3,485	2,159	5,644	3,162	2,084	5,246
12CP	35,779	18,806	54,585	39,117	15,430	54,547	32,715	22,326	55,041

	,	

	2019 to 2021 Average						
	Export Import Total						
1CP	3,401	1,944	5,345				
12CP	35,870	18,854	54,724				

8 9

#### Table 9 - Intertie Coincident peak %

		2021 Data		Average 2019 – 2021 Data			
Coincident Peak	Export	Import	Total	Export	Import	Total	
1CP	60.27	39.73	100.00	63.63	36.37	100.00	
12CP	59.44	40.56	100.00	65.55	34.45	100.00	

10

11

## Table 10 - Transmission System Coincident peak 2019 to 2021

	2019			2020			2021		
	Export	Domestic	Total	Export	Domestic	Total	Export	Domestic	Total
1CP	2,822	21,791	24,613	2,583	23,675	26,258	2,076	22,592	24,668
12CP	28,696	236,380	265,076	28,428	237,606	266,034	27,682	234,741	262,423

	2019 to 2021 Average					
	Export Domestic		Total			
1CP	2,494	22,686	25,180			
12CP	28,269	236,242	264,511			

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### c) Updated Tables 11 and 12 are provided below.

- 1 2
- 3

### Table 11 - Coincident Peak %

	2021 Data			Average 2019 – 2021 Data		
Coincident Peak	Export	Domestic	Total	Export	Domestic	Total
1 ср	8.42	91.58	100.00	9.90	90.10	100.00
12 ср	10.55	89.45	100.00	10.69	89.31	100.00

	-		
1			
-		•	

## 5

# Table 12 - Allocators using 2021 Actual Hourly Data

Allocator	Basis	Export	Domestic	Total
Shared Net Fixed Assets	Transmission System 12CP	10.55%	89.45%	100.00%
Dedicated to Domestic	Direct Allocation	0.00%	100.00%	100.00%
Dedicated to Interconnect	Intertie 12CP	59.44%	40.56%	100.00%

6 7

d) Recalculated ETS results are provided in the following table.

Mathadalagy	Allocator for Shared N	ETS Rate		
wethodology	Domestic Share	Export Share	(\$/MWh)	
Allocation on Basis of 100% of Shared Net Fixed Assets	Domestic 12CP	Export 12CP	\$7.01	
Allocation on Basis of 50% of Shared Net Fixed Assets	Domestic 12CP	Export 12CP * 50%	\$3.89	
Allocation on Basis of 80% of Shared Net Fixed Assets	Domestic 12CP	Export 12CP * 80%	\$5.80	

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1		ENERGY PROBE INTERROGATORY - 09
2		
3	Re	ference:
4	Sub	omissions on the ETS Rate, Attachment 2
5	Cha	arles River Associates Jurisdictional Review, Appendix A-Expanded Summary of 2020 ETS rates
6		
7	Int	errogatory:
8	a)	Please update the ISO/RTO ETS Rate data for 2020 and 2021 for all Ontario-interconnected
9		jurisdictions, Provide in tabular form.
10		
11	b)	Please clarify why TransEnergie is listed on the same basis as ISOs (it is a Transmission
12		company/exporter not an ISO).
13		
14	c)	Please provide a schedule that shows the \$/MWDay and \$/MWh ranges for Firm and Non-
15		firm On-peak and Off-peak ETS for the 6 US ISOs and for the Canadian ISOs
16		(Alberta and Ontario) and TransEnergie (Quebec).
17		
18	d)	What ETS rates are charged in British Columbia?
19		
20	e)	Does CRA have a recommendation for an Ontario ETS rate? If so, please provide this, with
21		whatever caveats that may apply.
22	_	
23	Re	sponse:
24	Res	sponse from Charles River Associates:
25	,	
26	a)	While the request is to update the relevant data for 2020 and 2021, CRA notes that the data
27		presented in the report is already for 2020. Regarding 2021, CRA is not able to provide the
28		requested updates with reasonable effort. Preparing updates for 2021 for all Untario-
29		interconnected jurisdictions would require a significant amount of research effort. Even with
30		does not expect it would be able to provide the requested information within the time frame
31		of this interregatory process. CPA does not expect that the passage of one year's time will
32		significantly affect the current rate levels for the ETS rates presented in its jurisdictional
33 24		review such that any meaningful differences from 2020 levels would emerge
25		review such that any meaningful uncrences norm 2020 levels would emerge.
36	b)	TransEnergie was selected due to its proximity to the Ontario market.
33 34 35 36	b)	significantly affect the current rate levels for the ETS rates presented in its jurisdictional review such that any meaningful differences from 2020 levels would emerge. TransEnergie was selected due to its proximity to the Ontario market.

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- c) Please refer to Table 1 Summary of 2020 Rates for Export Transmission Service (CAD) for
   the requested rates (ETS Rate Submissions, Attachment 2, page 7 of 24).
- 3

d) Please see the below tables outlining ETS rates for the two transmission operators in British
 Columbia (BC Hydro and FortisBC)<sup>1, 2</sup>. The BC Hydro rates are effective as of 1 April 2022, and
 the FortisBC rates are effective as of 1 January 2022.

- 7
- 8

### 2022 ETS rates for BC Hydro (CAD)<sup>3</sup>

	Annual Service \$/MW-year (Max)	Monthly Service \$/MW- month (Max)	Weekly Service \$/MW- week (Max)	Daily On- Peak Service \$/MW-day (Max)	Daily Off- Peak Service \$/MW-day (Max)	Hourly On-Peak Charge \$/MW (Max)	Hourly Off- Peak Charge \$/MW (Max)	Schedule/Service Name
Firm	83,461.00	6,955.00	1,605.01	228	3.66	9	9.53	Schedule 01 – Point-To- Point Transmission Service
Non- Firm		6,955.00	1,605.01	228.66		9	9.53	Schedule 01 – Point-To- Point Transmission Service

9 10

## 2022 ETS rates for FortisBC (CAD) (West Kootenay and Okanagan Areas)<sup>4</sup>

	Annual Service \$/kW- year	Monthly Service \$/kW- month (Max)	Weekly Service \$/kW- week (Max)	Daily On- Peak Service \$/kW-day (Max)	Daily Off- Peak Service \$/kW-day (Max)	Hourly On- Peak Charge \$/kW (Max)	Hourly Off- Peak Charge \$/kW (Max)	Schedule/Service Name
Firm		4.5700	1.0570	0.1	507	0.0	064	Rate Schedule 101 – Long-Term And Short- Term Firm Point-To- Point Transmission Service (Txm)
Non- Firm		4.5700	1.0570	0.1	507	0.0	064	Rate Schedule 102 – Non-Firm Point-To- Point Transmission Service (Txm)

<sup>1</sup> BC Hydro ETS rates are zero for transmission where the point of delivery is a point of interconnection between BC Hydro's transmission system and the transmission system of FortisBC.

<sup>2</sup> FortisBC ETS rates are zero for transmission where the point of delivery is a point of interconnection between FortisBC's transmission system and the transmission system of BC Hydro, provided that the power is to be delivered to a load within or beyond the BC Hydro service area; zero rate is not available for delivery of power to BC Hydro system where there is no equivalent point-to-point transmission reservations on the BC Hydro system.

<sup>3</sup> Minimum price for discounted paths is \$3.00 per mW of reserved capacity per hour in Heavy Load Hour period (06:00-22:00, Monday - Saturday, excluding NERC holidays) and \$1/MW of Reserved Capacity per hour for the Light Load Hour period (remaining hours and days).

<sup>4</sup> Minimum price \$2.00/mW per hour for Rate Schedule 101 and 102.

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e) No. CRA believes that the OEB is the best positioned to make a recommendation for an
 Ontario ETS rate.

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1

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1	<b>ENERGY PROBE INTERROGATORY - 10</b>
2	
3	<u>Reference:</u>
4	Submissions on the ETS Rate, Attachment 2, Charles River Associates Jurisdictional Review,
5	Appendix A-Expanded Summary of 2020 ETS rates
6	
7	Interrogatory:
8	a) Please provide bar charts showing:
9	i. Network Rates \$/MWh for each Province. For Alberta use the nearest Proxy.
10	ii. PTP rates.
11	
12	b) Please provide the Range for Network Rates and the average.
13	
14	c) Please comment on Ontario's Position in the Provincial Cohort
15	
16	Response:
17	Response from Hydro One:
18	
19	Hydro One notes that this question was posed in EB-2021-0110. Please see Exhibit I-08-H-Energy
20	Probe-078 in that proceeding for Hydro One's response to this question. Hydro One notes that

this question is in relation to Network rates which are not within the scope of this proceeding.

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1

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1		POLLUTION PROBE - 01
2		
3	Re	ference:
4	ETS	S Rate Submissions, Page 13
5		
6		For these reasons, the IESO maintains the view that reducing the ETS rate to zero
7		would best encourage the efficient use of electricity and promote economic
8		set at zero or no higher than the current \$1.85/MW/h to maximize efficient use of
10		electricity and promote economic efficiency in the Ontario market.
11		
12	ETS	S Rate Submissions, Attachment 3, Page 9
13		
14		From an economic standpoint, exports of energy from Untario have contributed
15 16		as shown on Table 1. Intertie trading reduces total costs for Ontario consumers
17		by generating revenues, contributing to fixed system costs and avoiding
18		incremental system costs.
19		
20	Int	errogatory:
21 22	a)	Is the IESO permitted to use a dynamic or a market-based approach to the ETS? If this is not permitted, please explain why not?
23		
24	b)	Does the IESO believe a dynamic or market-based ETS will generate a higher level of net
25		economic benefits to Ontario ratepayers than the current fixed rate of \$1.85/MWh or even a
26		zero ETS rate?
27		
28		That is charge a higher rate during periods of high electricity pricing differentials between
29		Ontario and neighbouring jurisdictions and a lower or zero ETS rate during periods of low
30		pricing differentials - resulting in both higher export volumes and net economic benefits to
31		Ontario ratepayers.
32		
33	c)	Can increasing the net economic benefits to Ontario ratepayers as outlined in b) be achieved
34		by simply eliminating the ETS or setting it to zero and allowing the ICP to maximize revenues
35		using its dynamic pricing? What are the pros and cons of eliminating the ETS?
36	.11	Whet are the one and encore of activity the FTC set of a
37	d)	what are the pros and cons of setting the EIS rate to zero versus eliminating it?

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### 1 Response:

2 Response from IESO:

3

a) The IESO does not set the ETS rate. Please see the response to OEB Staff Interrogatory 1 b).

4 5

12

b) The IESO cannot comment on the directional benefits of a dynamic or market-based ETS rate
 since it is inconsistent with the existing rate-setting approach and there is too much
 uncertainty on how it would interact with the IESO's existing market-based ICP mechanism.

- c) Please see the response to OEB Staff Interrogatory 34 for a discussion of the advantages of
   relying on ICP in lieu of an ETS rate to charge for export service.
- d) From the IESO's perspective, setting the ETS to \$0 or eliminating it would result in the same
   operability outcomes.

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1		POLLUTION PROBE - 02
2		
3	Ref	erence:
4	ETS	Rate Submissions, Page 13
5		
6		For these reasons, the IESO maintains the view that reducing the ETS rate to zero
7		would best encourage the efficient use of electricity and promote economic
8		efficiency in the Ontario market Therefore, the IESO recommends the rate be
9 10		set at zero or no higher than the current \$1.85/MWh to maximize efficient use of electricity and promote economic efficiency in the Ontario market
10		electricity and promote economic emclency in the ontario market.
12	Sub	missions on the ETS Rate, Attachment 3, Pages 9-10
13		
14		Uplift: Exporters also contribute approximately \$40-50 million per year17 in uplift
15 16		Charges for system reliability provided through Ancillary Services and Operating Reserve. The export contribution reduces the cost that has to be recovered from
10		domestic consumers for these services.
18		
19	Int	errogatory:
20	a)	Can the same argument the IESO makes to justify reducing the ETS rate to zero be applied to
21		uplift charges as well? If not, please explain.
22		
23	b)	Are uplift charges based on a fixed rate or competitive market-based approach?
24		
25	c)	If uplift charges are a fixed rate, how is this rate determined? Is it updated annually or some
26		other time interval?
27		
28	d)	What organization is responsible for determining the methodology and rate for uplift
29		charges?
30		
31	e)	Please provide the back-up calculations for the uplift charges provided in
32		Table 1.
33		
34	Res	sponse:
35	Res	ponse from IESO:
36		
37	a)	The IESO does not view this question as relevant to setting the ETS rate.

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- b) Uplift charges are based on actual costs incurred during over an applicable time
   period.
- 3

5

- c) Please see the response to OEB Staff Interrogatory 40 b).
- d) The IESO is responsible for determining the methodology and calculating uplift
   charges.
- 8
- 9 e) See "IESO Charge Types and Equations" for the mathematical description on the
- 10 calculation of uplifts and other charges:
- 11 https://www.ieso.ca/-/media/Files/IESO/Document-Library/Market-Rules-and-
- 12 Manuals-Library/market-manuals/settlements/imo-charge-types-and-
- 13 equations.ashx

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1		POLLUTION PROBE - 03
2		
3	<u>Re</u>	ference:
4	ETS	S Rate Submissions, Page 13
5		
6		For these reasons, the IESO maintains the view that reducing the ETS rate to zero
7		would best encourage the efficient use of electricity and promote economic
8		efficiency in the Untario market Therefore, the IESU recommends the rate be
9 10		electricity and promote economic efficiency in the Ontario market.
11		
12	Sub	omissions on the ETS Rate, Attachment 1, Page 22
13		
14	Tab	ple 5 outlines the annual export volumes in MWh per year, which range from
15	~13	3 million MWh to ~23 MWh.
16		
17	Int	errogatory:
18	a)	Assuming no economic barriers to exporting electricity, what is the approximate absolute
19		technical potential of export volumes in GWh per year? Please provide key assumptions and
20		back-up calculations.
21		
22	b)	If a dynamic or market-based approach was applied to the ETS, what is the approximate
23		realistically achievable total export volumes in GWh per year? What is the total estimated
24		net economic benefits of this export volume? Please provide key assumptions and back-up
25		calculations.
26		
27	c)	If a dynamic or market-based approach was applied to both the ETS and uplift charges, what
28		is the approximate realistically achievable total export volumes in GWh per year? What is the
29		total estimated net economic benefits of this export volume? Please provide key assumptions
30		and back-up calculations.
31	_	
32	<u>Re</u>	sponse:
33	Res	sponse from IESU:
34	、	The IFCO data and for each based on an data and the second data of the
35	a)	The IESO does not forecast based on market conditions and therefore does not have
36		this information.

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- b) The IESO does not forecast based on market conditions and therefore does not have
- 2 this information.
- 3
- c) The IESO does not forecast based on market conditions and therefore does not have
- 5 this information.

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1		POLLUTION PROBE - 04
2		
3	Re	ference:
4	ETS	S Rate Submissions, Page 13
5		"For these reasons, the IESO maintains the view that reducing the
6		ETS rate to zero would best encourage the efficient use of
7		electricity and promote economic efficiency in the Ontario
8		market."
9		
10	Int	errogatory:
11	a)	If reducing the ETS rate from \$1.85/MWh to zero "would best encourage the efficient use of
12		electricity and promote economic efficiency" does it follow that a dynamic or market-based
13		ETS rate with the option to offer an incentive (negative ETS rate) in order to export electricity
14		that provide net economic benefits to Ontario ratepayers?
15		
16		That is during periods of low electricity pricing differentials, drive higher export volumes that
17		would otherwise not transact due to the ETS rate - even if priced at zero.
18	LA	
19	b)	Is the IESO permitted to offer a dynamic or market-based export rate with the option of an
20		incentive or negative ETS rate? If not, please explain why not.
21		Diagon availain the properties of a dynamic or market based FTS rate with the entire to
22	C)	offer an incentive or negative ETS rate?
23		
24	Ro	snonso.
25	Rec	sponse from IESO:
20	nee	
27	2)	The ICP already offers a dynamic market mechanism for exports that provides
20	uj	economic benefits to Ontario ratenavers. The IESO sees no benefit in turning the ETS
29		inte a parallel mechanism to the ICD
30		
31	<b>۲</b>	The OED cots the ETS rate not the IESO
32	D)	
33		Please see the response to a) above
34	C)	riease see the response to a) above.

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1

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1		POLLUTION PROBE - 05
2		
3	<u>Re</u>	ference:
4	ETS	S Rate Submissions, Page 3
5		
6		"Hydro One retained R. J. Rudden to perform a "Jurisdictional
7		Survey of Export and Wheel-through Service Rates". The report
8		regarding the survey was issued on June 26, 2006 and was filed
9		by Hydro One for consideration in proceeding EB-2006-0501."
10		
11	Sub	omissions on the ETS Rate, Attachment 1, Page 22
12		
13	Tab	ble 5 outlines the annual export volumes in MWh per year, which range from
14	~13	3 million MWh to ~23 MWh.
15		
16	Int	errogatory:
17	a)	What are the charges per MWh for wheel-through services? Is it fixed or competitively priced?
18		
19	b)	Please provide the annual wheel-through volumes in GWh for 2017 – 2020.
20	-	What are the annual record of reliance (in millions) from wheel through the rest for 2017, 20202
21	C)	what are the annual revenues (in millions) from wheel-through charges for 2017 -2020?
22	d)	What are the actimated applied reductions in volume of expects for 2017, 2020 due to wheel
23	u)	through services?
24		through services:
25	ല)	What are the estimated lost opportunities in avoid system costs as a result of lower export
20	C)	volumes due to wheel-through services?
28		
29	Re	sponse:
30	Res	sponse from IESO:
31		
32	a)	Please see the response to OEB Staff Interrogatory 1 g). Additionally, the export leg of
33	- 1	a wheel-through will pay the same rates as any other export, including energy costs
34		uplifts, and ICP if applicable. The import leg of a wheel-through will also nay ICP if
25		annlicable
55		

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- b) Please see Table 2 Ontario Export Volumes Considering Wheel-Throughs in
   Attachment 1 of OEB Staff Interrogatory 1.
- 3
- c) The IESO is unclear on what is meant by "revenue" in this question. In any event, the
   requested analysis would be onerous to produce, and it is unclear the value it would
   provide in determining the issues in this proceeding.
- 7
- d) The requested analysis would be onerous to produce, and it is unclear the value it
   would provide in determining the issues in this proceeding.
- 10
- e) The requested analysis would be onerous to produce, and it is unclear the value it
- would provide in determining the issues in this proceeding.

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1		POLLUTION PROBE - 06
2		
3	Re	ference:
4	Sul	omissions on the ETS Rate, Attachment 3, Page 7
5		
6		"Historically, Ontario has been a net exporter of electricity,
7		primarily to the U.S. jurisdictions, and a net importer from
8		Quebec."
9		
10	Sub	omissions on the ETS Rate, Attachment 3, Page 9
11		
12		From an economic standpoint, exports of energy from Ontario have contributed
13		between \$330-520 million of value annually12 to Ontario between 2017 and 2020
14 15		by generating revenues, contributing to fixed system costs and avoiding
16		incremental system costs.
17		
18	No	te 13 - Based on avoided nuclear and renewable resource curtailment, equal to 14TWh,
19	12	IWh, 13TWh and 14TWh for 2017-20 respectively.
20		
21	<u>ιητ</u>	errogatory:
22	a)	Based on note 13, are all exports only from nuclear and renewable energy resources such as
23		hydroelectric, solar or wind that produce zero carbon emissions? If not, please explain.
24	<b>L</b> , )	
25	0)	Are there any system cost savings from avoiding the curtailment of non-renewable resources
26		of other sources not outlined in note 13 above?
27	c)	Place provide the back up calculations for the "Availed System Casts" provided in Table 1
28	C)	Please provide the back-up calculations for the Avoided System Costs provided in Table 1.
29	d)	Do exports increase or decrease the utilization of distributed energy resources (DER)? Please
21	u)	explain your answer is the impact material?
32		
32	e)	Are there net economic benefits to Ontario ratenavers to increase the utilization of DER/CDM
34	-,	initiatives like demand response and energy efficiency to make room for additional exports?
35		That is incremental benefits over and above those realized from the DER/CDM initiatives
36		alone. Please explain your answer.

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#### 1 Response:

- 2 Response from IESO:
- 3

14

a) Ontario has a diverse supply mix of mostly non-emitting resources in its generation fleet. When scheduling exports, the IESO uses an optimization tool based on security-constrained economic dispatch, which selects resources on the basis of least cost.
b) Yes. There could be costs associated with curtailing non-renewable resources such as nuclear and natural gas. However, the risks and the costs of such events have not been assessed.
c) Please see the response to SEC Interrogatory 3 a).

- d) This question is outside the scope of this proceeding.
- e) This question is outside the scope of this proceeding.

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1		POLLUTION PROBE - 07
2		
3	Re	ference:
4	Sub	omissions on the ETS Rate, Attachment 3, Page 7
5		
6		"Historically, Ontario has been a net exporter of electricity,
7		primarily to the U.S. jurisdictions, and a net importer from
8		Quebec."
9	Suk	missions on the ETS Pate Attachment 2 Page 0
10	Sur	Sinissions on the Ers Rate, Attachment 5, Page 5
11		"note 13 - Based on avoided nuclear and renewable resource
13		curtailment, equal to 14TWh, 12TWh, 13TWh and 14TWh for
14		2017-20 respectively."
15		
16	Int	errogatory:
17	a)	Please provide annual estimates for increased annual production of renewable energy
18		sources like hydroelectric, solar and wind for 2017 - 2020 in GWh due to avoided curtailments.
19		Please provide a breakdown for each.
20		
21	b)	Does the IESO or Ontario generators sell renewable energy credits or low carbon financial
22		instruments to U.S buyers given Ontario's lower carbon intensity generation versus U.S.
23		jurisdictions?
24	c)	If the answer to b) is no is there an opportunity to do so and provide additional economic
26	0)	benefits to Ontario ratepayers? If not, please explain why not?
27		
28	d)	Please provide an estimate of the value of renewable energy credits or low-carbon financial
29		instruments from exports in 2020 and 2021. Please provide key assumptions and back-up
30		calculations.
31		
32	Re	sponse:
33	Res	sponse from IESO:
34	-	
35	a)	The requested analysis would be onerous to produce, and it is unclear the value it
36		would provide in determining the issues in this proceeding.

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- 1 b) This question is outside the scope of this proceeding.
- 2
- c) This question is outside the scope of this proceeding.
- 4
- 5 d) This question is outside the scope of this proceeding.

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1		POLLUTION PROBE - 08
2		
3	Re	ference:
4	Sub	omissions on the ETS Rate, Attachment 3, Page 9
5		
6	Tab	ble 1 Value from Exports 2017-2020 indicates that "Avoided System Costs" <sup>13</sup> range from \$153M
7	to s	\$240M per year.
8		
9		"note 13 - Based on avoided nuclear and renewable resource
10		curtailment, equal to 14TWh, 12TWh, 13TWh and 14TWh for
11		2017-20 respectively."
12		
13	A r	ecent study by the IESO entitled "Decarbonization and Ontario's Electricity System" highlighted
14	tha	at the average carbon intensity of Ontario's electricity grid is materially lower than
15	nei	ghbouring U.S. jurisdictions <sup>1</sup> . This suggests that increased exports reduce regional GHG
16	em	issions due to a lower marginal carbon intensity of exports versus generation in U.S.
17	Jur	isdictions.
18		
19	Int	errogatory:
20	a)	Please provide an estimate of the annual regional reduction in CO2e emissions for 2017-2020
21		from Ontario exports using estimated marginal carbon intensity differences. If marginal
22		intensities are not available, please use averages. Please provide key assumptions and back-
23		up calculations.
24	b)	Please provide an estimate of the annual change in CO2e emissions in Optario for 2017 - 2020
25	5)	as a result of exports during these years
20		as a result of exports during these years.
28	Re	sponse:
29	Res	sponse from IESO
30		
31	a)	This question is outside the scope of this proceeding.
32	/	
33	b)	This question is outside the scope of this proceeding.
34	~1	·····

<sup>&</sup>lt;sup>1</sup> <u>https://www.ieso.ca/-/media/Files/IESO/Document-Library/gas-phase-out/Decarbonization-and-Ontarios-</u> <u>Electricity-System.ashx</u>, page 5

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1

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1	POLLUTION PROBE - 09
2	
3	Reference:
4	Submissions on the ETS Rate, Attachment 3, Page 10
5	"An important feature of the ICP is that it is dynamic and
6	automatically adjusts with the value of the intertie capacity,
7	which itself is dependent upon hourly market conditions."
8	
9	Interrogatory:
10	a) Is dynamic pricing of the ICP another term for either a market-based or settlement-based
11	approach? That is, they are understood to pursue the same objective of maximizing revenues
12	utilizing a competitive market pricing system.
13	
14	Response:
15	Response from IESO:
16	
17	a) The ICP mechanism is a feature of the IESO-administered wholesale electricity market that
18	ensures that the value of intertie capacity is maximized for the benefit of Ontario ratepayers.

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1

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1	POLLUTION PROBE - 10	
2		
3	Re	ference:
4	Sub	omissions on the ETS Rate, Attachment 3, Page 10
5		
6		ETS: Exporters contribute to the costs of maintaining a reliable transmission
7		system by paying ETS and Uplift. The IESO typically collects between \$30 and 40
8		million per year16through ETS which is charged each time an exporter flows
9		electricity out of Ontario. ETS revenues collected are used to reduce transmission
10		costs paid by domestic consumers.
11		He <b>lft</b> , Foresters also contribute communicately \$40.50 million conversat7 in welft
12		charges for system reliability provided through Ancillary Services and Operating
13		Reserve. The export contribution reduces the cost that has to be recovered from
14		domestic consumers for these services.
16		
17	ETS	Rate Submissions, Attachment 3, Page 16
18		
19		Exporters contribute to the cost of the Ontario transmission system through two
20		mechanisms. The first mechanism is through the fixed ETS rate and the second
21		mechanism is through the dynamic ICP mechanism.
22		
23	Int	errogatory:
24	a)	Are uplift charges fundamentally different than the ICP and ETS? If so, please explain how.
25		
26	b)	Please explain the rationale for 3 different charges to exports (ICP, ETS and Uplift) for what
27		on the surface appears to pursue a similar objective to generate revenues from exports?
28		
29	c)	If the OEB determines that a dynamic or market-based approach should be applied to the ETS,
30		ICP and Uplift charges, can all 3 be consolidated into one charge? What are some of the pros
31		and cons of one consolidated dynamic or market-based charge for all 3?
32		· · · ·
33	d)	If the OEB determines that a fixed charge should be applied to the ETS and uplift charges,
34	,	should the ETS and uplift charges be consolidated? What are some of the pros and cons of
35		consolidating these two charges?

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# 1 Response:

- 2 Response from IESO:
- 3

a) Please see the response to OEB Staff Interrogatory 34 g) to understand the differences
 between uplifts and ICP, and response to OEB Staff Interrogatory 1 b) to understand
 the ETS charge.

7

b) Each of the three charges have different objectives. Please see the response to OEB
 Staff Interrogatory 34 g) to understand the differences between uplifts and ICP, and
 response to OEB Staff Interrogatory 1 b) to understand the ETS charge.

11

c) The IESO does not believe it is feasible or necessarily desirable to consolidate the three charges into one charge because they are established under different regimes, are set at different timeframes and serve different objectives. For example, uplift charges are out-of-market costs incurred to operate the power system reliably. A market-based approach to setting uplift costs would not work since many uplifts (such as Ancillary Services) must be incurred by the system irrespective of its cost.

18

The IESO also notes that consolidating charges would result in less transparency on costs compared to today, leaving exporters with less information on how to manage those costs.

22

d) The OEB does not set the bulk of uplift charges and does not have jurisdiction to
 consolidate the ETS and uplift charges.

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1		POLLUTION PROBE - 11	
2			
3	Re	ference:	
4	ETS	Rate Submissions, Attachment 3, Page 13	
5			
6	"When exports do not flow, no ICP, ETS or Uplift revenues are		
7		collected to defray domestic consumer system costs."	
8			
9	Int	errogatory:	
10	a)	Please provide an estimate of the annual volumes of exports in GWh that did not flow for	
11		2017-2020 in GWh due to the current export rate of \$1.85/MWh.	
12			
13	b)	Please provide an estimate of the annual average system costs for 2017-2020 that were not	
14		avoided because exports did not transact due to the ETS fixed rate of \$1.85/MWh.	
15			
16	Re	sponse:	
17	Res	sponse from IESO:	
18			
19	a)	The requested analysis would be onerous to produce and it is unclear the value it	
20		would provide in determining the issues in this proceeding.	
21			
22	b)	The IESO is not in a position to perform this analysis due to the complexities and	
23		interconnected nature of the market.	

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1

1	LONDON PROPERTY MANAGEMENT ASSOCIATION INTERROGATORY - 01		
2			
3	Reference:		
4	ETS Rate Submission, Page 13		
5			
6	Interrogatory:		
7	The evidence states that based on a prior analysis, increasing the ETS rate from \$0 to \$5.80/MWh		
8	would cause a 50% reduction in export volumes.		
9			
10	For each of the scenarios below, please provide a current analysis on the impact on export		
11	volumes:		
12			
13	a) an increase in the ETS rate from \$1.85 to \$5.80/MWh;		
14			
15	b) an increase in the ETS rate from \$1.85 to \$2.85/MWh; and		
16	$a$ an increase in the ETC rate from $\dot{c}$ 1.05 to $\dot{c}$ 2.00/N/N/h		
17	c) an increase in the ETS rate from \$1.85 to \$2.90/MWn.		
18			
19	<u>Response:</u>		
20	Response from IESO:		
21			

For a) b) and c) please see the response to VECC 8.2.

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1

LC	ONDON PROPERTY MANAGEMENT ASSOCIATION INTERROGATORY - 02				
Re	Reference:				
ETS	ETS Rate Submission, Page 13				
Int	errogatory:				
The evidence states that "the IESO has passed a number of market design changes that have					
clarified how ICP revenues reduce transmission costs for ratepayers and now results in the vast					
majority of congestion funds to be disbursed to domestic customers to offset their transmission					
cos	ts."				
a)	Please define "vast majority" in terms of both percentage of total ICP revenues and in				
	absolute dollars.				
b)	Please explain fully how the congestion funds are disbursed to domestic customers.				
-)	And there are demonstrate water and that do not receive any bandite from the disk warmant of				
C)	Are there any domestic customers that do not receive any benefits from the disbursement of the congestion funds? If yes, please indicate what type of sustemers these are				
	the congestion runus! If yes, please indicate what type of customers these are.				
Ro	sponse.				
Rec	inonse from IESO:				
nes	polise from 1250.				
a)	See the response to OFB Staff Interrogatory 45 c)				
ω,					
b)	Please see the response to OEB Staff Interrogatory 35 b).				
,					
c)	All domestic customers receive the disbursements as per the disbursement methodology				
	outlined in response to OEB Staff Interrogatory 35 b).				
	L( <u>Ref</u> ETS <u>Int.</u> The clar ma cos a) b) c) <u>Res</u> a) b) c) c)				

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1

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LONDON PROPERTY MANAGEMENT ASSOCIATION INTERROGATORY - 03 1 2 Reference: 3 ETS Rate Submission, Attachment 1 4 5 **Interrogatory:** 6 Please update Table 6 to reflect full year information for 2020 and 2021. If 2021 data is not yet 7 available for the entire year, please provide the information for the most recent year-to-date 2021 8 period available. 9 10 Response: 11 Response from IESO: 12 13 Please see Table 3 – Curtailed Exports in Attachment 1 of OEB Staff Interrogatory 1. 14

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1

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1	LC	ONDON PROPERTY MANAGEMENT ASSOCIATION INTERROGATORY - 04				
2						
3	Ref	Reference:				
4	ETS	Rate Submission, Attachment 1, Page 19				
5						
6	Inte	errogatory:				
7	The	evidence states that the IESO provided the following:				
8						
9		Over the top 5 peak hours over the last 5 years, the IESO curtailed exports in 11				
10		out of 25 hours. The average quantity of exports curtailed was 158MW or				
11		approximately 10% of exports scheduled.				
12						
13	a)	What five-year period does this refer to?				
14						
15	b)	Please update the figures in this quote to reflect the most recent 5 peak hours over the last 5				
16		years for the period ending in 2021.				
17						
18	Res	sponse:				
19	Res	ponse from IESO:				
20						
21	a)	2016-2020				
22						
23	b)	Over the top 5 peak nours from 2015-2020, the IESO curtailed 10 out of 25 hours. The average				
24		quantity of exports curtailed was 168 MW or approximately 11% of exports scheduled.				

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1
1	L	ONDON PROPERTY MANAGEMENT ASSOCIATION INTERROGATORY - 05
2		
3	Re	ference:
4	ETS	Rate Submission, Attachment 1, Tables 8-12
5		
6	Int	errogatory:
7	a)	Does Elenchus recommend using the 2020 or the average 2018 through 2020 hourly data to
8		use in calculating the 12CP allocators? Please explain fully why that period was used instead
9		of the other option.
10		
11	b)	Please update the tables to reflect 2021 actual data if that information is now available.
12		
13	Re	sponse:
14	Res	sponse from Elenchus:
15		
16	a)	Please see the response to OEB Staff Interrogatory 8.
17		
18	b)	Please see the response to Energy Probe Interrogatory 8.

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1

1	LC	ONDON PROPERTY MANAGEMENT ASSOCIATION INTERROGATORY - 06					
2							
3	Reference:						
4	ETS	Rate Submission					
5							
6	Inte	errogatory:					
7 8	a)	Do charges for network service apply to electricity imports into the IESO control area from a neighbouring transmission system and consumed within the province?					
9							
10	b)	How many intertie points are there in Ontario? Please provide the number for each					
12							
13	c)	What would be the likely impact on intertie congestion revenues if there were more interties					
14		with other jurisdictions?					
15	_						
16	Res	sponse:					
17	Res	ponse from IESO:					
18							
19	a)	No. Imports are not subject to network service charges.					
20							
21	b)	Energy is scheduled and flows across 14 interties between Ontario and its interconnected					
22		neighbours as follows: Manitoba – 2, Michigan – 1, Minnesota – 1, New York – 1, Quebec –					
23		9.					
24	,						
25	C)	Please see response to VECC Interrogatory 16.1.					

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1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 01				
2					
3	Reference:				
4	Joint HONI, IESO ETS Rate Submissions <sup>1</sup> , Pages 3, 12				
5	EB-2021-0110, Exhibit I-2-1, Page 4				
6					
7	Preamble:				
8	The Joint Submissions (page 3) state: "Among other things, the contention emerged from what				
9	stakeholders believed should be the basis of, or purpose of, the tariff design".				
10					
11	The Joint Submissions (page 12) state:				
12	Hydro One does not make any recommendations on a specific ETS Rate. While				
13	Hydro One desires the outcome that is best for its customers, it is not in a position				
14	to determine what ETS Rate, if any, would ultimately result in the best overall				
15	outcome for its customers. As such, having regard to the purposes of the IESO				
16	under the Electricity Act and of the OEB under the Ontario Energy Board Act,				
17	Hydro Une defers to the IESU's expertise and responsibility to advise on the				
10	from a market operations perspective and to the OFR's expertise and				
20	responsibility with respect to the balancing of the various competing interests in				
21	setting the ETS Rate.				
22					
23	HONI's EB-2021-0110 Application sets out the ratemaking principles used in the development of				
24	its proposed distribution rates.				
25					
26	Interrogatory:				
27	1.1 What does HONI consider to be the purpose of the ETS rate?				
28					
29	1.2 In HONI's view, are the ratemaking principles used by HONI in the setting of distribution rates				
30	also applicable to the ETS Rate?				
31	1.2.1 If not, why not?				
32					
33	1.3 In HONI's view does its ratemaking principles, as set out in EB-2021-0110, align with the OEB's				
34	objectives as set out in the OEB Act (Section 1(1))?				
35					
36	1.4 In HONI's view, apart from its objectives as set out in the OEB Act (Section 1(1)), are there any				
37	other considerations that the OEB should take into account when setting the ETS rate?				

<sup>&</sup>lt;sup>1</sup> Hereafter referred to as the "Joint Submissions"

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## 1 Response:

2 Response from Hydro One:

3

1.1 Please see Hydro One's response to OEB Staff Interrogatory 1 a).

4 5

1.2 VECC appears to be referencing Exhibit L-02-01, p. 4 of Hydro One's joint transmission and 6 distribution rate application in EB-2021-0110. That exhibit is concerned with the distribution 7 rate design process. To clarify, the reference in that evidence was to certain principles derived 8 from the influential book Principles of Public Utility Rates (Bonbright), as summarized by OEB 9 staff in a March 31, 2008 discussion paper on Rate Design for Recovery of Electricity 10 Distribution Costs (EB-2007-0031). In the discussion paper, OEB staff stated that it considered 11 the three rate design principles of full cost recovery, fairness and efficiency to be relevant to 12 that particular rate design initiative and to encompass "all of the Bonbright attributes of a 13 sound rate structure". 14

15

In Hydro One's view, the principles of full cost recovery, fairness and efficiency are among the
 principles that the OEB should consider in determining the ETS rate for Ontario, but they may
 not be the only principles that should be considered. In considering these principles, it is
 Hydro One's view that the OEB should also consider that the context of setting the ETS rate
 differs from the context of setting distribution or transmission rates directly for a utility.

21

In the ETS rate context the utility, Hydro One, is in a neutral position. It will recover its revenue 22 requirement through a combination of transmission rates and ETS revenues, only the relative 23 amounts will be impacted. As such, in the ETS rate-setting context, it is Hydro One's view that 24 the primary consideration should be on setting an ETS rate that results in the lowest overall 25 costs and which provides the greatest overall benefits to the Ontario electricity system as a 26 whole. The primary focus should therefore be on weighing the relative benefits of (a) higher 27 or lower ETS revenues as an offset to Hydro One's transmission revenue requirement, against 28 (b) the system costs and benefits resulting from the higher or lower export volumes that may 29 be expected based on increases or decreases in the current ETS rate. 30

31

1.3 The OEB's objectives in relation to electricity, as set out in section 1(1) of the OEB Act, are
 broad and are intended to guide the OEB in carrying out its wide range of responsibilities.
 While there is some alignment between those objectives and the principles of full cost
 recovery, fairness and efficiency (i.e. fair pricing, economic efficiency, financial viability of the
 electricity industry), there are also elements that do not appear to be aligned (i.e. promotion
 of CDM policies, facilitating innovation). The OEB is in the best position to appropriately
 balance its objectives in the context of setting the ETS rate.

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- 1 1.4 Hydro One is not aware of any other considerations beyond the OEB's objectives as set out in
- 2 section 1(1) of the OEB Act that would be necessary to guide the OEB's decision making in
- 3 setting the ETS rate.

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1

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 02
2	
3	Reference:
4	Joint Submissions, Pages 3, 13
5	EB-2012-0031, IESO Submission (March 8, 2013), Page 4
6	EB-2021-0110. Exhibit I-2-1. Page 4
7	
8	Preamble:
9	The Joint Submissions (page 3) state: "Among other things, the contention emerged from what
10	stakeholders believed should be the basis of, or purpose of, the tariff design".
11	
12	The Joint Submissions (page 13) state:
13	
14	For these reasons, the IESO maintains the view that reducing the ETS rate to zero
15	would best encourage the efficient use of electricity and promote economic
16	efficiency in the Ontario market. However, the market has operated with the ETS
17	rate near its current level since market open and the IESO is mindful there are
18	other relevant considerations the OEB must make when setting an ETS rate.
19	Therefore, the IESO recommends the rate be set at zero or no higher than the
20	current \$1.85/MWh to maximize efficient use of electricity and promote
21	economic efficiency in the Ontario market.
22	
23	The IESO's EB-2012-0031 Submission states:
24	
25	The IESO appreciates that in establishing an ETS tariff for Ontario, the Board must
26	have regard to general ratemaking principles and its statutory objects —
27	protecting the interests of consumers, promoting economic efficiency and cost
28	effectiveness, and facilitating a financially viable electricity industry — and that
29	the Board's consideration of these factors invariably entails a balancing of
30	interests.
31	
32	Interrogatory:
33	2.1 What does the IESO consider to be the purpose of the ETS rate?
34	
35	2.2 In the IESO view, are the considerations the IESO must take into account in setting the ETS

rate those as outlined in its EB-2012-0031 submission (referenced above)?

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2.3 The IESO's EB-2013-0031 submission makes reference to "general rate making principles". 1 Are these the same principles as HONI has set out in its current EB-2021-0110 application (as 2 referenced above)? 3 2.3.1 If not, what are they? 4 5 6 Response: Response from IESO 7 8 2.1 Please see response to OEB Staff Interrogatory 1b). 9 10 2.2 The IESO does not set the ETS rate. 11 12 2.3 The IESO's perspectives are reflective of IESO's mandate to market and system operator to 13 balance electricity supply and demand at lowest cost. 14 15 2.3.1 Please see response to 2.3 above. 16

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 03
2	
3	Reference:
4	Joint Submissions, Page 10
5	
6	Preamble:
7	The Joint Submissions (page 10) state: "When setting the ETS, consideration should be given to
8	maximizing the operational and economic benefits provided by exports by minimizing transaction
9	costs".
10	
11	Interrogatory:
12	3.1 What does the IESO consider to be "transaction costs" and does it include Uplift fees and
13	Intertie Congestion charges?
14	
15	3.2 From what/whose perspective should operational and economic benefits be "maximized"?
16	
17	Response:
18	Response from IESO:
19	
20	3.1 As stated in the IESO's ETS Rate Submission Attachment 3, the relevant transaction costs in
21	the case of an export from Ontario include the ETS rate, the ICP and Uplifts.
22	
23	3.2 Operational and net economic benefits should be maximized for Ontario consumers in the
24	long-run.

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1

VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 04						
<u>Reference:</u>						
Joint Submissions, Attachment 2						
Interrogatory:						
4.1 Please provide a schedule that sets out, for each of the jurisdictions addressed in Attachment						
2 and the IESO:						
i. whether or not the exports are subject to congestion payments,						
ii. when congestion payments for exports are required,						
iii. how congestion payments are determined,						
iv. who are the beneficiaries of the congestion payments and						
v. whether congestion payment revenues are considered/factored into the determination						
of the tariffs for export transmission service.						
Response:						
Response from Hydro One and Charles River Associates:						
4.1 i. to v. To the extent the requested information relates to the jurisdictions addressed in						
Attachment 2, Hydro One notes that the scope of CRA's jurisdictional review was focused on						
ETS rates and did not include analysis of congestion payments, if any, in any other						
jurisdictions. As explained on p. 7 of the ETS Rate Submissions, in Hydro One's last						
transmission rates proceeding the OEB advised Hydro One that, in the context of considering						
the ETS rate in its next transmission rates proceeding, it would be assisted by an updated						
jurisdictional review that provides the ETS rates in other jurisdictions, the rationale behind						
those ETS rates and market implications with respect to those ETS rates. That was the context						
and scope for CRA's jurisdictional review. As such, CRA's analysis did not extend to a review						
of congestion payments in the various jurisdictions for which it considered ETS rates. CRA is						
therefore not in a position to provide the requested information in relation to those						
jurisdictions.						
Response from IESO regarding Ontario:						
4.1						
i. Yes, in Ontario exports are subject to ICP. Please see page 9 of the IESO's ETS Rate						
Submission Attachment 3.						
ii. Please see OEB Staff Interrogatory 34 b)						

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- iii. Please see OEB Staff Interrogatory 34 g) and OEB Staff Interrogatory 34 h)
- iv. Please see the response to OEB Staff Interrogatory 35 b) & c) for a description of the TRCA
   disbursement methodology to Market Participants.
- v. No, please see pages 11-14 of the IESO's ETS Rate Submission Attachment 3.

1	VU	LNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 05					
2							
3	<u>Refere</u>	nce:					
4	Joint Su	ibmissions, Attachment 2					
5							
6	Interro	ogatory:					
7	5.1 Ple	ase provide a schedule that sets out, for each of the jurisdictions addressed in Attachment					
8	2 a	nd the IESO:					
9							
10	i.	whether or not there is a transmission rights market,					
11	ii.	how transmission rights are purchased,					
12	iii.	what the benefits are for holding/owning transmission rights and					
13	iv.	whether revenues or financial commitments created through the transmission rights					
14		market are considered/factored into the determination of the tariffs for export					
15		transmission service.					
16	_						
17	Respo	nse:					
18	Respon	se from Charles River Associates:					
19	<b>F</b> 4						
20	5.1	For the state of the invitation of the state					
21	1.	Each of the jurisdictions surveyed in the US has a financial transmission rights market. The					
22		table below provides detailed information related to the transmission markets in the OS.					
23	ii	Financial Transmission Rights are nurchased via auctions administered by the specific					
24		ISO/RTO					
26							
27	iii.	Financial Transmission Rights are used to hedge for congestion between different pricing					
28		points in the wholesale energy market.					
29							
30	iv.	Based on CRA's understanding of the Financial Transmission Markets in the US, revenues					
31		or commitments resulting from the exchange of Financial Transmission Rights are not					
32		considered into the determination of the tariffs for export transmission service.					

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ISO/RTO	Financial Transmission Market	Document	How are FTRs purchased?	Benefits of owning FTRs	Revenues allocation
PJM	Yes	PJM Manual M-6: Financial Transmission Rights	FTR Auctions		Auction Revenue Rights are allocated to Network Transmission Service Customers and Firm Point-to- Point Transmission Customers
ISO-NE	Yes	ISO-NE Manual M-6: Financial Transmission Rights	FTR Auctions	Congestion Mitigation	Holders of Incremental Auction Revenue Rights (IARRs)—entities that have accepted IARRs instead of network service rights payments as compensation for a portion of the construction and maintenance of specific projects (such as generation interconnections) to improve infrastructure Holders of Auction Revenue Rights (ARRs)—congestion-paying load-serving entities and transmission customers that have supported the transmission system
NYISO	Yes (Called Transmission Congestion Contracts)	NYISO Manual 3 - Transmission Congestion Contracts	TCC Auctions		Auction Revenues are distributed to Tranmission Owners per Attachment N of the NYISO OATT
MISO	Yes	MISO: BPM 004 FTR and ARR	FTR Auctions		Auction Revenues are distributed to market participants based on firm historical usage of MISO's transmission system
SPP	Yes (Transsmission Congestion Rights)	SPP's Open Access Transmission Tariff (OATT) in Attachment AE, section 7, and in the SPP Market Protocols, section 3.2	TCR Auctions		Revenues are allocated to entities that hold Auction Revenue Rights nominated based on the tranmission system usage
CAISO	Yes (Congestion Revnue Rights)	CAISO Congestion Revenue Rights BPM	CRR Auctions		CRR Allocation determines how revenues are dispersed. Allocation is based on load and transmission usage

1

3

4 5

6

7 8

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11 12

13

14

2 Response from IESO:

i. Yes.

ii. On a monthly basis, transmission rights are sold for specific intertie paths through an auction process accessible through the IESO's web portal.

iii. The transmission rights market allows market participants to hedge price risks associated with transmission congestion and price volatility. This, in turn, can improve market liquidity. Please also see the response to OEB Staff Interrogatory 45 g).

iv. The ETS rate was set as a result of a settlement process in an OEB proceeding, independent of the transmission rights auction process.

<ul> <li>2</li> <li>3 <u>Reference:</u></li> <li>4 Joint Submissions, Attachment 1, Page 20</li> </ul>				
<ul> <li>3 <u>Reference:</u></li> <li>4 Joint Submissions, Attachment 1, Page 20</li> </ul>				
4 Joint Submissions, Attachment 1, Page 20				
5				
6 Preamble:				
7 Attachment 1 states:				
8				
9 The majority of jurisdictions surveyed by Elenchus, including all Regional				
10 Transmission Organizations (RTOs) and Independent System Operators (ISOs) in				
the United States and most ISOs and transmitters in Canada set Open Access				
12 Transmission Tariffs (OATTs) in accordance with FERC Orders No. 888, 889, 890,				
and 2000. All Canadian provinces operate within the OATT framework except				
14 Ontario and Alberta.				
15 16 These jurisdictions have notage stamp "Network Service charges" that are				
analogous to Ontario's domestic transmission tariff Exports are analogous to				
"Point-to-Point" transmission service, which are applied to the transmission of				
energy along specific paths, from a point of receipt to a point of delivery. Unlike				
Ontario's Domestic and Export rates, which are set based on an allocation basis,				
Point-to-Point charges are calculated based on the Network Service charge.				
22				
23 Interrogatory:				
6.1 Does Charles River Associates agree with the comments made by Elenchus regarding ETS	rates			
25 in other jurisdictions?				
6.1.1 If not, with which points does Charles River Associates disagree and why?				
27				
28 <b>Response:</b>				
29 Response from Charles River Associates:				
30				
6.1 Yes. However, CRA notes that Elenchus states on ETS Rate Submissions, Attachment 1,	page			
28 of 44, that it "does not consider the manner in which the IESO sets export rates	o be			
<sup>33</sup> underpinned by a cost allocation methodology."				
34 6.1.1 NA				

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1	VULNER	ABLE ENERGY CONSUMERS COALITION INTERROGATORY - 07				
2						
3	Reference:					
4	Joint Submissi	ons, Page 12, Attachment 1, Table 1				
5						
6	Preamble:					
7	The Joint Subr	missions state (page 12): "From an economic standpoint, exports of energy from				
8	Ontario have	contributed approximately \$330-520 million annually to Ontario in market				
9	revenues".					
10						
11	Interrogatory:					
12	7.1 Please con	firm that the referenced statement is based on Attachment 1, Table 1.				
13	7.1.1	If not confirmed, what is the basis for the statement?				
14	7.1.2	If confirmed, do all of the values included in Table 1 represent "revenues"?				
15						
16	Response:					
17	Response from	IESO:				
18						
19	7.1 Attachmer	nt 3 Table 1 is a representation of the referenced statement.				
20	7.1.1	N/A				
21	7.1.2	All the values in the IESO's ETS Rate Submission in Attachment 3 Table 1 represent				
22		how intertie trading reduces total costs for Ontario consumers by generating				
23		revenues, contributing to fixed system costs and avoiding incremental system				
24		costs.				

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1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 08
2	
3	Reference:
4	Joint Submissions, Page 13, Attachment 3, Page 14
5	EB-2012-0031, Exhibit I-23-5.14, VECC 54
6	
7	Preamble:
8	The Joint Submissions state (page 13):
9	
10	"Even a relatively small increase in the ETS rate beyond the historical range of \$1-
11	2/MWh could have a material impact on heavily traded interties where price
12	margins are already small. For example, prior analysis has shown that increasing
13	the ETS rate from \$0 to \$5.80/MWh would cause a 50% reduction in export
14	volumes".
15	
16	The Joint Submissions state (Attachment 1, page 14):
17	
18	"At this time, the IESO has not undertaken a quantitative analysis to estimate the
19	impact of a higher ETS rate on exports; however, even a relatively small increase
20	in the ETS rate beyond the historical range of \$1-2/MWh could have a material
21	impact on heavily traded interties where price margins are already small. The
22	2012 CRA analysis demonstrates that in one case increasing the ETS rate from \$0
23	to \$5.80/MWh would cause a 50% reduction in export volumes (expressed as a
24	percentage of status quo volumes)".
25	The response to VECC 54 from 50 2012 0021 provided the following information based on the
26	ine response to vecu 54 from EB-2012-0031 provided the following information based on the
27	various ETS tariffs considered in the 2012 CKA analysis:

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#### a) MWb

IVI VV II				
Scenario		2013	2015	2017
	Total Exports	20,977,195	22,234,111	6,833,429
Status Quo Nuclear Curtailment	Exports sourced from Imports	1,928,395	2,584,043	2,399,606
	Exports less Wheel- Throughs	19,048,800	19,650,068	4,433,823

#### b)

Exports les	wheel Throughs	(MWb)
LAPOITS ICS	s wheel-moughs	(1111 111)

reported in VECC 54.

Scenario	2013	2015	2017
Status Quo Nuclear Curtailment	19,048,800	19,650,068	4,433,823
Unilateral Elimination Nuclear Curtailment	24,692,695	19,729,741	4,623,132
Equivalent Average Network Charge Nuclear Curtailment	14,179,802	19,639,264	3,868,360
Two-Tiered Scenario A Nuclear Curtailment	18,772,678	19,764,320	4,553,078
Two-Tiered Scenario B Nuclear Curtailment	20,331,572	19,701,651	4,561,635

1

#### 2 Interrogatory:

3	8.1 In the current Joint Submissions (Attachment 3, footnote 31) the IESO states that the basis for
4	the 50% is "IESO internal analysis based on data presented in Export Transmission Service
5	(ETS) Tariff Study, Charles River Associates, May 16, 2012, Pg. 18-20". It is noted that for 2013
6	the CRA results reported in VECC 54 showed a 43% reduction in exports when comparing the
7	Equivalent Average Network Charge case versus the Unilateral Elimination case. Is this the
8	basis for the IESO's referenced 50% reduction?
9	8.1.1 If not, please provide the internal analysis that derived the 50% value.
10	8.1.2 If not, please reconcile the results of the IESO's internal analysis with the results

- 10 11
- 11 12

8.2 In the response to VECC 54 the reduction in export volumes (as between the Unilateral
Elimination case and the Equivalent Average Network Charge case varies widely for the three
years studied (i.e. from a 43% reduction in 2013 to a less than 0.5% reduction in 2015 and a
16% reduction in 2017. What are the main reasons for the wide range in export reductions
across the three years?

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1	8.2.1	If the reasons are related to differences in market and system conditions (e.g.
2		generation mix, degree of surplus baseload generation, anticipated prices in
3		external markets relative to Ontario, etc.) which of the three years best reflects
4		the system conditions expected to exist in the 2023-2027 period and why?
5	8.2.2	If the reasons are related to differences in market and system conditions (e.g.
6		generation mix, degree of surplus baseload generation, anticipated prices in
7		external markets relative to Ontario, etc.) which of the three years least reflects
8		the system conditions expected to exist in the 2023-2027 period and why?
9		
10	Response:	
11	Response from	IESO:
12		
13	8.1 The IESO a	nalysis is based on the Export Transmission Service (ETS) Tariff Study, Charles River
14	Associates,	May 16, 2012, Pg. 18-20. The 50% reduction in export volumes from increasing
15	the ETS ra	te from \$0/MWh to \$5.80/MWh was expressed as a percentage of status quo
16	volumes.	
17	8.1.1	N/A
18	8.1.2	The internal analysis aligns with data given in VECC 54.
19		
20	8.2 The IESO h	as not attempted to quantify the impact of specific ETS rates on exports beyond
21	what has b	een studied in the 2012 CRA Report. Due to its fixed nature, a higher ETS will result
22	in more o	ccasions when market conditions are such that the ETS will make exports
23	uneconom	ic and prevent an otherwise economic export from transacting. While market and
24	system co	nditions impact the frequency of such occasions, the inverse nature of the
25	relationshi	p between a fixed ETS and the level of exports will remain true regardless of the
26	assumption	ns made about market and system conditions in the 2023-2027 period.
27	8.2.1	N/A
28	8.2.2	N/A

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1

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 09
2	
3	<u>Reference:</u>
4	Joint Submissions, Attachment 3, Page 7
5	IESO's 2021 Annual Planning Outlook, Pages 51-52
6	
7	Preamble:
8	Attachment 3 states: (page 7): "Historically, Ontario has been a net exporter of electricity,
9	primarily to the U.S. jurisdictions, and a net importer from Quebec".
10	
11	Interrogatory:
12	9.1 With respect to the graph in Attachment 3 (page 7 of 17), please provide a revised version
13	that also shows: i) the actual values for 2021 and ii) the forecast values for 2022-2027 based
14	on IESO's 2021 Annual Planning Outlook.
15	
16	9.2 Do the forecast exports shown on page 52 of the IESO's 2021 APO include: i) exports
17	associated with surplus baseload generation and ii) recognition of future intertie congestion?
18	9.2.1 If the forecast exports recognize intertie congestion, what was the impact of
19	intertie congestion on the export forecast?
20	
21	Response:
22	Response from IESO:
23	
24	9.1
25	i. Please see Figure 1 - Annual Ontario Imports and Exports in Attachment 1 of OEB Staff
26	Interrogatory 1.
27	ii. The IESO does not forecast based on market conditions and therefore does not have this
28	analysis.
29	
30	9.2 The Annual Planning Outlook (APO) forecast exports includes an accounting for surplus
31	baseload generation and a recognition of intertie flow limits, but not a forecast of intertie
32	flows including the nature of any new capacity that may be built in Optario, and
33 24	developments in the electricity sectors of neighboring jurisdictions as they pursue their own
35	decarbonization policies.
36	9.2.1 As noted in response to 9.2 above, the APO recognizes intertie limits, which
37	restrict the amount of imports and exports that can flow on the interties, but not
38	a forecast of ICP or congestion rents collected.

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**VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 10** 1 2 Reference: 3 Joint Submissions, Attachment 3, Page 7 4 5 Preamble: 6 Attachment 3 states: (page 7): 7 8 9 "However, the needs and activities of competitive exporters (e.g., volume and direction of transactions) are not considered when planning the transmission 10 system, and so are not a primary driver of investment". (emphasis added) 11 12 "When designing the system, the focus is on ensuring that domestic load can be 13 supplied for a wide a range of system conditions. For many of these conditions 14 planning standards do not require the system to support exports 15 simultaneously". (emphasis added) 16 17 Interrogatory: 18 10.1 The references quoted indicate that: i) exports are not a primary driver for investment in 19 transmission and ii) planning standards do not require the system to support exports 20 simultaneous under many planning conditions. However, at the same the wordings suggest 21 that, under certain conditions, exports are a driver (if not a primary driver) and do impact 22 transmission investment planning decisions. Please clarify if this is the case and whether 23 there are circumstances under which exports impact transmission planning by the IESO. 24 25 Response: 26 Response from IESO: 27 28 29 10.1 IESO planning assessments consider maintaining export capability where required to ensure system reliability and operability; and they do not specifically consider competitive exporter 30 activity. Investments made within Ontario are primarily for supplying domestic load. On this 31 basis, competitive exports are not a key driver of investment cost to the transmission system 32 in Ontario. In terms of whether there are any situations under which exports would be a 33 factor driving transmission planning investment recommendations, this would only be the 34 case if circumstances exist where exports would impact the reliability of the transmission 35 system, as determined through the application of the planning standards. 36

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1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 11
2	
3	Reference:
4	Joint Submissions, Attachment 3, Pages 7-8
5	
6	Preamble:
7	Attachment 3 states: (pages 7-8):
8	
9	"It is also important to note that while the IESO provides market participants and
10	consumers with the same access to grid service, the way the system is designed
11	and the priority given to exporters results in exports being subject to more frequent service interruption compared to demostic load. Exporters can be
12	curtailed for more reasons than Ontario consumers, including internal adequacy
14	or reliability issues in neighbouring jurisdictions. As a result, the IESO curtails
15	exports for reliability reasons more often than domestic load".
16	
17	Joint Submissions, Attachment 3, Footnote 10 states: "Based on internal analysis, the IESO has
18	curtailed export annually between 18-35% of all hours since 2016".
19	
20	Interrogatory:
21	11.1 Please list (by priority) the control actions the IESO takes to maintain system reliability,
22	specifically highlighting the relative priority given to: i) dispatchable domestic load, ii)
23	domestic load under DR contracts/agreements, iii) exports and iii) non-dispatchable
24	domestic load.
25	
26	11.2 When determining the hours in each year that exports were curtailed, does the IESO include
27	all hour where exports have been curtailed on at least one intertie?
28	11.2.1 Does this mean that in hours where exports are considered to be "curtailed"
29	there may be interties where exports are not actually curtailed?
30	
31	11.3 Please provide a schedule that sets out for each of the years since 2016 the number of hours
32	that exports were curtailed consistent with the 18-35% noted in Foothote #10.

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1	11.4 Please provide schedules that for each of the years since 2016 set out for each intertie the
2	number of hours that exports were curtailed.
3	11.4.1 On the same schedules please indicate the number of hours in each year that the
4	curtailment was due to: i) reliability issues in neighbouring jurisdictions, ii)
5	congestion on the intertie owned by Hydro One, iii) internal congestion in Ontario
6	and iv) Other Reasons (please specify and separate if material).
7	
8	11.5 Do exporters received any compensation when their exports are curtailed?
9	11.5.1 If yes, under what circumstances? In responding please indicate how these
10	circumstances relate to the reasons for curtailment documented in the previous
11	question.
12	11.5.2 If yes, what were the annual amounts paid to exporters since 2016 and who paid
13	them (e.g., were the amounts paid by domestic consumers)?
14	11.5.3 If yes, are these payments reflected in Attachment 3, Table 1?
15	
16	Response:
17	Response from the IESO:
18	
19	11.1 For a complete list providing the anticipated order of control actions the IESO takes to
20	maintain system reliability, please see Market Manual 7: System Operations Part 7.1: IESO
21	Controlled Grid Operating Procedures, Appendix B1.
22	
23	11.2 Yes.
24	11.2.1 Yes.
25	
26	11.3 Please see Table 3 – Curtailed Exports in Attachment 1 of OEB Staff Interrogatory 1.
27	
28	11.4 The requested information is not readily available and it is unclear the value it would provide
29	to the determination of the issues in this proceeding. Please see Table 22 – Annual Amounts
30	and Number of Hours Paid for Export Curtailment in Attachment 1 of OEB Staff Interrogatory
31	1.
32	11.4.1 Fiedse See 11.4 dbove.

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11.5 Exporters may or may not receive make-whole payments depending on the specific reason 1 for the curtailment. When curtailments are due to market participant errors or are caused 2 by issues in external jurisdictions, they are not subject to compensation. When curtailments 3 deemed necessary by IESO for reliability they may be subject to compensation. See Market 4 Manual 4: Market Operations Part 4.3: Real-Time Scheduling of the Physical Markets for a 5 list of curtailment reasons. Compensation for curtailments is not reflected in Attachment 3, 6 7 Table 1. 11.5.1 See 11.5 above. 8

- 9 11.5.2 See 11.5 above.
- 9 11.5.2 See 11.5 above.
  10 11.5.3 See 11.5 above.

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1

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 12
2	
3	Reference:
4	Joint Submissions, Attachment 3, Pages 8-9, 12-13
5	
6	Preamble:
7	Attachment 3 states: (pages 9):
8	"Intertie trading provides a range of operational benefits including system
9	flexibility to balance supply and demand, and ancillary services to support grid
10	stability. Interties also play a key role supporting system operations during
11	unplanned or emergency events. From a broader perspective, interties support
12	regional grid reliability and enable Ontario to assist other jurisdictions during
13	contingency events .
14	Attachment 3 states (page 12):
16	"Fewer exports will have a negative operational impact across a number of areas
10	foremost in reducing the flexibility that interties provide to efficiently balance the
18	grid in the course of normal system operations, surplus baseload management
19	and unexpected events. Furthermore, less exports will reduce the role that
20	interties can play in supporting regional reliability and diversification."
21	
22	Joint Submissions, Attachment 3, pages 13 of 17 states: "In addition to decreasing ICP revenue, a
23	higher ETS could have the effect of reducing energy exports from Ontario and by extension the
24	operational and economic benefits that those lost exports provide."
25	
26	Interrogatory:
27	12.1 Pages 8-9 of Attachment 3 list a number of benefits interties and intertie trading provide.
28	The Attachment (page 10 of 17) subsequently describes how higher ETS tariffs may affect
29	the level of exports during periods of surplus baseload generation and the resulting need to
30	curtail domestic sources of generation. For each of the other operational benefits ascribed
31	to interties (i.e., Ancillary Services, Regional Reliability, Geographic Distribution and
32	Emergency Events – per pages 8-9), please describe how the benefits are impacted by the
33	<u>level</u> of exports (per pages 12 & 13).

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### 1 Response:

- 2 Response from IESO:
- 3

Ancillary Services: Bi-directional flow on the interties help maintain system frequency and
 voltage to enable a reliable grid for Ontario consumers. The IESO also procures Operating
 Reserve over the interties.

7

Regional Reliability: Interties provide regional reliability through the utilization of supply
 from adjacent jurisdictions to help meet internal needs. Reduced exports limit exchanges
 from occurring and force a region to rely more heavily on internal resources which degrades
 the overall regional reliability.

12

Emergency Events: Interties are used to help mitigate emergency events. IESO has emergency energy and reserve agreements with its neighbors for reliability.

15

Geographical Distribution: Trade allows jurisdictions to be supported by other resource types in adjacent areas, which allows for diversification in energy supply across jurisdictions. This makes the overall energy system more resilient. With reduced exports, resiliency in the

19 overall system diminishes.

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 13
2	
3	<u>Reference:</u>
4	Joint Submissions, Attachment 3, Pages 9-11
5	
6	Preamble:
7	Attachment 3 states (pages 9): "When demand for intertie access is greater than the physical
8	capability, the intertie is considered "congested" and traders are charged "congestion rent" in the
9	form of the ICP – a premium for access based on willingness-to-pay."
10	
11	Attachment 3 states (page 10): "The ICP is set hourly based on competitive trader bids indicating
12	how much they would be willing to pay to export over the intertie for a specific hour."
13	
14	Attachment 3 states (page 11): For example, the ICP on the Intertie to Michigan (where there has historically been high domand to expert) averaged \$10/MM/h in 2017 while applied prices on
15	the Minnesota and New York interties are in the range of $$7-9$ /MWh "
10	
18	Interrogatory.
19	13.1 Please outline precisely when and how the ICP for a particular hour is determined.
20	
21	13.2 In those hours when congestion rent (ICP) is applicable to exports, how is the final hourly
22	charge to the exporter for market energy (including ICP) determined?
23	
24	13.3 Is congestion rent (in the form of ICP) only charged for congestion on the interties or is it
25	also applicable in the other circumstances such as when domestic/internal congestion would
26	limit exports?
27	
28	13.4 Please provide a schedule that for each of the years since 2016 sets out the number of hours
29	in which congestion rent (ICP) for exports was applicable at one or more of the interties.
30	
31	13.5 Are those hours when the ICP applies for exports considered to be hours when exports are
32	curtailed per the discussion in Attachment 3, Foothote 10?
33	13.5.1 If not, why not?
34	annlicable at one or more of the interties was that hour considered to be a hour
36	in which exports were curtailed?
	··· ······ -···

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13.6 Please provide schedules that for each of the years since 2016 set out for each intertie: i)
 the total number of hours exports were curtailed, ii) the number of hours exports were
 curtailed due to congestion on the intertie, iii) the number of hours congestion rent (ICP)
 was applicable for exports and iii) the number of hours where the circumstances described
 in points (ii) and (iii) occurred simultaneously.

6

13.7 Please provide schedules that for each of the years since 2016 set out for each intertie: i)
the total volume of exports, ii) the volume of exports during those hours where exports over
the intertie were curtailed for any reason, iii) the volume of exports actually curtailed during
those hours where exports over the intertie were curtailed for any reason, iv) the volume of
exports during those hours where exports were curtailed due to congestion on the intertie
were curtailed, and v) the volume of exports actually curtailed when exports were curtailed
due to congestion on the intertie.

14

13.8 Please provide schedules that for each of the years since 2016 set out for each intertie: i)
 the average ICP (\$/MWh) for the year (based on the sum of the hourly ICP values divided by
 the number of hours) for exports, ii) the range of the hourly ICP values for exports for each
 year, iii) the number of hours the ICP value for exports was less than \$1.85/MWh and iv) the
 number of hours the ICP value for exports was greater than \$6.50/MWh.

20

# 21 **Response:**

- 22 Response from IESO:
- 23
- 24 13.1 Please see the response to OEB Staff Interrogatory 41 a).
- 13.2 Please see the response to OEB Staff Interrogatory 41 a).
- 13.3 ICP is only charged on congestion on the interties.
- 29

27

13.4 This information can be found for the years 2016-2019, Table 3, on page 35 of the
 Transmission Rights Market Review Interim Report1. Please see Table 17 - Number of hours
 where ICP was collected on both the Michigan and New York interties in Attachment 1 of
 OEB Staff Interrogatory 1.
1	13.5 No. The purpose of the ICP is allocate scarce export capacity when an intertie is congested.
2	The IESO does not curtail exports due to congestion at an intertie.
3	13.5.1 See response to 13.5 above.
4	13.5.2 There may be hours in which there is ICP and exports are curtailed but the two
5	are not related. The requested analysis would be onerous to produce and it is
6	unclear the value it would provide in addressing the issues in this proceeding.
7	
8	13.6 As explained in response to 13.5 above, exports from Ontario are not curtailed due to intertie
9	congestion in Ontario and therefore the question is based on an incorrect premise. In
10	addition, the requested analysis would be onerous to produce and provide no information
11	of value in addressing the issues in this proceeding. Please see Table 3 – Curtailed Exports in
12	Attachment 1 of OEB Staff Interrogatory 1 for information on the total number of hours
13	exports were curtailed between 2016 and 2021.
14	
15	13.7 Please see the response to 13.6 above.
16	
17	13.8 Please see Table 20 – Average, Min and Max ICP annually on each export intertie and number
18	of hours with ICP < 1.85 and ICP > 6.50 in Attachment 1 of OEB Staff Interrogatory 1.

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1

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 14
2	
3	<u>Reference:</u>
4	Joint Submissions, Attachment 3, pages 9 & 11 of 17
5	
6	Interrogatory:
7	14.1 Footnote 20 (page 11) indicates that the Congestion Rents Received from the Market in
8	Table 2 are for both import and exports. Does the difference between: i) Congestion Rents
9	Received from the Market in Table 2 and ii) Congestion Rents Collected from Exports in Table
10	1 represent the congestion rents received from imports?
11	14.1.1 If not, what does the difference represent?
12	14.1.2 If not, what were the congestion rents received from imports in each of the years?
13	
14	14.2 Please describe when congestion rents for imports are applied and how the amount to be
15	charged is determined (i.e., is the price the same as the ICP for exports and how is the volume
16	that the price is to be applied to determined?).
17	
18	Response:
19	Response from IESO:
20	
21	14.1 Correct.
22	14.1.1 N/A.
23	14.1.2 N/A.
24	
25	14.2 Please see the response to OEB Staff Interrogatory 44 b).

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1

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 15
2	
3	Reference:
4	Joint Submissions, Attachment 3, pages 7, 10 & 14 of 17
5	
6	Preamble:
7	Attachment 3 states: (page 7): "In the case of an export from Ontario, the relevant transaction
8	costs include the ETS, the ICP and Uplifts."
9	
10	Attachment 3 states (page 10): "Exporters also contribute approximately \$40-50 million per year
11	in uplift charges for system reliability provided through Ancillary Services and Operating Reserve.
12	The export contribution reduces the cost that has to be recovered from domestic consumers for
13	these services".
14	
15	Attachment 3 states (page 14): "Similar to congestion revenues, less exports would mean a
16	reduced contribution from exports to system costs. Collectively exports contribute between \$70
17	and 90 million per year in ETS and Oplift. Many of these system costs would remain, regardless
18	of exports and so the cost would have to be recovered from domestic consumers.
19	Interrogatory
20	15.1 Please outline how the Unlift Rate(s) is /are established (i.e., what are the costs and volumes
21	used based on and when are the rates set?)
22	used based of and when are the fates set. j.
24	15.2 Do the costs associated with uplifts all vary directly with the amount of electricity sold
25	through the IESO market?
26	15.2.1 If not, why not?
27	
28	15.3 If market volumes (including exports) are higher/lower than assumed in the setting of the
29	Uplift rate(s) such that Uplift revenues are higher/lower than required to cover costs, how is
30	the variance between costs and revenues treated and how does this impact the
31	current/future costs for exporters and domestic consumers?
32	
33	Response:
34	Response from IESO:
35	
36	15.1 Please see the response to OEB Staff Interrogatory 1 g).

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9

15.2 Costs associated with uplifts vary with a variety of factors including the amount of electricity
 sold through the IESO market. For additional detail on uplift costs, see Guide to Wholesale
 Electricity Charges<sup>1</sup>. See also "IESO Charge Types and Equations" for the mathematical
 description on the calculation of uplifts and other charges<sup>2</sup>.
 15.2.1 Certain uplift costs are not related to the level of demand in Ontario. For example,

- the IESO has a reliability requirement to maintain operating reserve to cover its
   single largest contingency plus half of the second largest contingency regardless
   of the level of Ontario demand.
- 15.3 Uplifts are charged based on costs incurred not on forecasted levels. Uplift charges are not
   carried forward to future periods and the IESO does not carry any variances.

<sup>&</sup>lt;sup>1</sup> <u>https://www.ieso.ca/en/Sector-Participants/Settlements/Guide-to-Wholesale-Electricity-Charges</u>

<sup>&</sup>lt;sup>2</sup><u>https://www.ieso.ca/-/media/Files/IESO/Document-Library/Market-Rules-and-Manuals-</u> Library/market-manuals/settlements/imo-charge-types-and-equations.ashx

1	VULNERA	ABLE ENERGY CONSUMERS COALITION INTERROGATORY - 16
2		
3	Reference:	
4	Joint Submissio	ns, Attachment 3, Page 9
5		
6	Interrogatory	<u>:</u>
7	16.1 In Table 1	the congestion rents collected from exports are declining annually over the 2017-
8	2020 peri	od. Is it primarily due to a decrease in the ICP or a decrease in the volume of
9	exports su	<pre>ubject to congestion rent charges?</pre>
10	16.1.1	If it is due to a decrease in the volume of exports subject to congestion rent
11		charges (I.e., ICP), please explain why the volumes are decreasing and whether
12		the trend is expected to continue in the future.
13	16.1.2	If it is due to a decrease in the ICP, please explain why the ICP is decreasing and
14		whether the trend is expected to continue in the future.
15		
16	<u>Response:</u>	
17	Response from	IESO:
18		
19	16.1 A decline	in congestion rents collected would be primarily due to a decrease in the ICP as
20	total expo	ort volumes remained relatively steady over this period.
21	16.1.1	N/A.
22	16.1.2	Changes in ICP are driven by a number of factors in Ontario and in neighboring
23		jurisdictions, including seasonal variations in supply and demand, changes in fuel
24		costs, outages, the composition of marginal resources that set the market price,
25		and trader behavior. Reductions in the ICP from 2017-2020 represent a decrease
26		In the arbitrage opportunity (price difference) that traders see between Ontario
27		and key neighboring jurisdictions, especially Michigan and New York, of which
28		nower natural gas prices have played a role in addition to other drivers as
29		here here in the past year ICD has tended to increase
30		have been in the past year, ice has tended to increase.

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1

<sup>2</sup> 3 <b>Reference:</b>
Reference:
Joint Submissions, Attachment 3, Pages 11-12
Preamble:
Attachment 3. page 11 states:
"Revenues from the ICP are collected by the IESO in the Transmission Rights
Clearing Account (TRCA). In addition to ICP revenue, the TRCA also contains
revenue from Transmission Rights (TR) auctions. TRs are a financial contract that
entitle their holder to a share of the ICP revenue on the intertie specified in the
contract. TRs do not involve any use of the physical transmission system, and do
not entitle the purchasers of the rights to utilize the transmission assets. By
purchasing a TR, the TR holder gains insurance against changes in the ICP on the
specified intertie (which can be unpredictable and volatile).
The IECO news the TD helders from the ICD revenues. Devenues from the TD
auction plus any residual ICP revenues after navments to TP holders are
disbursed subject to a TRCA balance threshold on a semi-annual basis to
domestic consumers and exporters to offset transmission costs".
Interrogatory:
17.1 Does the purchase of a TR on a specific intertie provide "insurance" against ICP charges f
both imports and exports or are separate TRs (and TR auction payments) required for each
17.1.1 If separate TRs are required for imports and exports, please provide a breakdow
of the Total Allocated TR Auction Revenues for each year set out in Table 2
between imports and exports.
17.2 With respect to Table 2, please provide a breakdown of the annual Payments to TR Righ
Holders as between the payments to importers vs. exporters.
17.3 With respect to Table 2, please provide a breakdown of the annual TR Clearing Accou
Dishursement as between domestic customers and exporters
bissuischient us between uomestie eustomets und exporters.
Response:
Response from IESO:
······································
17.1 Separate TRs are required for both imports and exports

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- 117.1.1Please see Table 26 TR Auction Revenues Broken Down by Import and Export,2Table 4 Transmission Rights Clearing Account Flows and Table 5 TRCA3Disbursements Between Loads and Exporters in Attachment 1 of OEB Staff4Interrogatory 1.
- 6 17.2 Please see the response to 17.1.1 above.
- 7

5

8 17.3 Please see the response to 17.1.1 above.

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 18
2	
3	Reference:
4	Joint Submissions, Attachment 3, Pages 11-12
5	
6	Preamble:
7	Attachment 3 (page 12) states:
8	
9 10 11 12 13 14 15	"historically, disbursements from the TRCA were made based on volumetric consumption. The IESO adopted a recommendation from the OEB's Market Surveillance Panel to allocate TRCA surplus disbursements based on proportion of transmission service charges paid. The design change will ensure that a greater portion of TRCA disbursements are returned to domestic load, compared to other market participants such as exporters. Based on historical estimates, disbursements of TRCA surplus funds to domestic load will increase between 87-
16 17	98%."
18 19 20	Interrogatory: 18.1 How is the TRCA disbursement to each individual domestic customer actually made?
21 22 23 24	18.2 Please show the allocation of the \$118 M disbursed in 2020 as between domestic customers and exporters using: i) the pre-2021 methodology and ii) the new methodology implemented for 2021.
25	Response:
26 27	Response from IESO:
28	18.1 Please see the response to OEB Staff Interrogatory 35 b) & c) for a description of the TRCA
29	disbursement methodology to Market Participants, including end-use load consumers and
30	local distribution companies who receive the TRCA disbursement as a settlement bill credit.
31	Local electricity utilities or local distribution companies would receive the TRCA
32 33	disbursement, which reduces the costs it passes through to its own customers.
34	18.2 Please see the response to OEB Staff Interrogatory 45 c). The updated TRCA disbursement
35 36	methodology has shifted the split of TRCA disbursement from approximately 87%/13% split to domestic load versus exporters; to 98%/2% split to domestic load versus exporters.

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The May 2020 disbursement was \$59.2M and 15% went to exporters (\$8.9M), 85% went to loads (\$50.3M). The November 2020 disbursement was \$58.6M and 12% went to exporters (\$7.0M), 88% went to loads (\$51.6M). Under the 2021 methodology, the May 2020 disbursement of \$59.2M would have been 2% to exporters (\$1.1M) and 98% to loads (\$58.1M). The November 2020 disbursement of \$58.6M would have been 2% to exporters (\$0.9M) and 98% to loads (\$57.7M).

7

8 The IESO notes that there will likely be an element of behaviour change that would affect 9 these values, as exporters may have bid or offered differently under a different 10 disbursement methodology.

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 19
2	
3	<u>Reference:</u>
4	Joint Submissions, Attachment 3, Pages 9-10
5	
6	Preamble:
7	Attachment 3 (page 10) states:
8	
9	"Intertie trading helps Ontario avoid additional system costs that would
10	otherwise have been incurred. From an economic efficiency standpoint, imports
11	enable energy providers from outside the province to compete and displace more
12	expensive domestic suppliers to meet Ontario's electricity needs at the lowest
13 14	energy out of Ontario when demand is low. This brings in revenue to cover fixed
15	costs and avoids curtailing wind resources, spilling water at hydroelectric stations
16	and maneuvering of nuclear units. Without exports, Ontario consumers would
17	have to pay for the cost of the foregone energy that is spilled or curtailed.
18	Between 2017 and 2020, this would likely have added \$150-240 million per
19 20	year18 to Global Adjustment which would be recovered from domestic
20	consumers.
22	Interrogatory:
23	19.1 Are the annual values for Avoided System Costs as set out in Table 1 based entirely on the
24	cost of foregone energy that would have been spilled or curtailed without exports?
25	19.1.1 If not, what other "avoided costs" have been included for each year (i.e., the types
26	and associated amounts)?
27	19.1.2 How were these other "avoided" costs calculated?
28	
29	19.2 Using 2020 as an example, please provide the details regarding the calculation of the avoided
30	system costs associated with the foregone energy that would have been spilled or curtailed
31	without exports.
32	
33	Response:
34	Response from IESO:
35	
36	19.1 The annual values for Avoided System Costs as set out in Table 1 are based entirely on the
37	cost of foregone energy that would have been spilled or curtailed without exports.
38	19.1.1 N/A.
39	19.1.2 N/A

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- 1 19.2 Please see section 3 page 9 of the IESO's ETS Rate Submission Attachment 3. The calculation
- 2 of avoided system costs in 2020 is based on an internal IESO simulation of the market where
- <sup>3</sup> avoided nuclear and renewable resource curtailment is equal to 14TWh. The internal IESO
- 4 simulation contains confidential Market Participant information and therefore cannot be
- 5 provided.

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 20
2	
3	Reference:
4	Joint Submissions, Attachment 3, Pages 9-10
5	
6	Preamble:
7	Attachment 3 (page 9, Footnote 13) states that the calculation of Avoided System Costs was:
8	"Based on avoided nuclear and renewable resource curtailment, equal to 14TWh, 12TWh, 13TWh
9	and 14TWh for 2017-20 respectively."
10	
11	Interrogatory:
12	20.1 What were the total exports (TWh) in each of years over the 2017-2020 period?
13	
14	20.2 Is it the IESO's contention that, in each of these years, roughly 12-14 TWh of exports was
15	sourced from nuclear and renewable generation that would otherwise have been curtailed?
16	20.2.1 If yes, what is the basis for the IESO making this assumption and what steps have
1/	been taken to verify it?
10	20.3 For the period 2017-2020 were there any hours where foregone energy costs were actually
20	incurred due to surplus baseload generation?
21	20.3.1 If yes, for how many hours in each year did this occur, what were the volumes
22	(MWh) involved, what were the actual total costs incurred and are these "costs"
23	included in Avoided System Costs set out in Table 1?
24	
25	Response:
26	Response from IESO:
27	
28	20.1 Please see Figure 1 - Annual Ontario Imports and Exports in Attachment 1 of OEB Staff
29	Interrogatory 1.
30	
31	20.2 Yes, the calculation of avoided system costs is based on avoided nuclear and renewable
32	resource curtailment.
33	20.2.1 This analysis is based on IESO's internal modelling considering factors such as
34	production data at a facility level. The internal IESO simulation contains
35	confidential Market Participant information and therefore cannot be provided.

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- 20.3 Yes, surplus baseload generation occurred for hours in each of the years from 2017-2020
   and foregone energy costs were associated with this baseload generation. Public data for
- <sup>3</sup> each year can be found on the IESO's website<sup>1</sup>.
- 4 20.3.1 For MWh quantities, please see 20.3 above. The actual costs incurred in these
   5 curtailments were not included in "Avoided Costs" in Table 1.

<sup>&</sup>lt;sup>1</sup> <u>https://www.ieso.ca/en/Corporate-IESO/Media/Year-End-Data</u>

### **1 VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 21**

2

#### 3 <u>Reference:</u>

4 IESO's 2021 Annual Planning Outlook, Page 49, Figure 23

5

#### 6 Preamble:

- 7 Figure 23 from the IESO's 2021 APO is set out below:
- 8



#### Figure 23 | Surplus Baseload Generation

9

#### 10 Interrogatory:

21.1 Is the forecast of Surplus Baseload Generation as set out in Figure 23 before exports and 11 actions taken by the IESO to maneuver/curtail baseload generation resources? 12 21.1.1 If not, what are the assumed reductions in baseload generation in each year due 13 to: i) exports and ii) actions taken by the IESO to maneuver/curtail baseload 14 generation resources? 15 16 21.2 With respect to Figure 23, please provide the equivalent values for 2017-2021 actuals and 17 2022 forecast. 18 19

#### 20 **Response:**

21 *Response from IESO:* 

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- 21.1 The Surplus Baseload Generation (SBG) shown in Figure 23 occurs when output from
   baseload resources exceeds demand. Periods of SBG require the IESO to use market
   mechanisms such as exports. The forecast shown is SBG forecasts prior to the use of market
   mechanisms, such as exports.
- 5 6

10

13

21.1.1 Please see 21.1 above.

- 21.2 With respect to nuclear manoeuvres and variable generation (e.g. wind and solar)
   curtailments, historical data can be found on the IESO's website at
   <u>https://www.ieso.ca/en/corporate-ieso/media/year-end-data</u>.
- 11 With respect to hydro curtailments, historical information can be found on OPG's reports at 12 <u>https://www.opg.com/reporting/financial-reports/.</u>
- 14 The 2021 APO study horizon began in year 2023 and therefore 2022 forecast data is not 15 available.

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 22
2	
3	<u>Reference:</u>
4	Joint Submissions, Attachment 3, Pages 12-14
5	
6	Preamble:
7	Attachment 3 (page 13) states:
8	
9	"The IESO expects that <u>any</u> increase in revenue resulting from a higher ETS would
10	be offset by an equivalent reduction in revenue from the ICP, which in turn will
11	decrease the amount that is dispursed from the TRCA to Untario consumers."
12	(emphasis added)
14	Attachment 3 (page 13) describes two scenarios. One where there is a large spread between the
15	price to buy electricity in Ontario and the sell electricity in neighbouring jurisdictions such that an
16	increase to the ETS will result in an offsetting decrease in ICP but no impact to export flows. The
17	second is where there is a less price difference to buy electricity in Ontario and sell electricity in
18	neighbouring jurisdictions such there will be less demand to export and there will be less or no
19	ICP to offset an increase to the ETS.
20	
21	Interrogatory:
22	22.1 Please provide a schedule that for each of the years 2017-2020 breaks down the total export
23	volumes as between MWh where the ICP was applied and those where it was not.
24	
25	22.2 If all export volumes are not subject to congestion pricing (i.e,, an ICP per the first scenario
26	described on page 13) please explain how any increase in the ETS rate will be offset by an
27	equivalent decrease in revenue from ICP.
28	22.2.1 Wouldn't this statement only apply in those situations where an ICP is in effect?
29	If not, please explain why.
30	22.2.2 Furthermore, wouldn't the equivalent reduction only occur if the ICP was equal
31	to (or greater) than the increased level of the ETS rate? If not, please explain why.
32	
33	22.3 Please provide a schedule that for each of the years 2017-2020 sets out:
34	i. The number of nours where, without exports, there would have been surplus
35	udsetodu generation,
30 27	of the interties
20	iii the number of hours where items (i) and (ii) were both occurring and
0	in. The number of nours where items (i) and (ii) were both occurring, and

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the number of hours where, without exports, there would have been surplus iv. 1 baseload generation and there was an ICP applicable at one or more interties but all 2 of the ICP values were less than \$1.85/MWh. 3 the number of hours where, without exports, there would have been surplus ٧. 4 baseload generation and there was an ICP applicable at one or more interties but the 5 ICP value was less than \$1.85/MWh on one or more of the interties. 6 7 22.4 Please provide schedules that for each of the years since 2016 set out for each intertie: 8 i. the number of hours where, without exports, there would have been surplus 9 baseload generation and congestion rent (ICP) was charged for the intertie. 10 ii. the number of hours where, without exports, there would have been surplus 11 baseload generation and congestion rent (ICP) was not charged for the intertie. 12 iii. the average ICP value during those hours where, without exports, there would have 13 been surplus baseload generation and congestion rent (ICP) was charged for the 14 intertie. 15 iv. the range of ICP values during those hours where, without exports, there would have 16 been surplus baseload generation and congestion rent (ICP) was charged for the 17 intertie. 18 19 **Response:** 20 Response from IESO: 21 22 22.1 Please see Table 21 - Congested MWs on Export Interties in Attachment 1 of OEB Staff 23 Interrogatory 1. 24 25 22.2 A higher ETS rate will be offset by reductions in the ICP but also prevent exports from 26 occurring at all. Instances when exports are occurring without intertie congestion indicates 27 expectations of slim margins; a higher ETS rate further reduces the margins, increasing the 28 likelihood that the transaction is not economic and would not occur. This would result in no 29 ICP, uplift, or ETS revenue collection. As a simplified example, if the Ontario price was 30 \$15/MWh and the New York price was \$18/MWh, any ETS charges above \$3/MWh would 31 prevent economic trade to occur. For further discussion, please refer to Section 4 of the 32 IESO's evidence. Please see the response to OEB Staff Interrogatory 36 a) for an 33 understanding on the proportional relationship between ETS and ICP. 34 22.2.1 Please see the response to OEB Staff Interrogatory 36 a). 35 22.2.2 Yes. If the ICP was lower than the increase in ETS rate, then this would likely 36 prevent a transaction from occurring resulting in no ICP, ETS, uplift revenue 37 collection. 38

1	22.3	
2	i.	The requested analysis would be onerous to produce and it is unclear the value it would
3		provide in determining the issues in this proceeding.
4		
5	ii.	Please see the response to VECC Interrogatory 13.4. In Attachment 1 of OEB Staff
6		Interrogatory 1 please also see:
7		Table 12 - Average Monthly ICP by the Michigan, Minnesota and New York Export
8		ties;
9		<ul> <li>Table 16 - Revenue, Volume and Number of Hours of ICP at each intertie – ICP &gt;</li> </ul>
10		\$0MWh;
11		• Table 20 - Average, Min and Max ICP annually on each intertie and number of
12		hours with ICP < 1.85 and ICP > 6.50 and;
13		• Table 27 - Average Annual ICP by the Michigan, Minnesota and New York Export
14		ties.
15		
16	iii.	The requested analysis would be onerous to produce and it is unclear the value it would
17		provide in determining the issues in this proceeding.
18		
19	iv.	In the absence of exports, there would be no ICP in the export direction and therefore the
20		IESO is unclear how to respond to this request.
21		
22	۷.	In the absence of exports, there would be no ICP in the export direction and therefore the
23		IESO is unclear how to respond to this request.
24	~~ .	
25	22.4	
26	١.	The requested analysis would be onerous to produce and it is unclear the value it would
27		provide in determining the issues in this proceeding.
28		Please see the response to VECC Interrogatory 12.4. In Attachment 1 of OEP Staff
29		Interrogatory 1 place cool
30		Table 12 Average Monthly ICD by the Michigan Minnesote and New York Evert
31		Table 12 - Average Monthly ICP by the Michigan, Minnesota and New York Export
32		ues;
33		• Table 16 - Revenue, volume and Number of Hours of ICP at each intertie – ICP >
34		Sulvivill,
35		Table 20 - Average, with and wax ice annually on each intertie and number of
36		1001S WILLI ICT < 1.85 dilu ICT > 0.50 dilu;
37		Table 27 - Average Annual ICP by the Michigan, Minnesota and New York Export
38		ties

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1	iii.	The IESO is unable to complete this request in the timeframe required and cannot
2		accurately reflect the requested changes in historic data.
3		
4	iv.	The requested analysis would be onerous to produce and it is unclear the value it would
5		provide in determining the issues in this proceeding.

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 23
2	
3	Reference:
4	Joint Submissions, Attachment 1, pages 1, 2, 4 and 19
5	
6	Preamble:
7	The Joint Submissions state (Attachment 1, page 1):
8	
9	In the past few years, exports have been affected by fewer and fewer service
10	interruptions and in 2019 and 2020 curtailments were close to 20% of the hours.
11	In the five peaks hours in each of the past five years, exports were curtailed in 11
12	out of the 25 hours and 10% of volumes were curtailed in those hours.
15	The Joint Submissions state (Attachment 1 nage 2):"Since exporters are able to use the
15	transmission system much of the time even at the times of the Ontario system peak Elenchus
16	believes that a reasonable basis exists for Shared Network Asset-related costs to be allocated to
-0 17	exports based on the principle of cost causality.
18	
19	Even though export demand needs are not taken into account when HONI designs the
20	transmission system and the IESO does not factor exports into its reliability planning assessments,
21	the fact that exporters can use the transmission system much of the time supports the allocation
22	of Shared Network Asset-related costs in a cost allocation methodology to exports. Elenchus
23	considered a range of potential cost-based methodologies".
24	
25	The Joint Submissions state (Attachment 1, page 4): "The May 2014 methodology was based on
26	how the transmission system is designed and, since export needs are not considered in the
27	planning of the transmission system, exports were not allocated a portion of Shared Network
28	Asset-related costs.
29	
30	The methodologies identified in this report reflect exports' use of the transmission system and
31	how they are being treated by the IESO with not much service interruptions."

Filed: 2022-05-13 EB-2021-0243 Exhibit I Tab 5 Schedule 23 Page 2 of 4 Interrogatory: 1 23.1 Please update Table 6 (page 19) so as to include the balance of 2020. 2 3 23.2 Do the hours of export curtailment include hours where curtailment was the result of issues 4 external to Ontario (e.g., transmission constraints outside of Ontario)? 5 23.2.1 If so, what proportion of the total hours curtailed in 2019 and 2020 are due to 6 issues outside of Ontario? 7 8 23.3 The above references suggest that there are two approaches to allocating the asset-related 9 costs. One where the allocation is based on considerations as to why and for whom the 10 assets were designed and constructed and the second being based on considerations of how 11 the assets are used and who benefits from their use. Please confirm that the methodology 12 used in the May 2014 Elenchus Report utilized the first approach to cost causation for 13 purposes of allocating Network Costs (excluding Intertie costs) whereas the current report 14 utilizes the second approach. 15 23.3.1 If not confirmed, please explain why. 16 17 23.4 In view of the Elenchus authors of the Report, what are the pros/cons of each approach and 18 is one of the two approaches preferable when determining the basis on which costs should 19 be allocated in a cost allocation study? 20 21 Response: 22 Responses from IESO: 23 24 23.1 Please see Table 3 – Curtailed Exports in Attachment 1 of OEB Staff Interrogatory 1. 25 26 27 23.2 Yes, curtailment includes hours where curtailment was the result of issues external to Ontario. Please see VECC Interrogatory 11.5. 28 23.2.1 The requested analysis is onerous to produce and would provide little value in 29 determining the issues in this proceeding. 30 31 Responses from Elenchus: 32 33 23.3 Confirmed. 34 23.3.1 See response above to 23.3 35

23.4 Both approaches are cost-based. The choice of a preferable approach between the two 1 alternatives depends on the criteria applied in determining a cost-based methodology to 2 determine an ETS rate. 3 4 An allocation of costs considering only why and for whom assets were designed may adhere 5 strictly to the principle of cost causality in the short run, but transmission assets are long-6 term assets that may be used by different customers over time. A transmission asset that 7 has excess capacity may allow another transmission investment to be avoided. 8 9 Absent any other consideration it is Elenchus's view that, based strictly on cost causality, the 10 methodology that allocates Shared Network Assets and costs to exporters is the preferable 11 12 approach, as it reflects how the transmission system is currently used by exporters.

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1

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 24		
2			
3	Reference:		
4	Joint Submissions, Page 9		
5	Joint Submissions, Attachment 1, Pages 2-3, 6-7, 9-14		
6			
7	Preamble:		
8	The Joint Submissions state (Attachment 1-page 2):		
9			
10 11 12 13 14 15	"Elenchus considers the following three methodologies to be appropriate options to allocate Shared Network Asset-related costs to the export class. The three methodologies allocate Shared Network Asset-related costs on the basis of Shared Net Fixed Assets, with adjustments to the Shared Net Fixed Assets allocator applied to each scenario. The Shared Net Fixed Assets allocator is underpinned by the 12 Coincident Peak ("12CP") allocator.		
16 17	1) Fully allocate Shared Network Asset-related costs on the basis of Shared Net		
18 19 20 21 22 23	<ol> <li>Apply an adjusted Shared Net Fixed Assets allocator with export 12CPdiscounted by 50%, as a proxy for a hybrid model, half-way between no allocation and full allocation of Shared Network Asset-related costs to exports.</li> <li>Apply an adjusted Shared Net Fixed Assets allocator with a that affected</li> </ol>		
24 25 26	exports in the last few years. Assuming that exports were curtailed 20% of the hours in the last few years, adjust export volumes to 80%".		
27 28 29	The Joint Submissions state (page 9): "The 50% method is aligned with the OEB's decision on Pole Attachment Charges."		
30 31	Attachment 1, page 3 sets out the resulting ETS rates for each of the three methodologies.		
32 33	Attachment 1, pages 6-7 and 9-14 describe the Elenchus' May 2014 cost allocation methodology.		
34	Interrogatory:		
35 36 37	24.2 Please provide (as a working excel model) the cost allocation model based on Elenchus May 2014 Report (as filed in EB-2014-0140).		
38 39	24.3 Please explain how the 50% hybrid method is "aligned with the OEB's decision on Pole Attachment Charges".		

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1	24.4 Please provide (as a working excel model) the cost allocation models based on each of these		
2	three methodologies outlined in the current Joint Submissions-Attachment 1 (page 2).		
3	24.4.1 Based on each model's results, please provide the derivation of the ETS rate set		
4	out in Attachment 1-page 3.		
5			
6	Response:		
7	Response from Elenchus:		
8			
9	24.1 (n/a)		
10			
11	24.2 The 2014 Report base model is provided as VECC-24.2 Attachment 1.		
12			
13	24.3 In section 2.3 of Elenchus' report (ETS Rate Submissions, Attachment 1), it states that:		
14			
15	In Proceeding EB-2015-0304 dealing with Wireline Pole Attachment Charges, the OEB in		
16	its report dated March 22, 2018 said on page 30:		
17			
18	"In regulatory economics and practice in most jurisdictions, it is uncontroversial that each		
19	attacher to the network will be responsible for the direct or incremental costs that the		
20	attachment drives. The question that the OEB must answer is how much of the common		
21	costs of the pole network will be assigned to the incumbent power utility owners and each		
22	party wishing to attach to ensure that a reasonable charge is established. In addition, <b>one</b>		
23	must also consider the value that third party attachers obtain from leveraging an		
24	established network that spans the entire province, (emphasis added)"		
25			
26	On page 33 of the report the OEB concluded that:		
27			
28	"For these reasons, the OEB is of the view that the hybrid <b>equal sharing methodology is</b>		
29	an efficient and fair cost allocation to be applied to third party attachers (emphasis		
30	added). As noted previously, given that Ontario's vast network of more than 200,000 km		
31	of low voltage distribution lines provide tremendous value to third party attachers through		
32	an existing network, readily available for expansion, the <b>OEB will consider moving from a</b>		
33	<b>cost-based approach to a value-based approach</b> (emphasis added) as part of the Part II		
34	review."		

1	24.4 Live excel	models with each of the three methodologies are provided as Attachments 2, 3,
2	and 4.	
3	24.4.1	The ETS rate is derived on tab '01 Revenue to $cost RR'$ in each model by dividing
4		Hydro One's transmission revenue requirement allocated to Export by forecast
5		volumes.
6		

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1

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### 1 TX COST ALLOCATION MODEL 12CP 2013 - BASE CASE

2

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# ETS CAM 12CP 2020 (2023 RR) - MODEL

1 2

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# ETS CAM 12CP-50 2020 (2023 RR) - MODEL

1 2

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### ETS CAM 12CP-20 2020 (2023 RR) - MODEL

1 2

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 25	
2		
3	Reference:	
4	Joint Submissions, Attachment 1, Pages 7-8	
5	EB-2019-0082, Exhibit I-3-1, Attachment 1 (APPRO IR #1)	
6		
7	<u>Preamble:</u>	
8	It is noted that HON filed an updated cost allocation model in the EB-2019-0082 proceeding.	
9		
10	Interrogatory:	
11	25.1 Were there any changes in the methodologies used in Elenchus' cost allocation models	
12	prepared for EB-2014-0140 versus EB-2019-0082 with respect to: i) the functional categories	
13	used, ii) the assignment of costs to the functional categories, iii) the split of each functional	
14	category's costs between Domestic, Export and Shared and iv) the allocation of Shared Costs	
15	to Domestic versus Exports?	
16	25.1.1 If yes, please provide a schedule setting out the differences.	
17	25.1.2 If yes, please provide a copy (i.e., working excel model) of the cost allocation	
18	model prepared for EB-2019-0082.	
19		
20	Response:	
21	Response from Elenchus:	
22		
23	25.1 There were no changes in the methodologies used in Elenchus' cost allocation models	
24	prepared for EB-2014-0140 versus EB-2019-0082 with respect to: i) the functional categories	
25	used, ii) the assignment of costs to the functional categories, iii) the split of each functional	
26	category's costs between Domestic, Export and Shared and iv) the allocation of Shared Costs	
27	to Domestic versus Exports.	
28	25.1.1 Not Applicable.	
29	25.1.2 Not Applicable.	

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1
**VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 26** 1 2 Reference: 3 Joint Submissions, Attachment 1, Pages 11, 25-26, 29-30 4 5 **Interrogatory:** 6 26.1 Please confirm that for the current Elenchus Report and resulting cost allocation models the 7 only changes made to the cost allocation methodology as used in EB-2014-0140 (i.e., 8 Elenchus' 214 Report) were: i) a change in the allocation of the costs directly related to 9 Interties as described at pages 11 and 25-26, ii) a change in the allocation of Shared Network, 10 Shared Network Dual Function Line, Shared Generation Line Connection and Shared 11 Generation Transformation Connection costs as described on page 29, iii) a change in the 12 allocation of External Revenues as describe on page 29 and iv) a change in the allocation of 13 deferral and variance account balances as described on pages 29-30. 14 26.1.1 If there were any other changes in the methodology used in the current Elenchus 15 Report versus that used in the 2014 Elenchus Report, please outline what they 16 17 are. 18 **Response:** 19 Response from Elenchus: 20 21 22 26.1 Two additional changes are noted below. 26.1.1 The Net Fixed Assets allocator used to allocate Shared Network Asset OM&A in 23 the 2014 Report was based on the allocation of all net fixed assets, including 24 Shared, Dedicated to Domestic, and Dedicated to Interconnect (please see the 25 response to OEB Staff Interrogatory 9 for more details). 26 27 The allocator in the 2021 Report methodology has been revised to allocate 28 Shared Network Asset OM&A by Shared Net Fixed Assets, which excludes assets 29 that are Dedicated to Domestic and Dedicated to Interconnect. The Shared Net 30 Fixed Assets allocator is the 12 CP (or an adjusted 12 CP) so Shared Network Asset 31 OM&A is allocated on the same basis. 32

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1	The second change is the time period used for the MWh billing determinant. The
2	2014 Report used a 3-Year average of MWh for the billing determinant. Upon
3	review, Elenchus determined that the period used as the billing determinant
4	should correspond to the period of the coincident peak load data, so this has been
5	revised to the MWh of most recent year (2020).

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 27
2	
3	Reference:
4	Joint Submissions, Attachment 1, Pages 11, 25-26
5	
6	Interrogatory:
7	27.1 Please identify those Network assets that are considered to be dedicated to interconnect for
8	purposes of the current study.
9	27.1.1 Are these the same assets as were identified as being dedicated to interconnect
10	in 2014 Report? If not, what has changed and why?
11	
12	Response:
13	Answer from Hydro One:
14	
15	27.1 The table below identifies the Network assets that are considered to be dedicated to
16	interconnect in the current study. The network assets that are dedicated to interconnect in
17	the current study are largely unchanged from the 2014 Report. The new interconnect assets
18	relative to the 2014 report are assets of Hydro One Sault Ste. Marie (HOSSM) which was
19	acquired by Hydro One since the 2014 study was conducted.

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Operation Designation	Section	From	То	Functional Category
L4D	1	Lambton TS #2	Mid R JCT St Cl L4D	N
PA301	2	Beck #2 TS	Mid R JCT Niagra 345	N
PA302	2	Beck #2 TS	Mid R JCT Niagra 345	N
A41T	1	Hawthorne TS	IPB Masson JCT	N
A42T	1	Hawthorne TS	IPB Masson JCT	N
B31L	2	IPB Baudet JCT	B5D-B31L SS JCT	N
B3N	2	Mid R. JCT Bunce Crk	Sun Oil Co JCT	N
B3N	3	Sun Oil Co JCT	Vidal JCT	N
B3N	4	Vidal JCT	Sarnia Scott JCT	N
B3N	5	Sarnia Scott JCT	Sarnia Scott TS	N
BP76	1	Beck #2 TS	Mid R. JCT Niagara	N
D5A	6	Cumberland JCT	IPB Masson JCT	N
J5D	1	Keith TS	McKee JCT	N
K21W	1	Kenora TS	IPB Manitoba 230 JCT	N
K22W	1	Kenora TS	IPB Manitoba 230 JCT	N
L33P	1	St.Lawrence TS	Massena JCT	N
L34P	1	St.Lawrence TS	Massena JCT	N
L51D 1 Lambto		Lambton TS #2	Mid R JCT St Cl L51D	N
L51D	3	Lambton TS #2	Lambton TS #2	N
L51D	4	Lambton TS #2	Lambton TS #2	N
P21G*	1	Mississagi TS	P21G POLE 261 JCT	N
P33C	2	IPB Ottawa River JCT	Chats Falls SS	N
PA27	1	Beck #2 TS	Mid R. JCT Niagara	N
PA301	1	Beck #2 TS	Beck #2 TS	N
PA302	1	Beck #2 TS	Beck #2 TS	N
Q4C	2	IPB Ottawa River JCT	Chats Falls SS	N
D4Z	1	Dymond TS	Nine Mile JCT	N
D4Z	2	Nine Mile JCT	IPB Casey JCT	N
F3M	1	Fort Frances TS	H2O Pwr FtFrnces CGS	N
F3M	2	H2O Pwr FtFrnces CGS	Int'l Bdy Minn JCT	N
H4Z	1	Otto Holden TS	IPB La Cave JCT	N
H9A	13	Gamble H9A JCT	IPB Masson JCT	N
HIGHFAL2*	1	Anjigami TS	Anjigami JCT	N
HLNGWTH1*	1	Anjigami TS	Anjigami JCT #2	N
SK1	2	Forgie JCT	IPB Manitoba 115 JCT	N
X2Y	2	Chenaux JCT	IPB Bryson JCT	N

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\*Hydro One notes that the network assets that supply Hydro One Sault Ste. Marie (HOSSM) were mistakenly included in this list. Given that these assets involve interconnections between two local transmitters rather than two neighbouring jurisdictions, they should not be considered as dedicated to interconnects for the purposes of the current study. However, the impact of this error on the allocation between dedicated to interconnect and network shared assets is less than \$75,000 or 0.001%, which does not materially impact the calculated ETS rates.

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1

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 28
2	
3	Reference:
4	Joint Submissions, Attachment 1, Pages 24, 26-29
5	EB-2021-0110, Exhibit H-1-2
6	EB-2021-0110, Exhibit H-1-3
7	
8	Interrogatory:
9	28.1 Please confirm that in the current cost allocation study: i) the definition of the function
10	(i.e., Networks, Dual Function lines (Network and Line Connection portions), Generation Lin
11	Connection and Generation Transformation Connection, Common and Other) and ii) the
12	assets and costs attributed to each of the functions are the same as those per HONI's EB
13	2021-0110 Application (H/1/2) for 2023.
14	28.1.1 If not, please explain what the differences are and why they exist.
15	
16	28.2 It is noted that in HONI's EB-2021-0110 Application (H/1/3, page 3), that assets and cost
17	associated with the Common and Other functions are pro-rated to the Network, Line and
18	Connection rate pools. For purposes of Elenchus' ETS cost allocation study, were these cost
19	pro-rated to the Networks (Intertie and Shared portions), Dual Function lines (Network
20	Shared and Line Connection portions), Generation Line Connection and Generation
21	Transformation Connection functions?
22	28.2.1 If yes, how was this pro-ration done?
23	28.2.2 If not, how were they treated in Elenchus' ETS cost allocation study?
24	
25	28.3 With respect to Attachment 1-page 28, please clarify the basis for the Net Fixed Asse
26	allocator used to allocate the OM&A functionalized to Networks as between Interties and
27	Networks-Shared?
28	28.3.1 If it is not based on the proportion of Net Fixed Asset values for Networks that
29	are assigned to interties vs. Networks-Shared), please explain why not.
30	28.3.2 This not based on the proportion of Net Fixed Asset values for Networks that an
31	assigned to interties vs. Networks-shared), please provide an alternative ETS cos
32	anocation model using this approach.
33	Posnansa
34	<u>Response</u>
35	nesponse from rigaro one.
30	29.1 Confirmed
3/	

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28.1.1 Not applicable.

2 3 **28.2** 

1

A 28.2.1 As confirmed in part 28.1, the inputs to the Elenchus cost allocation study are the same as HONI's EB-2021-0110 Application (H/1/2) for 2023. That is, the revenue requirement associated with Common and Other functions are prorated to the remaining functional categories based on the amounts of financial values that are already assigned to those functional categories. The Elenchus cost allocation study uses the revenue requirement in each functional category that includes the allocated Common and Other assets.

11 28.2.2 Not applicable

28.3 Network OM&A is functionalized to Interties in proportion to the Network gross fixed assets 13 that are dedicated to interties. The remaining Network assets are functionalized to 14 15 Networks-Shared. The Net Fixed Allocator described in Attachment 1-page 28 allocates the Shared Network Asset OM&A between the Domestic and Export classes. This is based on 16 the allocation of shared assets in the Network, DFL-Network, Generation Line Connection 17 and Generation Transformation Connection functional categories, by 12CP allocator as 18 detailed on Attachment 1-page 28, Tables 11 & 12. The functionalization of HONI 19 transmission assets is described in Attachment 1-page 10, Section 3.1. 20

28.3.1 It is not based on the proportion of Net Fixed Asset values for Networks that are

21 22

12

- assigned to Interties vs. Networks-Shared)
- 23 28.3.2 Not applicable

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 29
2	
3	Reference:
4	Joint Submissions, Attachment 1, Page 29
5	
6	Interrogatory:
7	29.1 With respect to Table 13, please explain why the 50% adjustment under the Hybrid Model
8	results in a higher allocation to exports (8.74%) than the 20% adjustment in the Curtailment
9	% Model (5.64%).
10	
11	Response:
12	Response from Elenchus:
13	
14	29.1 See OEB Staff Interrogatory 16. Table 13 is incorrect as values in the Hybrid Model columns
15	and Curtailment % Model columns are transposed.

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1	VULNERA	ABLE ENERGY CONSUMERS COALITION INTERROGATORY - 30
2		
3	Reference:	
4	Joint Submissio	ns, Attachment 1, Page 29
5	EB-2021-0110,	Exhibit H-5-1, Page 1
6		
7	Interrogatory	
8	30.1 In HONI's	EB-2021-0110 Application External Revenues are allocated to the Network, Line
9	Connectio	n and Transformation Connection rate pools. In Elenchus' ETS cost allocation
10	study is it	only the External Revenues (excluding Export Revenues) allocated to the Network
11	rate pool	in HONI's EB-2021-0110 Applications that are allocated between Exports and
12	Domestic	
13	30.1.1	If not, why not?
14		
15	30.2 Please cor	firm that the Shared Net Fixed Assets allocator used to allocate External Revenues
16	is based o	n 12CP values for Exports and Domestic.
17	30.2.1	Does this allocator yield the same results as would be obtained with the Net Fixed
18		Assets assigned to Exports and Domestic were used as the basis for allocation?
19	30.2.2	Given the sources of the external revenues, please explain why this (i.e., 12 CP) is
20		the appropriate allocator.
21		
22	Response:	
23	Response from	Elenchus:
24		
25	30.1 Confirmed	1.
26		
27	30.2 Confirmed	1.
28	30.2.1	An allocation based on Net Fixed Assets which included assets dedicated to
29		domestic and assets dedicated to interconnection would yield different results
30		than the proposed methodology to allocate by only shared net fixed assets. For
31		clarity, the "Net Fixed Assets" provided in Table 13 in ETS Rate Submissions,
32		Attachment 1 refers to "Shared Net Fixed Assets".

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130.2.2The external revenues classified as Network revenues are primarily Secondary2Land Use revenues. Network External Revenues are considered as "Shared" and3allocated on that basis because the Secondary Land Use revenues are4predominantly associated with assets, including land, that are classified as Shared5Network assets.

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 31
2	
3	Reference:
4	Joint Submissions, Attachment 1, Pages 29-30
5	EB-2021-0110, Exhibit H-5-1, Page 1
6	
7	Interrogatory:
8	31.1 In HONI's EB-2021-0110 Application the recovery of Regulatory Assets is allocated to the
9	Network, Line Connection and Transformation Connection rate pools. In Elenchus' ETS cost
10	allocation study is it only the Regulatory Asset recoveries (excluding Export Revenue
11	variances) allocated to the Network rate pool in HONI's EB-2021-0110 Application that are
12	allocated between Exports and Domestic?
13	31.1.1 If not, why not?
14	
15	31.2 Given the nature of these Regulatory Asset accounts, please explain why it is appropriate to
16	use revenue requirement as the allocator.
17	
18	Response:
19	Response from Elenchus:
20	
21	31.1 No, the total \$0.9M is allocated between Exports and Domestic.
22	31.1.1 The Regulatory Asset forecast used by Elenchus did not include an allocation by
23	Network, Line Connection, and Transformation Connection.
24	21.2 Due to the difficulty and effort required to functionalize Regulatory Assot accounts to
25	S1.2 Due to the difficulty and enorthequired to functionalize Regulatory Asset accounts to
20	to shared dedicated to domestic or dedicated to interconnect relative revenue
27	requirements are used to allocate Regulatory Assets. In Elenchus's view, with the excention
29	of the Excess Export Service Revenue Variance Account, it is appropriate to use this
30	composite allocator as it reflects the functionalization and classification of the costs which
31	correspond to the regulatory assets.

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**VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 32** 1 2 **Reference:** 3 Joint Submissions, Attachment 1, Page 20 4 5 Preamble: 6 Attachment 1 states: "Point-to-Point service can be firm or non-firm. Firm service is offered only 7 if the remaining transmission capacity is sufficient to provide that service". 8 9 Interrogatory: 10 32.1 In contrast to firm point-to-point service, when is non-firm point-to-point service 11 offered/available? 12 13 Response: 14 Response from Elenchus: 15 16 32.1 Non-firm point-to-point service is offered when there is excess capacity within the 17 transmission network. Firm Service is provided for periods ranges of one day to one year and 18 can be scheduled the day prior to service (generally by 10:00 am). Non-Firm service can be 19 scheduled up to one day prior to service (generally at 2:00 pm) for periods of one hour to 20 21 one month, however, the service has a lower priority and therefore a higher chance of being curtailed. 22

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1

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 33
2	
3	Reference:
4	Joint Submissions, Attachment 1, Pages 22-24
5	
6	Preamble:
7	Attachment 1 states (page 23):
8	
9 10 11 12 13 14 15 16 17 18 19 20	"The DTS functions are classified between capacity and energy. The classified functions are then each divided by the energy forecast to provide the DTS rate by its components. Export rates are calculated as a subset of the DTS rate components, some of which are pro-rated. The export rate is comprised of 100% of the energy-classified Bulk System and Regional System rates that are applicable to the DTS rate, 20% of the capacity-classified Bulk System and Regional System and Regional System rates and 32% of the Operating Reserve rate. The export rate does not receive a share of Point of Delivery, Voltage Control, or Other System Support rate components.
20 21 22 23 24	Bulk and Network System costs: "The 20% contribution represents a minimal amount as Rate XOS includes no contract capacity or ratchet-based charges in hours in which XOS 1 Hour interchange transactions are not scheduled." The AUC has accepted this methodology in subsequent tariff applications."
25	Interrogatory:
26	33.1 Based on the above reference it appears that the export rate is derived from the same costs
27	as the domestic rates, with some of cost allocations being subject to adjustment.
28	33.1.1 Please comment on whether or not Elenchus considers this to be a fair
29	characterization and, if not, why not?
30	
31	33.2 Elenchus has states (page 24) that it does not consider the manner that AESO sets export
32	rates to be underpinned by a cost allocation methodology. Please explain, particularly when
33	the EIS cost allocation methodologies proposed by Elenchus include adjustments for certain
34 35	costs being allocated to Exports and it views all of its methodologies as being cost based (per page 32).

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## 1 Response:

- 2 Response from Elenchus:
- 3
- 4 33.1 Elenchus considers this to be a fair characterization.
- 5

11

33.2 Elenchus considers the export rates set by the AESO to be cost-based, but not underpinned
 by a cost allocation methodology. A cost allocation process involves attributing shared costs
 to rate classes in order to determine which costs should be recovered from those rate
 classes. The costs that underpin export rates in Alberta are not removed from what is
 attributed to the domestic class.

The XOS rate includes 100% of energy-classified costs and 20% of capacity-classified costs. If 12 the rate was based on cost allocation principles, the different shares of energy and capacity-13 classified costs to be recovered from the export class would cause different impacts to the 14 remaining amount to be recovered from the domestic class. Export customers are paying a 15 higher share of energy costs than capacity costs, but this does not result in domestic 16 customers paying a lower share of energy costs than capacity costs. Rather than have specific 17 Domestic and Export classes, domestic customers receive 100% allocation of energy and 18 capacity-classified costs. Deriving export rates based on domestic rates that already reflect 19 100% of costs implies more than 100% of costs are recovered, by design, so the methodology 20 cannot be considered a cost allocation methodology. 21

22

In contrast to the AESO methodology, Elenchus's proposed methodologies fully allocate
 Hydro One's Transmission revenue requirement between Domestic and Export rate classes.
 Costs are allocated based on cost allocation principles which appropriately consider the costs

allocated to one class in relation to the costs allocated to the other class.

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 34
2	
3	Reference:
4	Joint Submissions, Attachment 2, Pages 5, 6, 8
5	Joint Submissions, Attachment 2, Appendix A, Tables 3-5
6	
7	Preamble:
8	The Joint Submissions (Attachment 2-page 5) state:
9	
10	Finally, CRA observes that some tariffs offer firm and non-firm export services
11	which are priced equally. The primary difference between firm and non-firm
12	services is that export transactions using the latter are the first to be recalled or
13 14	reduce transfer capability. The rules that specify the circumstance, when outages
14	an ISO may recall non-firm service vary in each jurisdiction. Other jurisdictions do
16	not specify a firm or non-firm basis of service for exports per the tariff service
17	definitions.
18	
19	The Joint Submissions (Attachment 2-page 8) state: "Notably, there is no difference between firm
20	and non-firm transmission service as to rates; however, the ISO could curtail any external
21	transactions to maintain system reliability."
22	
23	Interrogatory:
24	34.1 With respect to the ISO-NE, footnote #1 in Table 1 (page 6) states that: "ISO-NE does not
25	distinguish between Firm and Non-Firm transactions and does not offer monthly, weekly, or
26	daily transmission services. It offers hourly transmission service, and this is noted in Table 1
27	of Section 3 of this report."
28	
29	However, at page 8 the Attachment states: "The ISO-NE tariff states rates on an annual \$/kw-
30	Yr basis, however service can be provided on houriy and monthly terms." Please reconcile
31	and clarify if the ISO-NE offers monthly transmission service. If yes, please update the
32	relevant tables in the Attachment accordingly.
33	34.2 How is the ISO-NE's annual export tariff determined and how does it relate to the
35	transmission charges for domestic service (e.g. are they equivalent on a S/kW-Yr basis)?

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34.3 With respect to Attachment 2-page 8 reference in the preamble, how do circumstances 1 under which the ISO-NE curtails external transactions (i.e., exports) differ from those under 2 which Ontario's IESO curtails exports? 3 4 34.4 If there is insufficient capacity on the transmission system to allow all of the exports seeking 5 service to occur, how does the ISO-NW determine which one will be scheduled? 6 7 34.5 Are ISO-NE export transactions subject to congestion payments? 8 9 34.5.1 If yes, under what conditions are such payments made and how are they 10 established? 11 12 34.5.2 If yes, who benefits from the congestion payment revenues and how? In 13 particular, are any of the revenues received factored into the determination of 14 the export transmission tariff and, if so how? 15 16 **Response:** 17 Response from Charles River Associates: 18 19 34.1 ISO NE does not offer tariffed monthly export service. The only tariffed service is annual as 20 reported in Table 3 of the ETS Rate Submissions, Attachment 2. We understand that in 21 certain instances shorter period service can be accommodated and the price for this 22 transaction is the relevant weekly, hourly, or monthly price as computed from the tariffed 23 annual price basis. Please refer to footnote 12 of the ETS Rate Submissions, Attachment 2. 24 25 34.2 ISO-NE's domestic service transmission charges apply to the export tariff. Please refer to 26 page 4 of the ETS Rate Submissions, Attachment 2 where it refers to all jurisdictions, 27 including ISO-NE. "In these cases, the rates for export service are designed to recover total 28 ATRR and there is no specific rate design step applied to encourage a particular export 29 market result." 30 31 34.3 It is CRA's understanding the ISO-NE curtails export transactions based on system reliability 32 conditions and on a non-discriminatory basis (See Section 3.1 of Attachment 2). CRA is not 33 aware of any more precise rules and operational mechanics – to the extent such exists- as to 34 how ISO-NE further evaluates curtailment with specific regards to external transactions. 35

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1	The following part of the response is from IESO:
2	
3	For comparison, please see Market Manual 4: Market Operations Part 4.3: Real-Time Scheduling
4	of the Physical Markets for a list of curtailment reasons in Ontario.
5	
6	Responses from CRA:
7	
8	34.4 See response in 34.3 above.
9	
10	34.5 No.
11	34.5.1 NA
12	34.5.2 NA

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1

•	ULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 35
<u>Ref</u>	erence:
Join	t Submissions, Attachment 2, Pages 5, 6, 8-9
Join	t Submissions, Attachment 2, Appendix A, Tables 3-5
Pre	amble:
The	Joint Submissions (Attachment 2-page 5) state:
	"Finally, CRA observes that some tariffs offer firm and non-firm export services
	which are priced equally. The primary difference between firm and non-firm
	services is that export transactions using the latter are the first to be recalled or
	curtailed by the ISO at any time and at its discretion, for instance, when outages reduce transfer capability. The rules that specify the circumstances under which
	an ISO may recall non-firm service vary in each jurisdiction. Other jurisdictions do
	not specify a firm or non-firm basis of service for exports per the tariff service
	definitions".
Wit	n respect to the NYISO, the Joint Submissions (Attachment 2-page 6-Table 1) state: "The
ene	rgy-based rate for the Firm PTP service is different for each transmission company at the seam
of N	YISO, and it ranges between \$4.11 per MWh (Hydro-Québec) to \$7.75 per MWh (PJM)".
Wit	n respect to the NYISO, the Joint Submissions (Attachment 2, pages 8-9) state:
	"As per the NYISO OATT Schedule H, the wholesale transmission service charge
	(TSC) recovers each Transmission Owner's embedded costs, as well as the
	transmission component of their control area costs, and is determined separately
	grandfathered agreements financial transmission rights and congestion
	payments. The net of all these quantities for each Transmission Owner is divided
	by the total annual billing quantities (MWh) to give a \$/MWh rate."
Inte	errogatory:
35.1	. With respect to the Attachment 2-page 6-Table 1 reference in the preamble, for each of the
	transmission owners how does the transmission rate for export service relate to the
	transmission rate for domestic service?
35.2	In order to maintain system reliability, does the NYISO curtail export transactions prior to
	curtailing sales to domestic customers?

1 2	35.2.1 If yes, how do circumstances under which the NYISO curtails external transactions (i.e., exports) differ from those under which Ontario's IESO curtails exports?
3	35.2.2 If there is insufficient capacity on the transmission system to allow all of the
4	exports seeking service to occur, how does the NYISO determine which one will
5	be scheduled?
6	
7	35.3 With respect to the Attachment 2-pages 8-9 reference in the preamble, please explain the
8	conditions under which export transactions are subject to congestion payments, how the
9	amounts to be paid are determined and who benefits from the revenues received.
10	
11	35.4 With respect to the Attachment 2-pages 8-9 reference in the preamble, please provide
12	additional details regarding transmission rights, how the revenue are determined, what
13	benefits parties receive from purchasing such "rights" and who benefits from the revenues
14	received.
15	
16	35.5 With respect to the Attachment 2-pages 8-9 reference in the preamble, does the wholesale
17	transmission charge (TSC) represent the charge for domestic transmission service (i.e., to
18	customers in the NYISO area)?
19	
20	35.6 With respect to the Attachment 2-pages 8-9 reference in the preamble, are the revenues
21	from financial transmission rights and congestion payments also factored into the
22	determination of the charges for domestic transmission service or just factored into the
23	determination of the charges for export transmission service?
24	Personal
25	Response:
26	Response from Charles River Associates:
27	25.1 CPA has not studied the transmission rate for domestic service for these jurisdictions
28	55.1 CRA has not studied the transmission rate for domestic service for these jurisdictions.
30	35.2 CRA has not studied in detail the curtailment procedures for system reliability purposes for
31	NVISO
32	35.2.1 NA
33	35.2.2 See response to 35.2 above.
34	
35	35.3 Of the jurisdictions it studied, CRA is not aware of any jurisdictions in which congestion
36	payments are levied upon export transactions.
37	
38	35.4 See response to VECC Interrogatory 5, part (i).

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1	35.5 According to NYISO OATT Attachment H, the TSC is applicable to Transmission Service to
2	serve load within or exiting the New York Control Area.
3	
4	35.6 Based on CRA's understanding, for New York the revenues associated with the sale of certain
5	Transmission Congestion Contracts (also known as Financial Transmission Rights) are used
6	to offset the costs of the TSC; however, in CRA's opinion, these costs are not "factored into"
7	the determination of the rate from a cost allocation or rate making perspective. <sup>1</sup>

<sup>&</sup>lt;sup>1</sup> NYISO OATT, Attachment H – Section 14.1.2 – Wholesale TSC formula

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1

2         3       Reference:         4       Joint Submissions, Attachment 2, Pages 5, 6, 9-10         5       Joint Submissions Attachment 2, Appendix A, Tables 3-5         6       Preamble:         7       The Joint Submissions (Attachment 2-page 5) state:         9       "Finally, CRA observes that some tariffs offer firm and non-firm export services which are priced equally. The primary difference between firm and non-firm services is that export transactions using the latter are the first to be recalled or curtailed by the ISO at any time and at its discretion, for instance, when outages reduce transfer capability. The rules that specify the circumstances under which an ISO may recall non-firm basis of service for exports per the tariff service definitions?".         8       With respect to PJM, the Joint Submissions (Attachment 2, pages 9-10) state:         9       "This update also includes an annual update for zonal transmission system costs. The regulatory rationale behind this move appears to be to lower the Border rate so that it is more comparable to the Network Integration Service Rate charged to PJM customers for open access to the transmission system."         7       Interrogatory:         36.1 With respect to the Attachment 2-page 6-Table 1, how are the hourly on-peak and off-peak rates for PJM determined?         36.2 With respect to the Attachment 2-page 6-Table 1, how are the hourly on-peak and off-peak charges for PJM determined?         36.3 In order to maintain system reliability, does the PJM curtail export transactions prior to curtailing sales to domestic customers? <th>1</th> <th>VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 36</th>	1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 36
<ul> <li>Reference:         <ul> <li>Joint Submissions, Attachment 2, Pages 5, 6, 9-10</li> <li>Joint Submissions Attachment 2, Appendix A, Tables 3-5</li> </ul> </li> <li>Preamble:         <ul> <li>The Joint Submissions (Attachment 2-page 5) state:</li> <li>"Finally, CRA observes that some tariffs offer firm and non-firm export services which are priced equally. The primary difference between firm and non-firm services is that export transactions using the latter are the first to be recalled or curtailed by the ISO at any time and at its discretion, for instance, when outages reduce transfer capability. The rules that specify the circumstances under which an ISO may recall non-firm service vary in each jurisdiction. Other jurisdictions do not specify a firm or non-firm basis of service for exports per the tariff service definitions".</li> <li>With respect to PJM, the Joint Submissions (Attachment 2, pages 9-10) state:</li> <li>"This update also includes an annual update for zonal transmission system costs. The regulatory rationale behind this move appears to be to lower the Border rate so that it is more comparable to the Network Integration Service Rate charged to PJM customers for open access to the transmission system."</li> </ul> </li> <li>Interrogatory:         <ul> <li>36.1 With respect to the Attachment 2-page 6-Table 1, how are the daily on-peak and off-peak rates for PJM determined?</li> <li>36.3 In order to maintain system reliability, does the PJM curtail export transactions prior to curtailing sales to domestic customers?</li> <li>36.3.1 If yes, does this apply to both firm and non-firm service and if priority given to firm export transactions versus non-firm export transactions (i.e., export). differ from those under which PJM curtails external transactions (i.e., export).</li> </ul> </li> </ul>	2	
4       Joint Submissions, Attachment 2, Pages 5, 6, 9-10         5       Joint Submissions Attachment 2, Appendix A, Tables 3-5         6       Preamble:         7       The Joint Submissions (Attachment 2-page 5) state:         9       "Finally, CRA observes that some tariffs offer firm and non-firm export services which are priced equally. The primary difference between firm and non-firm services is that export transactions using the latter are the first to be recalled or curtailed by the ISO at any time and at its discretion, for instance, when outages reduce transfer capability. The rules that specify the circumstances under which an ISO may recall non-firm service vary in each jurisdiction. Other jurisdictions do not specify a firm or non-firm basis of service for exports per the tariff service definitions".         19       With respect to PJM, the Joint Submissions (Attachment 2, pages 9-10) state:         10       "This update also includes an annual update for zonal transmission system costs. The regulatory rationale behind this move appears to be to lower the Border rate so that it is more comparable to the Network Integration Service Rate charged to PJM customers for open access to the transmission system."         10       Interrogatory:       36.1 With respect to the Attachment 2-page 6-Table 1, how are the daily on-peak and off-peak charges for PJM determined?         10       36.3 In order to maintain system reliability, does the PJM curtail export transactions prior to curtailing sales to domestic customers?         36.3.1 If yes, does this apply to both firm and non-firm service and if priority given to firm export transactions versus non-firm e	3	Reference:
<ul> <li>Joint Submissions Attachment 2, Appendix A, Tables 3-5</li> <li>Preamble:</li> <li>The Joint Submissions (Attachment 2-page 5) state:</li> <li>"Finally, CRA observes that some tariffs offer firm and non-firm export services which are priced equally. The primary difference between firm and non-firm services is that export transactions using the latter are the first to be recalled or curtailed by the ISO at any time and at its discretion, for instance, when outages reduce transfer capability. The rules that specify the circumstances under which an ISO may recall non-firm service vary in each jurisdiction. Other jurisdictions do not specify a firm or non-firm basis of service for exports per the tariff service definitions".</li> <li>With respect to PJM, the Joint Submissions (Attachment 2, pages 9-10) state:</li> <li>"This update also includes an annual update for zonal transmission system costs. The regulatory rationale behind this move appears to be to lower the Border rate so that it is more comparable to the Network Integration Service Rate charged to PJM customers for open access to the transmission system."</li> <li>Interrogatory:</li> <li>36.1 With respect to the Attachment 2-page 6-Table 1, how are the daily on-peak and off-peak rates for PJM determined?</li> <li>36.3 In order to maintain system reliability, does the PJM curtail export transactions prior to curtailing sales to domestic customers?</li> <li>36.3.1 If yes, does this apply to both firm and non-firm service and if priority given to firm export transactions versus non-firm export transactions?</li> <li>36.3.2 If yes, how do circumstances under which PJM curtails external transactions (i.e., export).</li> </ul>	4	Joint Submissions, Attachment 2, Pages 5, 6, 9-10
6       Preamble:         7       The Joint Submissions (Attachment 2-page 5) state:         9       "Finally, CRA observes that some tariffs offer firm and non-firm export services in which are priced equally. The primary difference between firm and non-firm services is that export transactions using the latter are the first to be recalled or curtailed by the ISO at any time and at its discretion, for instance, when outages reduce transfer capability. The rules that specify the circumstances under which an ISO may recall non-firm basis of service for exports per the tariff service definitions".         19       With respect to PJM, the Joint Submissions (Attachment 2, pages 9-10) state:         20       "This update also includes an annual update for zonal transmission system costs. The regulatory rationale behind this move appears to be to lower the Border rate so that it is more comparable to the Network Integration Service Rate charged to PJM customers for open access to the transmission system."         21       Interrogatory:         23       36.1 With respect to the Attachment 2-page 6-Table 1, how are the daily on-peak and off-peak rates for PJM determined?         24       36.2 With respect to the Attachment 2-page 6-Table 1, how are the hourly on-peak and off-peak charges for PJM determined?         26       36.3 In order to maintain system reliability, does the PJM curtail export transactions prior to curtailing sales to domestic customers?         23       36.3.1 If yes, does this apply to both firm and non-firm service and if priority given to firm export transactions versus non-firm service to if priority given to firm export transactions versus non	5	Joint Submissions Attachment 2, Appendix A, Tables 3-5
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<ul> <li>36.2 With respect to the Attachment 2-page 6-Table 1, how are the hourly on-peak and off-peak charges for PJM determined?</li> <li>36.3 In order to maintain system reliability, does the PJM curtail export transactions prior to curtailing sales to domestic customers?</li> <li>36.3.1 If yes, does this apply to both firm and non-firm service and if priority given to firm export transactions versus non-firm export transactions?</li> <li>36.3.2 If yes, how do circumstances under which PJM curtails external transactions (i.e., exports) differ from those under which Optario's JESO curtails exports?</li> </ul>	27	rates for PIM determined?
<ul> <li>36.2 With respect to the Attachment 2-page 6-Table 1, how are the hourly on-peak and off-peak charges for PJM determined?</li> <li>36.3 In order to maintain system reliability, does the PJM curtail export transactions prior to curtailing sales to domestic customers?</li> <li>36.3.1 If yes, does this apply to both firm and non-firm service and if priority given to firm export transactions versus non-firm export transactions?</li> <li>36.3.2 If yes, how do circumstances under which PJM curtails external transactions (i.e., exports) differ from those under which Optario's JESO curtails exports?</li> </ul>	20	
<ul> <li>31 charges for PJM determined?</li> <li>32 36.3 In order to maintain system reliability, does the PJM curtail export transactions prior to</li> <li>34 curtailing sales to domestic customers?</li> <li>35 36.3.1 If yes, does this apply to both firm and non-firm service and if priority given to</li> <li>36.3.2 If yes, how do circumstances under which PJM curtails external transactions (i.e.,</li> <li>avports) differ from those under which Ontario's JESO curtails exports?</li> </ul>	30	36.2 With respect to the Attachment 2-page 6-Table 1, how are the hourly on-peak and off-peak
<ul> <li>32</li> <li>36.3 In order to maintain system reliability, does the PJM curtail export transactions prior to</li> <li>34 curtailing sales to domestic customers?</li> <li>35 36.3.1 If yes, does this apply to both firm and non-firm service and if priority given to</li> <li>36.3.2 If yes, how do circumstances under which PJM curtails external transactions (i.e.,</li> <li>as a proorts) differ from those under which Ontario's JESO curtails exports?</li> </ul>	31	charges for PIM determined?
<ul> <li>36.3 In order to maintain system reliability, does the PJM curtail export transactions prior to curtailing sales to domestic customers?</li> <li>36.3.1 If yes, does this apply to both firm and non-firm service and if priority given to firm export transactions versus non-firm export transactions?</li> <li>36.3.2 If yes, how do circumstances under which PJM curtails external transactions (i.e., exports) differ from those under which Ontario's JESO curtails exports?</li> </ul>	32	
<ul> <li>curtailing sales to domestic customers?</li> <li>36.3.1 If yes, does this apply to both firm and non-firm service and if priority given to</li> <li>firm export transactions versus non-firm export transactions?</li> <li>36.3.2 If yes, how do circumstances under which PJM curtails external transactions (i.e.,</li> <li>exports) differ from those under which Ontario's JESO curtails exports?</li> </ul>	33	36.3 In order to maintain system reliability, does the PJM curtail export transactions prior to
<ul> <li>35 36.3.1 If yes, does this apply to both firm and non-firm service and if priority given to</li> <li>36 firm export transactions versus non-firm export transactions?</li> <li>37 36.3.2 If yes, how do circumstances under which PJM curtails external transactions (i.e.,</li> <li>avports) differ from those under which Ontario's JESO curtails exports?</li> </ul>	34	curtailing sales to domestic customers?
<ul> <li>firm export transactions versus non-firm export transactions?</li> <li>36.3.2 If yes, how do circumstances under which PJM curtails external transactions (i.e.,</li> <li>exports) differ from those under which Optario's JESO curtails exports?</li> </ul>	35	36.3.1 If yes, does this apply to both firm and non-firm service and if priority given to
37 36.3.2 If yes, how do circumstances under which PJM curtails external transactions (i.e.,	36	firm export transactions versus non-firm export transactions?
evports) differ from those under which Optario's IESO curtails evports?	37	36.3.2 If yes, how do circumstances under which PJM curtails external transactions (i.e.,
so exports/ differ from those dider which of tano sieso curtais exports:	38	exports) differ from those under which Ontario's IESO curtails exports?

1 2	36.3.3	If there is insufficient capacity on the transmission system to allow all of the exports seeking service to occur, how does PIM determine which one will be
3		scheduled?
4		
5	36.4 Given that	: PJM's firm and non-firm rates are the same for Annual, Monthly, Weekly and
6	Daily servio	ce (per Attachment 2-page 6-Table 1), what are the advantages and disadvantages
7	of contract	ting for export service under firm as opposed to non-firm rates?
8		
9	36.5 With respect to PJM's firm and non-firm export tariffs/service, which one most closely	
10 11	reflects the IESO's provision of export service in terms of scheduling and priority of service?	
12	36.6 Are PJM's	export transactions subject to congestion payments?
13 14	36.6.1	If yes, under what conditions are such payments made and how are they established?
15	36.6.2	If ves, who benefits from the congestion payment revenues and how? In
16		particular, are any of the revenues received factored into the determination of
17		the export transmission tariff and, if so how?
18		
19	36.7 With respe	ect to the Attachment 2-pages 9-10 reference in the preamble, please confirm that
20	intent und	erpinning the current design of PJM's export transmission tariffs is that they be
21	comparabl	le to transmission tariffs charge to domestic customers.
22	36.7.1	If not confirm, please explain the referenced quote.
23		
24	Response:	
25	Response from (	Charles River Associates:
26		
27	36.1 The annua	I rate is determined as described in OEB Staff Interrogatory 20, part f. The daily
28	value is the	e annual rate converted to daily.
29	•	Monthly Rate - \$/kW-month = Annual Rate divided by 12;
30	•	Weekly Rate - \$kW-week = Annual Rate divided by 52;
31	•	Daily On-Peak Charge - \$/kW-day = Weekly Rate divided by 5;
32	•	Daily Off-Peak Charge - \$/kW- day = Weekly Rate divided by 7;
33	•	Hourly On-Peak Rate - \$/MWh = Daily On-Peak Rate / 16 hours *1000 kW/ MW;
34	•	Hourly Off-Peak Rate - \$/ MWh = Daily Off-Peak Rate / 24 hours *1000 kW/ MW.
35		
36	36.2 Please see	response to VECC Interrogatory 36.1.

1	36.3 CRA did not study the precise curtailment procedures for system reliability regarding export	
2	transactions for PJM.	
3	36.3.1 NA	
4	36.3.2 NA	
5	36.3.3 See response to VECC Interrogatory 36.3 above.	
6		
7	36.4 There is no evident advantage to contracting under non-firm service for export transactions	
8	under the circumstance where the firm service is priced equally.	
9		
10	36.5 See response to OEB Staff Interrogatory 23, part (f).	
11		
12	36.6 No, based on CRA's understanding.	
13	36.6.1 NA	
14	36.6.2 NA	
15		
16	36.7 The cited statement from Attachment 2 refers to the fact that PJM Transmission Owner's	
17	filed (ER19-2015-000,001) to update, among other things, its Border Rate methodology to	
18	move from a stated rate to an annually updated rate. The intent of the requested change	
19	per the filing was to have the rate more closely reflect the composite average cost of service	
20	in the PJM region since the rate does not "depend on the source or sink point." In addition,	
21	the filing proposed to change the denominator for the calculation of the rate from the 12-	
22	CP sum to the sum of all Zonal Peak loads in order to apply the same denominator as used	
23	to calculate the NITS rate <sup>1</sup> . The FERC accepted this approach in its initial order. <sup>2</sup> The	
24	settlement (December 2021) that was approved by FERC in this proceeding did not change	
25	the updated methodology proposed and described in this response <sup>3,4</sup> . CRA has not found	
26	any regulatory evidence to confirm that "the underpinning of the current design of PJM's	
27	export transmission tariffs is that they be comparable to transmission tariffs charge to	
28	domestic customers."	
29	36.7.1 See the above response.	

<sup>&</sup>lt;sup>1</sup> See PJM Transmission Owners Revisions to the PJM Interconnection, L.L.C., Open Access Transmission Tariff, Docket No ER19-2015-000, June 11, 2019.

<sup>&</sup>lt;sup>2</sup> See ER19-2105-000, ER19-2105-001 "Order Accepting and Suspending Proposed Tariff Revisions, and Establishing Hearing and Settlement Judge Procedures," 4-8 and 61. November 5, 2019.

<sup>&</sup>lt;sup>3</sup> See ER19-2105-000, ER19-2105-001 "Settlement Agreement and Offer of Settlement," October 5, 2021.

<sup>&</sup>lt;sup>4</sup> See ER19-2105-000, ER19-2105-001 "Presiding Judge's Certification of Uncontested Settlement," December 21, 2021.

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1

VULNERA	ABLE ENERGY CONSUMERS COALITION INTERROGATORY - 37
Reference:	
Joint Submissio	ns, Attachment 2, Pages 5, 6, 10
Joint Submissio	ns, Attachment 2, Appendix A, Tables 3-5
Preamble:	
The Joint Subm	issions (Attachment 2-page 5) state:
"Finally which service	<ul> <li>r, CRA observes that some tariffs offer firm and non-firm export services</li> <li>are priced equally. The primary difference between firm and non-firm</li> <li>s is that export transactions using the latter are the first to be recalled or</li> </ul>
curtaile reduce	transfer capability. The rules that specify the circumstance, when outages
an ISO	may recall non-firm service vary in each jurisdiction. Other jurisdictions do
not spe	cify a firm or non-firm basis of service for exports per the tariff service
definiti	ons".
Interrogatory	:
37.1 With resp	- ect to SPP, is ATRR short for Annual Transmission Revenue Requirement?
37.1.1	Does this mean that firm annual export service is set on a comparable basis to the
	rates charged for domestic transmission service (e.g. Network Service)? If not,
	please explain now it is set in relation to the rates for domestic transmission service.
37.2 With resp	ect to the Attachment 2-page 6-Table 1, how are the monthly, weekly, daily on-
peak and	off-peak rates for SPP determined?
37.3 With resp	ect to the Attachment 2-page 6-Table 1, how are the hourly on-peak and off-peak
non-firm o	charges for SPP determined?
37.4 In order t	o maintain system reliability, does the SPP curtail export transactions prior to
curtailing	sales to domestic customers?
37.4.1	If yes, does this apply to both firm and non-firm service and is priority given to
	firm export transactions versus non-firm export transactions?
37.4.2	If yes, how do circumstances under which the SPP curtails external transactions
	(i.e., exports) differ from those under which Ontario's IESO curtails exports?

1 2 3	37.4.3 If ex sch	there is insufficient capacity on the transmission system to allow all of the ports seeking service to occur, how does the SPP determine which one will be neduled?
4		
5	37.5 Given that SP	P's firm and non-firm rates are the same for Annual, Monthly, Weekly and Daily
6	service (per A	Attachment 2-page 6-Table 1), what are the advantages and disadvantages of
7	contracting fo	or export service under firm as opposed to non-firm rates?
8	27.6 \\/:the second of	to CDD/a firms and non-firms annext to offe (anning which are much alongly
9	37.6 With respect	to SPP's firm and non-firm export tarifis/service, which one most closely
10	renects the in	so s provision of export service in terms of scheduling and priority of service?
11	37.7 Are SPP's exp	ort transactions subject to congestion payments?
13	37.7.1 If	ves, under what conditions are such payments made and how are they
14	est	tablished?
15	37.7.2 If	yes, who benefits from the congestion payment revenues and how? In
16	ра	rticular, are any of the revenues received factored into the determination of
17	the	e export transmission tariff and, if so how?
18		
19	Response:	
20	Response from Cho	arles River Associates:
21		
22	37.1 Yes.	
23	37.1.1 Ple	ease refer to Section 3.4 of the CRA report (ETS Rate Submissions, Attachment
24	2,	page 10 of 24). Rates for through and out service are based on the sum of all
25	ba	se zonal ATRRs and 12CP average system load.
26		
27	37.2 Please see re	sponse to VECC Interrogatory 36.1.
28	27 2 Plazca saa rag	sponse to VECC Interrogatory 26.1
29	57.5 Please see les	
30	37 4 CRA did not st	tudy the precise curtailment procedures for system reliability regarding export
32	transactions for SPP.	
33	37.4.1 NA	
34	37.4.2 NA	λ
35	37.4.3 Se	e response to VECC Interrogatory 37.4 above.
36		
37	37.5 See response	to VECC Interrogatory 36.4.

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- 1 37.6 See response to VECC Interrogatory 36.5.
- 2
- <sup>3</sup> 37.7 No, based on CRA's understanding.
- 4 37.7.1 NA
- 5 37.7.2 NA

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1

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 38
2	
3	Reference:
4	Joint Submissions, Attachment 2, Pages 5, 6, 10
5	Joint Submissions, Attachment 2, Appendix A, Tables 3-5
6	
7	Preamble:
8	The Joint Submissions (Attachment 2-page 5) state:
9	
10	"Finally, CRA observes that some tariffs offer firm and non-firm export services
11	which are priced equally. The primary difference between firm and non-firm
12	services is that export transactions using the latter are the first to be recalled or
13	curtailed by the ISO at any time and at its discretion, for instance, when outages
14	reduce transfer capability. The rules that specify the circumstances under which
15	an ISO may recall non-firm service vary in each jurisdiction. Other jurisdictions do
16 17	definitions"
17 18	
10	The Joint Submissions (Attachment 2, page 10) state: "Firm annual billing units (MWb) are divided
20	into total annual transmission revenue requirements for CAISO's high-voltage network system
20	Experts are charged the resulting high voltage transmission access charge ( $HV$ TAC) rate ( $\xi$ /MW/h
21	based) for each transaction "
22	based) for each transaction.
23	
24	Interrogatory:
25	38.1 With respect to CAISO, Attachment 2-Table 1 (page 6) only shows an hourly rate for the Off-
26	Peak period. Does the same hourly rate also apply to the On-Peak period?
27	38.1.1 If not, what rate (if any) applies in the On-Peak period?
28	
29	38.2 With respect to the Attachment 2-page 10 reference in the preamble, does this mean that,
30	for CAISO, the transmission rate for export service is set on a comparable basis to the rates
31	charged for domestic transmission service (e.g. Network Service)? If not, please explain how
32	it is set in relation to the rates for domestic transmission service.
33	
34	38.3 In order to maintain system reliability, does the CAISO curtail export transactions prior to
35	curtailing sales to domestic customers?
36	38.3.1 If yes, how do circumstances under which the CAISO curtails external transactions
37	(i.e., exports) differ from those under which Ontario's IESO curtails exports?
	· · · · · ·

1	38.3.2	If there is insufficient capacity on the transmission system to allow all of the
2		exports seeking service to occur, how does the CAISO determine which one will
3		be scheduled?
4		
5	38.4 Are CAISU	s export transactions subject to congestion payments?
6 7	38.4.1	established?
8	38.4.2	If yes, who benefits from the congestion payment revenues and how? In
9		particular, are any of the revenues received factored into the determination of
10		the export transmission tariff and, if so how?
11		
12	Response:	
13	Response from	Charles River Associates:
14		
15	38.1 Based on	CRA's understanding, the same rate applies to both On Peak and Off Peak.
16	38.1.1	Please see response to 38.1.
17		
18	38.2 No. Please	e see Section 3.5 of the CRA report (ETS Rate Submissions, Attachment 2, page 11
19	of 24) wh	ich states that CAISO uses energy-based determinants to derive its transmission
20	rate. Firm	annual billing units (MWh) are divided into total annual transmission revenue
21	requireme	ents for CAISO's high-voltage network system. Exports are charged the resulting
22	high-volta	ge transmission access charge (HV-TAC) rate (\$/MWh based) for each transaction.
23		
24	38.3 CRA did no	ot study the precise curtailment procedures for system reliability regarding export
25	transactio	ns for CAISO.
26	38.3.1	NA
27	38.3.2	See response to 38.3 above.
28		
29	38.4 No, based	on CRA's understanding.
30		
31	38.4.1	NA
32	38.4.2	NA
1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 39	
----------	--	
2		
3	Reference:	
4	Joint Submissions, Attachment 2, Pages 5, 6, 11-12	
5	Joint Submissions, Attachment 2, Appendix A, Tables 3-5	
6	Joint Submissions, Attachment 2, Appendix C	
7		
8	Preamble:	
9	The Joint Submissions (Attachment 2-page 5) state:	
10		
11	"Finally, CRA observes that some tariffs offer firm and non-firm export services	
12	which are priced equally. The primary difference between firm and non-firm	
13	services is that export transactions using the latter are the first to be recalled or	
14	curtailed by the ISO at any time and at its discretion, for instance, when outages	
15	reduce transfer capability. The rules that specify the circumstances under which	
16	an ISO may recall non-firm service vary in each jurisdiction. Other jurisdictions do	
17	not specify a firm or non-firm basis of service for exports per the tariff service	
18 10	demitions .	
20	The Joint Submissions (Attachment 2 nage 11) state: "AFSO's export service is non-firm fulfilled	
20	only when sufficient canacity exists on the transmission system to accommodate the canacity	
21	scheduled for export "	
22		
23	The Joint Submissions (Attachment 2) Annendix () nage 23 of 24) state:	
24	The Joint Submissions (Attachment 2, Appendix C, page 25 of 24) state.	
25	"Each year, the cost allocation studies are undated to reflect the Tariff year's	
20 27	forecast revenue requirement wires costs functionalization and classification	
28	and forecast billing determinants. Rates XOS and XOM (specifically, levels of	
29	dollar-based and percentage of pool price amounts) are allocated according to	
30	their cost burden on the entire transmission system".	
31		
32	Interrogatory:	
33	39.1 With respect to the reference in the preamble to Appendix C, does this mean that the AESO's	
34	transmission export service rate for network interties (Rate XOS) is set on a comparable basis	
35	to the rates charged for domestic transmission service (each is based on an allocated share	
36	of the transmission revenue requirement according to its cost burden on the entire	
37	transmission system)?	
38	39.1.1 If yes, how is the cost burden for each (i.e., export vs. domestic service)	
39	determined?	

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1	39.1.2 If not, please explain how export transmission service rates are set in relation to
2	the rates for domestic transmission service.
3	39.2 With respect to the Attachment 2-page 11 reference in the preamble, if there is insufficient
4	capacity on the transmission system to allow all of the exports seeking service to occur, how
5	does the AESO determine which one will be scheduled?
6	
7	39.3 How do circumstances under which the AESO curtails external transactions (i.e., exports)
8 9	differ from those under which Ontario's IESO curtails exports?
10	39.4 Are AESO's export transactions subject to congestion payments?
11 12	39.4.1 If yes, under what conditions are such payments made and how are they established?
13	39.4.2 If yes, who benefits from the congestion payment revenues and how? In
14	particular, are any of the revenues received factored into the determination of
15	the export transmission tariff and, if so how?
16	
17	Response:
18	Response from Charles River Associates:
19	
20	39.1 No. Please refer to Section 3.6 of the CRA report (ETS Rate Submissions, Attachment 2, page
21	12 of 24) and to the table presented on page 24 of 24. The Rate XOS and Rate XOM are set
22	based upon the individual component build up from the DTS rate as shown on the table on
23	page 24 of 24.
24	39.1.1 NA
25	39.1.2 See response to 39.1 above.
26	
27	39.2 CRA did not study the precise curtailment procedures for system reliability regarding export
28	transactions for AESO.
29	
30	39.3 See response to 39.2 above.
31	
32	39.4 No, based on CRA's understanding.
33	39.4.1 NA
34	39.4.2 NA

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 40
2	
3	<u>Reference:</u>
4	Joint Submissions, Attachment 2, Pages 6, 8-12
5	
6	Preamble:
7	It is noted while Table 1 contains MISO's rates for transmission export service there is not
8	discussion in Section 3 of Attachment 2 regarding how the rates are determined and how firm vs.
9	non-firm export service is scheduled.
10	
11	Interrogatory:
12	40.1 How are MISO's annual, monthly, weekly, daily and hourly rates for export transmission
13	service determined?
14	
15	40.2 Are the rates for firm export transmission service set on a comparable basis to the rates
16	40.2.1. If not place explain how it is set in relation to the rates for demostic
17	40.2.1 If hot, please explain now it is set in relation to the rates for domestic
10	
20	40.3 In order to maintain system reliability, does the MISO curtail export transactions prior to
21	curtailing sales to domestic customers?
22	40.3.1 Does this apply to both firm and non-firm service and is priority given to firm
23	export transactions versus non-firm export transactions?
24	
25	40.4 Are MISO's export transactions subject to congestion payments?
26	40.4.1 If yes, under what conditions are such payments made and how are they
27	established?
28	40.4.2 If yes, who benefits from the congestion payment revenues and how? In
29	particular, are any of the revenues received factored into the determination of
30	the export transmission tariff and, if so how?
31	_
32	Response:
33	Response from Charles River Associates:
34	40.1 MICO's supert convice is offered under Cobedule 7 Less Terre and Chart Terre Drivet to Drivet
35	40.1 IVISO S export service is offered under Schedule 7 Long Term and Short Term Point to Point
30 27	Beview are for MISO Drive-Through and Out Service subject to those tariff schedules. The
37	Review are for whoo brive-through and out service subject to those tarm schedules. The

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Drive Through and Out rate is calculated as a single system-wide rate and applicable to 1 transactions where the generation source is located within the Transmission System Region 2 and the load is located outside of the Transmission System Region; or both the generation 3 source and load are located outside of the Transmission System Region.<sup>1</sup> The annual rate is 4 determined by dividing the system wide 12 coincident peak into the system wide ATRR.<sup>2</sup> 5 Please refer to VECC Interrogatory 36.1 for derivation of how monthly, weekly, daily and 6 hourly rates are derived from the annual rate. 7 8 40.2 No. Rates are set based upon the zonal ATRR for each transmission owner divided by 12 CP. 9 See MISO Tariff, Attachment O,3 Schedules 7 (Section (2)) and Schedule 8 (Section (2)). 10 Export transactions are subject to a single system-wide rate as described in response to 40.1. 11

40.2.1 See response to 40.2 above.

# 40.3 CRA did not study the precise curtailment procedures for system reliability regarding export transactions for MISO.

- 16 40.3.1 See response to 40.3 above.
- 18 40.4 No, based on CRA's understanding.
- 19 40.4.1 NA

12 13

17

20 40.4.2 NA

<sup>&</sup>lt;sup>1</sup> See Schedules 7, Section 2 and Schedule 8, Section 2 of the MISO tariff.

<sup>&</sup>lt;sup>2</sup> See MISO Attachment O Rate Formula pages 1 and 2:

https://docs.misoenergy.org/legalcontent/Attachment O - Rate Formulae.pdf <sup>3</sup> https://docs.misoenergy.org/legalcontent/Attachment O - Rate Formulae.pdf

1	VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORY - 41
2	
3	Reference:
4	Joint Submissions, Attachment 2, Appendix B
5	
6	Interrogatory:
7	41.1 It is noted that Appendix B does not contain tables for the IESO, CAISO and the AESO setting
8	out the Ancillary and Other Charges applicable to ETS transactions. Please provide similar
9	tables for these three jurisdictions.
10	
11	41.2 With respect to Appendix B-Table 11, please explain why the weekly charges are higher than
12	the annual or monthly charges.
13	
14	41.3 With respect to Appendix B-Table 11, please explain why the daily firm charges are higher
15	than the annual or monthly charges.
16	
17	41.4 With respect to Appendix B-Table 11, there are two set of daily non-firm charges, which are
18	different. Please explain the differences.
19	
20	41.5 Please provide table similar to Attachment 2-Table 1, that compares (in Canadian dollars)
21	the total Ancillary and Other Charges for each of the jurisdictions versus those for the IESO.
22	
23	Response:
24	Response from Charles River Associates:
25	41.1.Con FTC Data Submissions, Attachment 2, Amondiu C for AFCO and the memory to OFD Staff
26	41.1 See ETS Rate Submissions, Attachment 2, Appendix C for AESO and the response to OEB stam
27	Ancillary and Other Charges applicable to ETS transactions similarly with the 2012 CPA
28	Ancinary and Other Charges applicable to ETS transactions similarly with the 2012 CRA
29	
30	41.2 The units for weekly and daily service were incorrectly stated as "ner KW" reserved instead
32	of "per MW" reserved in the filed Table 11 Please see below for Errata Appendix R Table
32	
55	

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TransÉnergie							
Item	Annual per kW reserved	Monthly per kW reserved	Weekly per MW reserved	Daily Firm per MW reserved	Daily Non-Firm per MW reserved	Hourly Non- Firm per MW reserved	Source
System Control Service		Currently this is	not a separate rate	and is included in tra	insmission charge.		Schedule 1
Voltage Control Service	0.31	0.03	5.96	1.19	0.85	0.04	Schedule 2
Frequency Control Service	0.31	0.03	5.96	1.19	0.85	0.04	Schedule 3
Energy Imbalance							
Energy Imbalance	Imbalance service charges are calculated and applied based on conditions in neighboring markets at time of service.						Schedule 5
OR – Spinning Reserve	1.15	0.10	22.12	4.42	3.15	0.13	Schedule 6
OR – Non– Spinning Reserve	0.57	0.05	10.96	2.19	1.56	0.07	Schedule 7
Total Charges	2.34	0.21	45.00	8.99	6.41	0.28	

- 1 41.3 Please refer to updated table provided in 41.2.
- 41.4 Per the updated table provided in 41.2, the second set of daily non-firm charges applies to
   hourly non-firm.
- 5

2

41.5 See response to OEB Staff Interrogatory 33, part (a) for the comparison of
 Uplift/Administrative charges in Canadian dollars between different jurisdictions.

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# NAREN PATTANI INTERROGATORY - 01

2		
3	Ref	erence:
4	Atta	achment 1, Cost Allocation Methodology (Elenchus Report), Section 6
5		
6	Inte	errogatory:
7	Plea	ase provide the following clarifications about cost components that are included in the "Shared
8	Net	work asset-related costs" (as defined and used in the reference) which are used in the three
9	opt	ions for ETS Rate presented in the report:
10		
11	a)	What are the criteria for classifying a Network Pool asset as a "Shared Network Asset"? What
12		is the fraction (%) of total Network Pool assets that are classified "Shared Network Assets" (by
13		measure of Net Book Value of assets, or whatever other unit of measurement used in the
14		methodology)?
15		
16	b)	Are the following cost components included in the "Shared Network asset-related costs":
17		Depreciation, OM&A, Interest Charges, Return on Equity? If any of these components are not
18		included (that is, no cost is included) in "Shared Network asset-related costs", what is the
19		rationale for that?
20		
21	c)	What is the proportion of "Shared Network asset-related costs" as a fraction (%) of the total
22		Network Pool Revenue Requirement?
23	_	
24	<u>Res</u>	ponse:
25	Res	ponse from Hydro One:
26	,	
27	a)	A Network Pool asset that is not dedicated to interconnect is a "Shared Network Asset". 94%
28		of total Network Pool assets are classified as "Shared Network Assets" (by measure of Gross
29		Book value).
30	Dec	noncos from Florebus
31	Res	ponses from Elenchus:
32	<b>h</b> )	Accest related casts refers the sects accessized with rate base, which are depresiation
33 34	U)	interest charges (return on debt) return on equity plus income taxes on the return on debt
35		and equity. Shared network OM&A is included in the revenue requirement but is not
36		included within "asset-related" costs.

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- c) Shared Network asset-related costs comprise 44.3% of the total Network Pool Revenue
- 2 Requirement, and 60.6% of the total asset-related revenue requirement.

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### **NAREN PATTANI INTERROGATORY - 02**

- 1 2 Reference: 3 Attachment 1, Elenchus Report, Section 6, Table 15 4 5 Interrogatory: 6 In your opinion, is the overall methodology sufficiently robust, and is it objective enough so that, 7 in future, given components of (approved) Network Revenue Requirement and historic demand 8 data, the ETS Rate can be reset (i.e., recalculated) without any other subjective decision 9 10 being required? 11 Response: 12 Response from Elenchus: 13 14 Yes, Elenchus is of the view that if the OEB decides that Shared Network costs should be allocated 15 to exporters, the proposed Elenchus' methodology is robust and objective enough, so that future 16
- ETS rates can be reset with updated data. 17

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# NAREN PATTANI INTERROGATORY - 03

2		
3	Re	ference:
4	Att	achment 2, Jurisdictional Review of ETS (CRA Report)
5	Ap	pendix A, (Expanded Summary of ETS Rates)
6	Ap	pendix B, (Rate Adders)
7		
8	Int	errogatory:
9	То	summarize the Jurisdictional Review:
10		
11	a)	Is there any jurisdiction that has <i>No</i> (i.e. "zero") regulated export transmission network
12		charge(s), such as OATT <sup>1</sup> or ETS Rate or equivalent, for exports out of the state or province?
13		If yes, please provide reference.
14		
15	b)	Is there any jurisdiction where regulated export transmission network charges have been
16		reduced specifically because of consideration of energy market attributes or costs (such as
17		congestion management, transmission losses, or other market service costs equivalent to
18		Ontario's Uplift) incurred by export participants? If yes, please provide brief explanation.
19		
20	Re	sponse:
21	Res	ponse from Charles River Associates:
22		
23	a)	CRA is not aware of any jurisdiction that have a "zero" regulated export transmission network
24		charge(s) such as the OATT or ETS equivalent, for export out of state or province. CRA notes
25		that Memoranda of Understanding ("MOU") exist for zero rate pricing of transfer power
26		between ISO-NE and NYISO (See ETS Rate Submissions, Attachment 2, pages 9-10 of 24
27		(Sections 3.1 and 3.2).
28		
29	b)	CRA has not identified any jurisdiction where regulated export transmission network charges
30		have been reduced specifically because of consideration of energy market attributes or costs
31		(such as congestion management, transmission losses, or other market service costs
32		equivalent to Ontario's Uplift) incurred by export participants.

<sup>&</sup>lt;sup>1</sup> OATT: Open Access Transmission Tariff applicable under FERC rules in USA as per various references in Attachment 2.

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### **NAREN PATTANI INTERROGATORY - 04**

2					
3	<u>Reference:</u>				
4	Attachment 2, CRA Report, Table 5, Appendices A, B				
5	Attachment 3, Market Implications, Section 5				
6					
7	Preamble:				
8	Section 5 (2nd paragraph) of IESO's Attachment 3, while commenting on the CRA Report				
9	(Attachment 2), suggests that it is important to consider other factors when comparing ETS in				
10	other jurisdictions, and the subsequent paragraph states that the ETS is just one component				
11	(Intertie Congestion Pricing and Uplift <sup>1</sup> being others).				
12					
13	Appendix B of the CRA Report summarizes Rate Adders such as Ancillary Services and other				
14	operating costs in non-Ontario jurisdictions, but it does not cover the matter of how the cost of				
15	transmission losses and congestion are collected. These are also implications that need to be				
16	considered in the Jurisdictional Review for exports tariffs to address IESO's comments.				
17					
18	Interrogatory:				
19	In order to summarize if, and how, factors other than regulated Export Tariff Rates are considered				
20	in other jurisdictions, please provide brief clarifications noted below.				
21					
22	a) Please confirm that the Rate Adders in Appendix B of Attachment 2 are in addition to Export				
23	Transmission Rates shown in Appendix A of the attachment.				
24					
25	b) Please confirm that in American jurisdictions covered by the CRA Report, Exports as well as				
26	loads pay for energy on the basis of Locational Marginal Pricing <sup>2</sup> (LMP) which also includes				
27	cost of congestion and losses. Thus, please confirm that, while the Rate Adders in Appendix B				
28	do not include cost of congestion and losses, these costs are implicitly included in the energy				

29 prices in LMP markets, including at their interties.

<sup>&</sup>lt;sup>1</sup> Uplift recovers operating costs within Ontario such as transmission losses, congestion management, Ancillary Services, etc. See: https://www.ieso.ca/en/Sector- Participants/Settlements/Guide-to-Wholesale-Electricity-Charges

<sup>&</sup>lt;sup>2</sup> https://www.iso-ne.com/participate/support/faq/lmp.

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c) Please confirm that Hydro Quebec, another jurisdiction included in Appendix B, also requires
 payments associated with losses and congestion as per Hydro Quebec's Open Access
 Transmission Tariff<sup>3</sup>,<sup>4</sup>.

4

### 5 Response:

6 Response from Charles River Associates:

7

a) CRA confirms that the Rate Adders in Appendix B of Attachment 2 are in addition to Export
 Transmission Rates shown in Appendix A of the attachment.

10

b) CRA confirms that in American jurisdictions covered by the CRA Report, Exports as well as
 loads pay for energy on the basis of Locational Marginal Pricing (LMP) which also includes cost
 of congestion and losses. The Rate Adders in Appendix B do not directly recover cost of
 congestion and losses.

15

Please refer to Hydro Quebec Open Access Transmission Tariff ("HQ OATT") Sections 15.7-16 c) Transmission Losses and 28.5 – Transmission Losses). Transmission customers are 17 responsible for replacing losses associated with Transmission Service and the current loss 18 factor is 5.4% of the maximum hourly transfer as measured at the point of delivery. Please 19 refer to the HQ OATT Sections 27 – Compensation for Network Upgrade and Redispatch Costs 20 and 33.3 – Load Shedding and Curtailments for any procedures related to congestion 21 management. These tariff citations confirm that transmission customers (Firm Point to Point) 22 are required to pay redispatch costs or upgrade costs. 23

<sup>&</sup>lt;sup>3</sup> http://www.oasis.oati.com/HQT/HQTdocs/Tariff\_HQT\_2017-05-03\_en.pdf

<sup>&</sup>lt;sup>4</sup> http://www.regie-energie.qc.ca/en/consommateur/Tarifs\_CondServ/HQT\_Tarifs2017.pdf

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1		NAREN PATTANI INTERROGATORY - 05
2		
3	Re	ference:
4	Att	achment 3, Market Implications
5		
6	Int	errogatory:
7	Foi	r IESO:
8		
9	Ple	ase provide following overview data for the year 2020 (the most recent year in Attachment 3)
10	to	give perspective about Ontario's exports:
11		
12	a)	What was the total energy (TWh) consumed by Ontario loads?
13		
14	b)	What was the total energy (TWh) (i) exported from Ontario; and (ii) imported into Ontario?
15	-1	Use much of the energy superted form Outeria and listed <sup>1</sup> to be added to it and
16	C)	How much of the energy exported from Ontario was linked to imports (that is, it was
17		another jurisdiction)?
10		
20	d)	What was the weighted average price of energy (\$/Mhr) paid by consumers in Optario, with
20	u)	and without Global Adjustment? (If the universal weighted average price for all Ontario loads
22		cannot be readily calculated, please provide separately (i) the weighted Hourly Ontario Energy
23		Price (HOEP) that was charged to local distribution companies (LDCs) and non-dispatchable
24		loads, and (ii) weighted average Market Clearing Price (MCP) paid by dispatchable loads.
25		
26	e)	What was the weighted average energy Price (\$/Mhr) paid by Exports? (Depending on data
27		that is readily available, this may be calculated either as weighted average of Hourly Market
28		Clearing Price at Export Zones, or as "total energy charges recovered from Exports divided by
29		total Export energy" paid through the Ontario market).
30		
31	f)	What was (a) Minimum Export Demand (MW) (b) Maximum Export Demand (MW) and (c)
32		Average Export Demand (MW) in 2020?
33		
34	g)	For how many hours of the year were Exports (i) more than 0 MW; (ii) more than 1,000 MW;
35		and (ii) more than 2,000 MW?

<sup>&</sup>lt;sup>1</sup> Page 4 of IESO Training Manual "Introduction to Interjurisdictional Energy Trading" dated January 2014.

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34

 h) With respect to exports on the Ontario-New York Intertie and the Ontario-Michigan Intertie (these being the predominant export ties), for how long, in terms of hours or percent of the year, was there Intertie congestion on (i) only one of these Interties; and (ii) both interties?
 <u>Response:</u> *Response from IESO:*

7 a) Ontario demand in 2020 was 132.2 TWh2. 8 9 b) Please see Figure 1 – Annual Ontario Imports and Exports in Attachment 1 of OEB Staff 10 Interrogatory 1. 11 12 c) Please see Table 2 – Ontario Export Volumes Considering Wheel-Throughs in Attachment 1 of 13 **OEB Staff Interrogatory 1.** 14 15 d) 16 i. A table of the weighted average HOEP prices, updated on a monthly basis is available on 17 the IESO's website here: https://www.ieso.ca/en/Power-Data/Price-Overview/Hourly-18 Ontario-Energy-Price. For Global Adjustment, a breakdown of actual Global Adjustment 19 components is available on the IESO's website here: https://www.ieso.ca/en/Sector-20 Participants/Settlements/Global-Adjustment-Components-and-Costs. 21 22 ii. The requested analysis would be onerous to produce and it is unclear the value it would 23 provide in determining the issues in this proceeding. 24 25 e) Please see d(i) above. Please note that exporters are not subject to Global Adjustment 26 charges. 27 28 Please see Table 18 – Export Demand in 2020 in Attachment 1 of OEB Staff Interrogatory 1. 29 f) 30 g) Please see f) above. 31 32 h) Please see Table 17 - Number of hours where ICP was collected on both the Michigan and 33

New York interties in Attachment 1 of OEB Staff Interrogatory 1.

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### **NAREN PATTANI INTERROGATORY - 06**

### 3 **Reference:**

- 4 EB-2021-0243, ETS Rate Submission, Page 12, Line 19-20
- 5 ETS Rate Submission, Attachment 3, Market Implications: Intertie Congestion Pricing
- 6

1 2

### 7 Preamble:

IESO's Inter-Jurisdictional Trading<sup>1</sup> algorithm manages bids and offers for exports and imports, 8 respectively, across Interties with neighbouring jurisdictions. The IESO market collects Intertie 9 Congestion<sup>2</sup> Pricing (ICP) charges from successful interjurisdictional transaction(s) that are 10 allowed to take place on congested Intertie(s) by IESO's dispatch algorithm. For a successful 11 Export on a congested Intertie, these charges are determined by the difference in energy market 12 clearing price between the Ontario zone (figuratively, the price on the Ontario side of the Intertie) 13 and the Export Node of the congested Intertie. To inform the current proceeding, it would be 14 helpful to confirm if there are indeed situation(s) when exports would not have pay any ICP 15 16 charges.

### 18 Interrogatory:

- 19 For IESO:
- 20

17

- a) Do Exports attract any Intertie Congestion Pricing (ICP) charge if they take place through
   intertie(s) that do not experience congestion at the time of transaction?
- 23

b) If Exports do not attract ICP Charge when there is no congestion, what fraction (percentage)
 of total Exports in 2020 did not attract ICP charge because there was no congestion on the
 respective intertie(s)?

- 27
- c) What fraction of Wheel Through transactions in 2020 (i.e Export that was designated as a
   linked transaction from one jurisdiction neighbouring Ontario to another jurisdiction) did not
- <sup>30</sup> attract ICP charge on the Export side because there was no congestion on intertie(s)?

<sup>&</sup>lt;sup>1</sup> Section 4 of IESO Training Manual "Interjurisdictional Energy Trading" dated January 2014.

<sup>&</sup>lt;sup>2</sup> 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.

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### 1 Response:

- 2 Response from IESO:
- 3 4
  - a) ICP is only applicable during times of congestion.
- 5
- b) Please see Table 21 Congested MWs on Export Interties in Attachment 1 of OEB Staff
   7 Interrogatory 1.
- 8
- c) The requested analysis would be onerous to produce and it is unclear the value it would
   provide in determining the issues in this proceeding.

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### **NAREN PATTANI INTERROGATORY - 07**

#### 2 3 Reference: Attachment 3, Market Implications, Table 1, Congestion Rents 4 Attachment 3, Market Implications, Table 2, TRCA Historical Flows 5 IESO's Planning Outlook, December 2021 6 7 Preamble: 8 Table 1 indicates that Congestion Rents on Exports, also called ICP Charges, have decreased from 9 \$ 208 million to \$ 99 million between 2017 and 2020. Table 2 indicates that disbursements from 10 the Transmission Rights (TR) Clearing Account (TRCA), which also includes consideration of import 11 congestion and the TR Auction<sup>1</sup>, have reduced from \$ 173 to \$ 118 million in the same time frame. 12 13 IESO's Planning Outlook, December 2021, indicates on Page 5 that there is "potential for 14 considerable change through the 2020s and early 2030s due to the combined effect of nuclear 15 retirements, ongoing nuclear refurbishment outages, and expiring supply contracts and 16 commitments" and that "with the pandemic recovery well underway, the IESO's forecasts show 17 steady average growth of about 1.7 per cent a year". It also indicates on Page 6 that "potential 18 energy shortfalls are forecast to begin in 2026 and grow substantially ...". (The Planning Outlook 19 also indicates, on Page 47, that (Ministry of) "ENERGY has asked the IESO to enter into contract 20 negotiations with ITC on the Lake Erie Connector project which would establish a new 1,000 MW 21 high voltage bi-directional underwater transmission intertie"). 22 23

### 24 Interrogatory:

25 For IESO:

26

1

In view of the medium-and-long-term forecast of decrease in supply sources and the forecast of
 moderately increasing load in Ontario:

29

a) Is it conceivable that the Congestion Rents (ICP Charges) for Exports may decrease in themedium and/or long term?

<sup>&</sup>lt;sup>1</sup> IESO Training: Transmission Rights Workbook, September 2020

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b) Is it conceivable that the existing 6,020 MW export capacity<sup>2</sup>, bulk of which is along the
southern border with the US, (with possible addition of 1,000 MW capacity), may in future be
generally sufficient to meet export requirements most of the time so that the Congestion
Rents and TRCA with respect to Exports may approach zero ("nil") irrespective of whether the
ETS Rate stays the same or is increased to be on the order of \$ 2 to \$ 5 per MWhr?

6

### 7 **Response:**

- 8 Response from IESO:
- 9

11

a) Please see the response to OEB Staff Interrogatory 34 k).

b) The IESO operates a competitive wholesale electricity market that transacts over the interties
 on an hourly basis. Conditions (supply mix, outages, weather, etc.) are constantly changing
 between Ontario and its neighbouring jurisdictions creating temporal price differences that
 traders will compete for and create ICP on. As long as there are arbitrage opportunities for
 traders to pursue and sufficient competition on the interties, ICP is likely to be generated.

<sup>&</sup>lt;sup>2</sup> HONI Exhibit EB-2021-0110, Page 9, Line 1 to 2, shows the existing export capacity.

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#### **NAREN PATTANI INTERROGATORY - 08** 1 2 3 Reference: 4 Attachment 3, Market Implications of Exports, Page 8 5 **Interrogatory:** 6 For IESO: 7 8 9 Are Operational Benefits identified with respect to Ancillary Services, Regional Reliability, Emergency Events, & System Flexibility because of the existence of the heritage interconnection 10 facilities, or are they because exports are taking place? 11 12 If these benefits are because of the physical interconnection facilities, please explain the rationale 13 behind characterizing the operational benefits above as due to intertie trading? Is the matter of 14 operational benefits, as articulated in the referenced report, relevant to the setting of the ETS 15 Rate? 16 17 Response: 18 Response from IESO: 19 20 The operational benefits identified by the IESO on page 9 of the IESO's ETS Rate Submission, 21 Attachment 3 were attributed to intertie trading and not all were attributed to exports. The IESO 22 procures certain ancillary services through intertie imports. However, exports from Ontario do 23 support greater regional reliability and mitigation of emergency events as well as support system 24 flexibility needs, such as surplus baseload generation mitigation. 25 26

In terms of relevance to setting the ETS rate, the IESO has noted that the ETS rate can be a barrier
 to otherwise economic transactions and for example, could stop an export from occurring that
 could help relieve surplus baseload generation conditions.

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### **NAREN PATTANI INTERROGATORY - 09**

### 3 <u>Reference:</u>

4 Attachment 3, Market Implications, Table 1, Page 9

5 Attachment 3, Market Implications, Page 14, IESO's Planning Outlook, December 2022

6

1 2

### 7 Preamble:

8 With respect to the Avoided System Costs noted in Table 1 and in the last paragraph of Page 14, 9 exports indeed help absorb surplus baseload (and renewable) generation when it exists. The 10 Avoided System Costs shown in the Table 1 (with footnote "13") are laudatory and they are 11 (presumably) the value of total surplus baseload generation sold; that is, they are the absolute 12 value of energy cost recovered by surplus baseload generation that is sold in the Export market.

For the purpose of the current proceeding, it is of interest to determine how much, if any, of the surplus baseload generation would be expected to remain unsold if the ETS Rate were to increase from \$ 1.85 to the order of, for example, \$ 2 to \$ 5 per MWhr.

17

The Market Rules enable generators to manage surplus baseload generation by submitting lower prices for generation offers<sup>1</sup> so that they may get scheduled to meet the total demand including exports; alternatively, generators may register as self-scheduling and intermittent generators if they wish to be "price takers". All generators that are scheduled, including those that may have offered lower prices for assurance of being scheduled and those that choose to be "price takers", get paid the Market Clearing Price which is determined by the highest generation offer price accepted by the IESO to meet the total demand (including Exports and Domestic Demand).

25

# 26 Interrogatory:

27 For IESO:

28

a) Given the facility to manage surplus baseload generation by submitting lower offer prices in
the energy market or by being "price takers" (with such generation also then being paid at
the highest offer rate of all generation accepted for dispatch), how much will the relative
utilization of surplus baseload generation be impacted if the ETS Rate were to be of the order
of \$ 2 to \$ 5 per MWhr compared to \$ 1.85 per MWhr today?

<sup>&</sup>lt;sup>1</sup> Section 3 of IESO Training Manual "Introduction to Ontario's Physical Markets" dated February 2014.

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b) In view of the medium-and-long-term forecast of decrease in supply sources and moderately
 increasing load in Ontario (refer to Interrogatory #7 above), is it conceivable that the issue of

- 3 surplus baseload generation may ebb over the next few years?
- 4

### 5 Response:

6 *Response from IESO:* 

- 7
- a) The IESO does not predict future market and system conditions and therefore surplus
   baseload generation cannot be calculated for higher ETS rates.
- 10
- b) The amount of surplus will depend both on Ontario's supply mix and market conditions
   prevailing at the time. It is conceivable that surplus baseload generation conditions may be
   reduced, or increased depending on these factors.

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### **NAREN PATTANI INTERROGATORY - 10**

### 3 **Reference:**

4 Attachment 3, Uplift on Table 1, Page 8, Page 10, 2nd bullet, Page 14, 2nd last bullet

5

1 2

### 6 Preamble:

The references to Uplift<sup>1</sup> in Attachment 3 need some clarification with respect to whether
 payment of Uplift by Exports can be considered a benefit to Ontario consumers. This clarification
 is attempted below.

10

It is necessary to distinguish between grid congestion<sup>2</sup> management costs included in the Uplift, 11 on one hand, and the ICP Charges<sup>3</sup> payable by Exports if and when there is Intertie congestion<sup>4</sup>. 12 The Uplift costs collected by IESO includes, among other operating costs, the grid congestion 13 management costs that are not related to, nor included in, the ICP Charges. The ICP Charges 14 payable by Exports are determined solely by the difference in energy market clearing price 15 between the Ontario zone (figuratively, the price on the Ontario side of the Intertie) and the 16 Export Node of the congested Intertie. The ICP charge is *not* based on, *nor* is it determined by, 17 grid congestion costs or any other component of Uplift costs that occur upstream from the 18 Intertie, irrespective of how the export power has been conveyed to the Intertie from a (remote) 19 Ontario generator or from import at the other end of the province. 20

21

Suppose the Grid is operating with exports taking place, for example, across Ontario-New York
 and/or Ontario-Michigan borders. Under such scenario, whether or not there is congestion on the
 Intertie(s):

25

If there is grid congestion *upstream* of the border (for example on transmission lines between Sudbury and Toronto areas and/or transmission lines between London and Chatham areas), and if that congestion is managed by rescheduling generation within Ontario, the increased cost for generation rescheduling to serve loads and Exports is included in the Uplift.

<sup>&</sup>lt;sup>1</sup> https://www.ieso.ca/en/Sector-Participants/Settlements/Guide-to-Wholesale-Electricity-Charges

<sup>&</sup>lt;sup>2</sup> Grid congestion management is sometimes required upstream of the Interties. It manifests because, with economic dispatch of generation and imports, power flows to domestic loads and exports would sometimes result in one or more circuits being overloaded. In such cases, IESO's operators would astutely redispatch generation within the province to eliminate such overloads. This redispatch results in increased costs that is collected through Uplift.

<sup>&</sup>lt;sup>3</sup> Section 4 of IESO Training "Interjurisdictional Energy Trading"

<sup>&</sup>lt;sup>4</sup> Footnote 8 for Interrogatory #6 explains Intertie Congestion.

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1

3

4

- If there is a need for Ancillary Services such as reactive power to support voltage in 2 ٠ southern Ontario or for additional spinning and operating reserves in Ontario, the increased cost for such Ancillary Services to support power transfer to loads and Exports is included in the Uplift.
- 5 6 7

8

9

- As for grid congestion costs and Ancillary Services costs (as described above), the Uplift • includes the cost of transmission network losses incurred while power is being transported from generation/imports to both export nodes and domestic loads.
- 10

#### Interrogatory: 11

12 For IESO:

13

If the Uplift charges recover operating and market service costs (including transmission losses, 14 grid congestion, Ancillary Services, among others) to deliver power to the Export nodes as well as 15 for supplying Ontario load, and if Exports then have to pay Uplift charges as per Market Rules 16 which allocate respective Uplift costs between Domestic Loads and Exports, then please explain 17 the rationale behind labelling "Uplift collected from Exports" as an "Economic Benefit of Exports" 18 on Page 9, rather than considering these Uplift costs paid by Exports as the allocated share of 19 Uplift costs due to Exports? 20

21

#### Response: 22

23 Response from IESO:

24

The IESO acknowledges that some portion of the total uplift charges collected from exports offset 25 some out-of-market costs caused by the export but exporters are also sharing in many of the 26 system costs that would have still been incurred but otherwise borne solely by domestic 27 consumers. For example, the IESO meets regulatory requirements to carry specific amounts of 28 ancillary services - charges for Operating Reserve, blackstart, regulation would be incurred 29 regardless of exporters. 30

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# NAREN PATTANI INTERROGATORY - 11

2						
3	Re	ference:				
4	Att	achment 3, Market Implications of Exports				
5						
6	Pre	amble:				
7	The	e context of this or any other interrogatory is not at all to suggest that exports should be				
8	dise	couraged. Indeed, there is no question, nor any doubt, that Ontario should have fair and				
9	effi	cient rules and regulatory mechanisms for electricity exports to take place.				
10						
11	An	analysis of market implications of exports on Ontario consumers, such as that shown in				
12	Att	achment 3, would be more complete if some consideration is included about the impact of				
13	exp	orts on energy prices for Ontario consumers. A detailed objective assessment of such an				
14	imp	pact, for example by analysing IESO's market data from past few years, would be onerous and				
15	ma	y require considerable resources. At this time, for efficiency, it would be instructive and				
16	rela	atively easy to obtain a cursory, yet objective, understanding of the relationship between				
17	exp	orts and energy prices by examining a snapshot of IESO's data.				
18						
19	Int	Interrogatory:				
20	For	IESO:				
21						
22	For	the 12 hours (7 AM to 7 PM) of any midweek working day in February 2020 and in August				
23	202	20, please provide the following data from actual generation/imports offers and demand based				
24	on	data in the IESO market:				
25						
26	a)	Hourly Ontario Demand (MW)				
27						
28	b)	Hourly Export Demand (MW)				
29						
30	C)	Hourly Ontario Energy Price (HOEP) (\$/Mhr), excluding Global Adjustment, during the hour.				
31						
32	d)	An estimate, based on the actual Stacking Order of Generation Offers and Total Demand, of				
33		what the HOEP would have been if the exports were lesser by 1,000 MW during the hour.				
34		(16 1500 data and have the bits started data relation and the started data for 40 how for				
35		(IT IESO does not have this historical data, please provide similar data for 12 hours of any				
36		weekday going forward (that is, using the actual generation offers and demand data on any				
37		weekday going forward from now)).				

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## 1 Response:

2 Response from IESO for a), b), c), d):

- 4 The requested analysis would be onerous to produce and it is unclear the value it would provide
- 5 in determining the issues in this proceeding.

1		ASSOCIATION OF MAJOR POWER CONSUMERS IN ONTARIO
2		INTERROGATORY - 01
3		
4	Re	ference:
5	Sub	omissions on the ETS Rate, Attachment 3, Page 12
6		
7	Pre	eamble:
8	The	e IESO states it expects that any increase in revenue resulting from a higher ETS would be offset
9	by	an equivalent reduction in revenue from the ICP, which in turn will decrease the amount that
10	is d	isbursed from the TRCA to Ontario consumers. The ICP and ETS have an offsetting relationship
11	suc	th that an increase in the ETS will lead to a proportionate decrease in the ICP. This offsetting
12	rela	ationships means that, assuming the quantity of exports remains constant, the overall value
13	tha	t Ontario ratepayers derive from exports would remain unchanged even if the ETS rate is
14	inc	reased.
15		
16	Ihe	2021 Elenchus Report presents three ETS rate options based on different cost allocation
17	me	thodologies (\$6.54/MWh, \$3.66/MWh, and \$5.42/MWh respectively), which represents a
18	sigi	inicant increase over the approved 2020 ETS rate of \$1.85/WWN.
19	Int	errogatory
20	<u>االد</u> ع)	Please explain the rationale behind the IESO's expectations that there is a linear $1.1$
21	aj	relationship between FTS and ICP such that an increase in the FTS will lead to a
22		proportionate decrease in the ICP.
24		
25	b)	Please provide further details/analysis/modelling to explain the forecast
26		relationship between the ICP and ETS.
27		
28	c)	Please provide the percentage of ICP revenue that is provided to TR holders separated into
29		imports and exports.
30		
31	Re	sponse:
32	Res	sponse from IESO:
33		
34	a)	Please see response to OEB Staff Interrogatory 36 a).
35		
36	b)	Please see response to VECC Interrogatory 8.1, VECC Interrogatory 8.2, and SEC Interrogatory
37		/ D).

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- c) Please see Table 5 TRCA Disbursements Between Loads and Exporters in Attachment 1 of
- 2 OEB Staff Interrogatory 1.

1		ASSOCIATION OF MAJOR POWER CONSUMERS IN ONTARIO
2		INTERROGATORY - 02
3		
4	Re	ference:
5	Sub	pmissions on the ETS Rate, Attachment 3, Page 8, Table 1
6	Sub	omissions on the ETS Rate, Attachment 3, Page 3
7		
8	Int	errogatory:
9	The	e 2021 Elenchus Report presents three ETS rate options based on different cost location
10	me	thodologies (\$6.54/MWh, \$3.66/MWh, and \$5.42/MWh respectively).
11		
12	a)	Please provide a forecast of the annual ICP and TRCA disbursements for the next five years
13		including a detailed analysis of any changes based on the ETS rate increasing to a fixed charge
14		of \$3.66/MWh.
15		
16	b)	Please provide a forecast of the annual ICP and TRCA disbursements for the next five years
17		including a detailed analysis of any changes based on the ETS rate increasing to a fixed charge
18		01 \$5.42/MWM.
19		Place provide a forecast of the appual avoided system sects for the resulting expert volume
20	C)	decreases including a detailed analysis of any changes based on the FTS rate increasing to a
21		fixed charge of \$3.66/MWh
22		
24	d)	Please provide a forecast of the annual avoided system costs for the resulting export volume
25	- /	decreases including a detailed analysis of any changes based on the ETS rate increasing to a
26		fixed charge of \$5.42/MWh.
27		
28	e)	Please provide a forecast of the annual avoided system costs for the resulting export volume
29		decreases including a detailed analysis of any changes based on the ETS rate increasing to a
30		fixed charge of \$6.54/MWh.
31		
32	Re	sponse:
33	Res	sponse from IESO:
34		
35	a)	The IESO does not predict future market and system conditions and therefore the annual ICP
36		and TRCA disbursements, export volumes and avoided costs cannot be calculated for higher
37		ETS rates.

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b) See a) above. As noted in the IESO's ETS Rate Submission, even a relatively small increase in
 the ETS rate beyond the historical range of \$1-2/MWh could have a material impact on heavily
 traded interties where price margins are already small. The 2012 CRA analysis demonstrates
 that in one case increasing the ETS rate from \$0 to \$5.80/MWh would cause a 50% reduction
 in export volumes (expressed as a percentage of status quo volumes).

6

7 c) Please see a) and b) above.

8 9

10

d) Please see a) and b) above.

e) Please see a) and b) above.

ASSOCIATION OF MAJOR POWER CONSUMERS IN ONTARIO
INTERROGATORY - 03
Reference:
Submissions on the ETS Rate, Attachment 3, Page 2
Preamble:
The IESO states any adjustments of the ETS rate needs to consider market design changes. Market
design changes since 2015 provide greater certainty on how Transmission Rights Clearing Account
(TRCA) funds are disbursed. ICP revenues are now distributed on a semi-annual basis. The IESO
also improved the design of the Transmission Rights market to increase the amount of revenues
available to be disbursed and change the proportion of the distribution to return almost all
available funds to domestic consumers.
Interrogatory:
Please provide the amount of transmission rights clearing account (TRCA) disbursements returned
on an annual basis to domestic customers that are attributed separately to exports and to
imports.
Response:
Response from IESO:
Please see Table 5 - TRCA Disbursements Between Loads and Exporters in Attachment 1 of OEB
Staff Interrogatory 1.

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1	ASSOCIATION OF MAJOR POWER CONSUMERS IN ONTARIO
2	INTERROGATORY - 04
3	
4	Reference:
5	Staff 37 (b)
6	
7	Preamble:
8	OEB Staff asks if the ETS is reduced to \$0/MWh, what assurances are there that the ICP would be
9	at a minimum of \$1.85/MWh for every hour at every intertie in Ontario?
10	
11	Interrogatory:
12	Please provide the response separating out the impact on the ICP for imports and exports.
13	
14	Response:
15	Response from IESO:
16	
17	Please see the response OEB Staff Interrogatory 37 b).

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1

1	ASSOCIATION OF MAJOR POWER CONSUMERS IN ONTARIO
2	INTERROGATORY - 05
3	
4	<u>Reference:</u>
5	Submissions on the ETS Rate, Attachment 3, Page 10, Table 2
6	
7	Preamble:
8	The IESO states that TRs are a financial contract that entitle their holder to a share of the ICP
9	revenue. The IESO pays the TR holders from the ICP revenues. Revenues from the TR auction plus
10	any residual ICP revenues after payments to TR holders are disbursed, subject to a TRCA balance
11	threshold, to domestic consumers and exporters to offset transmission costs. In 2020,
12	approximately \$118 million was paid out in disbursements in 2020. The footnote to Table 2
13	indicates congestion rents are received from both export and import.
14	
15	Interrogatory:
16	Please provide the share and amount of the ICP provided to TR holders separated between
17	imports and exports.
18	
19	Response:
20	Response from IESO:
21	
22	Please see Table 26 - TR Auction Revenues Broken Down by Import and Export in Attachment 1
23	of OEB Staff Interrogatory 1.

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1

1	ASSOCIATION OF MAJOR POWER CONSUMERS IN ONTARIO
2	INTERROGATORY - 06
3	
4	Reference:
5	Submissions on the ETS Rate, Attachment 3, Table 2
6	Submissions on the ETS Rate, Attachment 3, Pages 10-11
7	
8	Preamble:
9	The IESO states that it pays the TR holders from the ICP revenues. Revenues from the TR auction
10	plus any residual ICP revenues after payments to TR holders are disbursed, subject to a TRCA
11	balance threshold, to domestic consumers and exporters to offset transmission costs. TRCA
12	disbursements have steadily declined from \$188 million in 2018 to approximately \$118 million in
13	2020. The IESO has stated the TRCA methodology effective 2021 will increase TRCA funds to be
14	distributed to domestic load.
15	
16	Interrogatory:
17	Please provide the 2021 actual and 5-year forecast of disbursement to domestic loads
18	attributed separately to imports and exports.
19	
20	<u>Response:</u>
21	Response from IESO:
22	
23	Please see Table 5 – TRCA Disbursements between Loads and Exporters in Attachment 1 of OEB
24	Statt Interrogatory 1. The IESO does not predict future market and system conditions and
25	therefore the 5-year forecast of disbursements to domestic loads cannot be calculated.

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1

1	ASSOCIATION OF MAJOR POWER CONSUMERS IN ONTARIO
2	INTERROGATORY - 07
3	
4	Reference:
5	Submissions on the ETS Rate, Attachment 2, Page 14
6	
7	Interrogatory:
8	Please summarize the key conclusions derived from Charles River Associates' jurisdictional
9	comparison.
10	
11	Response:
12	Response from Charles River Associates:
13	
14	Please refer to ETS Rate Submissions, Attachment 2, page 5 of 24 (Section 1.2).

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1

Filed: 2022-05-13 EB-2021-0243 Exhibit I Tab 8 Schedule 1 Page 1 of 2

1	SCHOOL ENERGY COALITION INTERROGATORY - 01
2	
3	Reference:
4	ETS Rate Submission, Attachment 1, Appendix 3
5	
6	Interrogatory:
7	Please provide a copy of any modelling or other quantitative analysis that the IESO undertaken
8	regarding the impact of changes in the ETS rate, regardless of how preliminary it may be.
9	
10	Response:
11	Response from IESO:
12	
13	The IESO has not performed recent quantitative analysis on the impacts of changes to the ETS
14	rate. Please refer to section 4 of the IESO's ETS Rate Submission Attachment 3 for its qualitative
15	analysis.

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1		SCHOOL ENERGY COALITION INTERROGATORY - 02	
2			
3	Re	ference:	
4	ETS	Rate Submission, Attachment 1, Appendix 2, Tables 4-5	
5			
6	<u>Int</u>	errogatory:	
7	Wi	th respect to the Charles River Associates Jurisdictional Review of Export Transmission Service	
8	(ET	(ETS) Rates Study Report:	
9			
10	a)	SEC seeks to better understand the export transmission service rates across jurisdictions	
11		where rate structures are very different. Please provide a number of illustrative but	
12		representative examples of exporters (and export transactions), and provide the total impact	
13		of export transmission service rates by jurisdiction.	
14			
15	b)	Do any of the surveyed jurisdictions have any similar mechanism to the IESO's Intertie	
16		Congestion Pricing? If so, please provide details.	
17			
18	Re	sponse:	
19	Res	ponse from Charles River Associates:	
20			
21	a)	It is not clear to CRA what SEC is requesting in the first part of its question, where it asks for	
22		"a number of illustrative but representative examples of exporters". Regarding the request	
23		for illustrative but representative examples of export transactions and the total impact of ETS	
24		rates by jurisdiction, CRA is not able to respond as the requested information is not available	
25		to CRA. To provide the requested illustrative and representative transaction examples, CRA	
26		would need access to actual export transactional information. This information is not	
27		generally readily available publicly and does not exist within the tariffs studied by and	
28		available to CRA. In addition, a comprehensive economic analysis would be required to	
29		evaluate the "total impact of export transmission services rates by jurisdiction." CRA would	
30		not be able to complete this effort in a reasonable period of time.	
31	1.3		
32	D)	CRA is not aware of any surveyed jurisdictions that have similar mechanisms to the IESO	
33		intertie Congestion Pricing. In US jurisdictions, congestion is addressed via the operation of	
34		the Locational Marginal Price for power supply which reflects congestion on a location basis.	

<sup>35</sup> Please also refer to response to Naren Pattani Interrogatory 4, part (b).

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1

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1		SCHOOL ENERGY COALITION INTERROGATORY - 03
2		
3	Re	ference:
4	ETS	Rate Submission, Attachment 1, Appendix 3
5		
6	<u>Int</u>	errogatory:
7	Wit	h respect to the information contained in Table 1:
8		
9	a)	[p.9] Please provide a detailed explanation of the 'Avoided System Cost' calculation in Table
10		1, including all inputs, calculations, and assumptions made.
11		
12	b)	[p.9] For each category of 'Value' included in Table 1, please explain to whom and how those
13		costs/benefits are allocated/distributed to.
14		
15	c)	[p.9] Footnote 13 notes that the Avoided System Costs calculation in Table 1 is "[b]ased on
16		avoided nuclear and renewable resource curtailment.":
17		i. Please confirm that these avoided curtailments would have primarily occurred during
18		times of surplus baseload generation.
19		ii. Please provide a table that shows for each year between 2010 and 2021, and forecast
20		for 2022 to 2031, the total annual amount of surplus baseload generation.
21		iii. Please provide the IESO views on how the expected avoided system costs will change
22		on a forecast basis as a result of forecast capacity and energy supply and demand,
23		including reductions in forecast surplus base load generation, as set out in the most
24		recent Annual Planning Outlook.
25	(ام	[a 0] Disease manifed a revised version of Table 1 that above the value from overate for each
26	u)	[p.9] Please provide a revised version of Table 1 that shows the value from exports for each
27		year between 2017 to 2021, that active to domestic load customers. Please detail an inputs,
20		
29	Ro	snonse.
50 21	Rec	inonse from IESO:
22	nes	
32	al	The Annual Avoided System Costs were completed through an internal analysis that
34	ω,	considered the market without exports which estimated the energy that would have
35		otherwise been curtailed and still needed to be paid for by consumers. Further details on the

<sup>36</sup> model contain confidential market participant information and cannot be shared.

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b) For congestion rent, please see the response VECC Interrogatory 18.1 for details on 2021 TRCA
 disbursements. For ETS, please see OEB Staff Interrogatory 1 b). For uplifts, please see OEB
 Staff Interrogatory 1 g) as well as Pollution Probe Interrogatories 2b) and 2d). Avoided system
 costs do not represent a new revenue stream but rather represent costs that would have been
 incurred by domestic consumers through the Global Adjustment in the absence of exports.

6

12

15

- 7 C)
- Surplus baseload generation occurs when output from baseload resources exceeds demand, and is a normal outcome of electricity markets with high portions of baseload and intermittent resources. In addition to exports, other market mechanisms, such as nuclear and renewable resource curtailment, are used to correct the imbalance.
- ii. Please see Table 23 Surplus Baseload Generation and Table 24 Forecasted Surplus
  Baseload Generation in Attachment 1 of OEB Staff Interrogatory 1.
- iii. Please see the response to VECC Interrogatory 21.1. The avoided system cost of curtailing
  supply in anticipation of SBG conditions is expected to decrease as net demand increases,
  and is dependent on the continued availability of existing resources that contribute to
  SBG, per the 2021 APO. For a forecast of the annual amount of SBG, please refer to the
  IESO's Annual Planning Outlook1.
- 21

d) Please see Table 10 – Value from Exports 2021 in Attachment 1 of OEB Staff Interrogatory 1
 and page 9-10 of the IESO's ETS Rate Submission Attachment 3.

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1		SCHOOL ENERGY COALITION INTERROGATORY - 04
2		
3	Ref	erence:
4	ETS	Rate Submission, Attachment 1, Appendix 3
5		
6	Inte	errogatory:
7	The	EVEN EVEN EVEN EVEN EVEN EVEN EVEN EVEN
8	would be offset by an equivalent reduction in revenue from Intertie Congestion Pricing, which in	
9	turı	n will decrease the amount that is disbursed from the TRCA to Ontario consumers.":
10	-	le the inverse true (i.e. env decreace in revenue resulting from a lever FTC would be offert by
11	d)	an equivalent increase in revenue from the ICP, which in turn will increase the amount that is
12		disbursed from the TRCA to Ontario consumers)?
17		
15	b)	If this is correct, and any change in the ETS will be offset by the total reduction in the ICP
16	,	revenue, please explain why the IESO believes exporters oppose an increase in the ETS?
17		
18	c)	Has IESO undertaken any quantitative analysis to demonstrate the offsetting relationship? If
19		so, please provide details and a copy of the results.
20		
21	d)	Please confirm that the increase in revenue from a higher ETS rate, during times when there
22		is no intertie congestion, would have no impact on ICP pricing.
23		
24	e)	Please provide a table that shows for each year between 2013 and 2021, the volume of
25		exports for each hour of the day. Please also provide a similar table showing only those subject
26		to ICP.
27	L)	Places as firm that intentia Conception Driving revenues in the TDCA are allocated to estitic
28	T)	besides demostic load sustemars
29		besides domestic load customers.
21	Reg	sponse.
22	Rec	nonse from IESO:
32	nes	
34	a)	Please see response to OEB Staff Interrogatory 36 a). The IESO is of the view that a lower ETS
35		rate would be offset by higher congestion rent collected as well as increase export volumes
36		which would increase total ETS collected and increase uplift costs recovered from exporters.

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b) The IESO believes that increasing the ETS will not only offset ICP revenues but will also prevent
 otherwise economic export transactions from occurring, resulting in fewer trading
 opportunities and higher costs to Ontario consumers over the long term.

4

9

12

c) The IESO's qualitative analysis is contained in Section 4 of the IESO's ETS Rate Submission
 Attachment 3. Charles River Associates performed a quantitative analysis as part of its 2012
 analysis. While market conditions have changed since the report, the IESO believes the core
 finding regarding the offsetting relationship between ETS and ICP remains valid.

d) The IESO confirms that in instances where there is no intertie congestion, and hence no ICP
 that increasing the ETS rate would not impact the ICP.

e) Please see Figure 1 – Annual Ontario Imports and Exports and please see Table 1 – Ontario
 Export Volumes by Jurisdiction in Attachment 1 of OEB Staff Interrogatory 1. All export
 transactions are subject to ICP; please see Table 16 - Revenue, Volume and Number of Hours
 of ICP at each intertie – ICP > \$0MWh in Attachment 1 of OEB Staff Interrogatory 1, for the
 volume of ICP at each intertie where ICP > \$0/MWh from 2017-2021. The specific information
 requested cannot be provided as the requested analysis on an hourly basis would be onerous
 and provide information of no value in determining the issues in this proceeding.

20

21 f) Confirmed.

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1	SCHOOL ENERGY COALITION INTERROGATORY - 05
2	
3	Reference:
4	ETS Rate Submission, Attachment 1, Appendix, Page13
5	
6	Interrogatory:
7	The IESO notes the impact on trading from an increase in an ETS in periods of tight prices. Based
8	on actual trading information between 2018 and 2020, please provide IESO analysis on how often
9	this would have occurred, and the total impact, if the ETS was set at each of the proposed options
10	contained in the Elenchus Report.
11	
12	Response:
13	Response from IESO:
14	
15	The IESO's qualitative analysis is contained in Section 4 of the ETS Rate Submission Attachment 3.
16	Charles River Associates performed a quantitative analysis as part of its 2012 analysis. While
17	market conditions have changed since the report, the IESO believes the core finding regarding the

18 offsetting relationship between ETS and ICP remains valid.

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1

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1	SCHOOL ENERGY COALITION INTERROGATORY - 06
2	
3	Reference:
4	ETS Rate Submission, Attachment 1, Appendix 3
5	
6	Interrogatory:
7	Please update the Market Implications of the Export Transmission Service Rate Report to include
8	2021 information.
9	
10	Response:
11	Response from IESO:
12	
13	Please see Figure 1 – Annual Ontario Imports and Exports, Table 1 – Transmission Rights Clearing
14	Account Flows, Table 8 – Export Congestion Rent by Jurisdiction, Table 10 – Value from Exports
15	2021 in Attachment 1 of OEB Staff Interrogatory 1.

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1

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1		SCHOOL ENERGY COALITION INTERROGATORY - 07	
2			
3	Re	ference:	
4	ETS	Rate Submission, Attachment 1, Appendix 3	
5			
6	<u>Int</u>	errogatory:	
7	The	e IESO notes that "[t]he 2012 CRA analysis demonstrates that in one case increasing the ETS	
8	rate from \$0 to \$5.80/MWh would cause a 50% reduction in export volumes (expressed as a		
9	percentage of status quo volumes).":		
10			
11	a)	[EB-2012-0031, H1-5-2, Appendix B] SEC understands that CRA used historic data and was	
12		required to make a number of assumptions and forecasts to model the change in export	
13		volumes as a result of changes in ETS rates. Please provide the IESO's views on how the	
14		historic data, and the assumptions and forecasts used would be different if the CRA undertook	
15		a similar exercise today.	
16	<b>b</b> .)	[ED 2042 0024 114 E 2 Annendia D] Disease services that are after an electron of the 2042	
17	0)	[EB-2012-0031, H1-5-2, Appendix B]. Please commit that one of the conclusions of the 2012	
18		competitive with peighbouring markets as in 2012 impacts of changes in the ETS tariff tend	
20		to be large" and "[w] Where Ontario faces tight supply impacts of changes in the ETS tariff	
20		are smaller".	
22			
23	c)	Please provide the IESO's view on change in supply conditions over the next 10 years as	
24	•	compared to those considered in the 2012 CRA Study.	
25			
26	Re	sponse:	
27	Res	ponse from IESO:	
28			
29	a)	Please see the response to VECC Interrogatory 8.2.	
30			
31	b)	These were included in the quantitative conclusions of the CRA Study. For clarification, when	
32		market prices between Ontario and its neighbouring jurisdictions converge, the impact of the	
33		ETS tariff on the level of exports will be greater. Please refer to the "Wide price spread	
34		between markets" and "Tight price spread between markets" scenarios in the Section 4 of	
35		the IESO's ETS Rate Submission Attachment 3.	

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- c) For the most recent outlook on supply conditions in Ontario, please see the most recent
- 2 Annual Planning Outlooks available here:
- 3 https://www.ieso.ca/-/media/Files/IESO/Document-Library/planning-
- 4 forecasts/apo/Dec2021/2021-Annual-Planning-Outlook.ashx

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**SCHOOL ENERGY COALITION INTERROGATORY - 08** 1 2 **Reference:** 3 4 ETS Rate Submission, Attachment 1, Appendix 3 5 **Interrogatory:** 6 Please provide the IESO detailed views on how Market Renewal, for example the moving to a 7 single schedule market and introduction of locational marginal pricing, will impact Intertie 8 Congestion Pricing, export volumes and prices, transmission rights, and other aspects discussed 9 10 in the Market Implications of the Export Transmission Service Rate Report. 11 Response: 12 Response from IESO: 13 14 Fundamentally, intertie flows will still be driven by underlying temporal differences between 15 jurisdictions but there will be some technical changes that will impact intertie pricing and flows. 16 For example, the introduction of a Day-Ahead Market will allow for ICP to be collected in both the 17 real-time and DA timeframes. The single schedule market will produce locational prices more 18

reflective of local conditions, which can impact the level of congestion at intertie nodes.

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- **SCHOOL ENERGY COALITION INTERROGATORY 09** 1 2 Reference: 3 No Reference Provided 4 5 **Interrogatory:** 6 Are any of the IESO, Hydro One, and the authors of the CRA and Elenchus reports, aware of any 7 other jurisdictions where a rate approval entity (i.e. utility commission, ISO/RTO, etc.) considered 8 the issue of whether an export or similar rate should be set on a cost-based or other 9 10 methodology? If so, please provide details. 11 Response: 12 CRA, Elenchus, Hydro One and the IESO are not aware of any other jurisdictions where a rate 13 approval entity (i.e. utility commission, ISO/RTO, etc.) considered the issue of whether an export 14 or similar rate should be set on a cost-based or other methodology. 15 16 Elenchus notes that it considers the methodology used by the AESO to develop export rates in 17 Alberta to be cost-based, though not specifically with a cost allocation methodology. The AESO's 18 methodology is described in Section 5.4 of the 2021 Elenchus Report. See also VECC Interrogatory 19
- 20 33.

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	SCHOOL ENERGY COALITION INTERROGATORY - 10
Refe	rence:
ETS R	ate Submission, Attachment 1
Inter	rogatory:
With	respect to the Elenchus Export Transmission Service Rate Cost Allocation Methodology
Report:	
a) P	lease provide a copy of the underlying cost allocation model spreadsheet.
b) P	lease update the Report to include, i) 2021 transmission system coincident peak allocators,
а	nd ii) updated Hydro One cost information as a result of its evidence update to be filed by
Ν	Narch 31, 2022 in EB-2021-0110.
Resp	onse:
Respo	onse from Elenchus:
a) P	lease see the three models filed as Attachments 2, 3, and 4 to VECC Interrogatory 24.4.
L \	
0) i	Please see undated coincident neak allocator figures in undated Tables 8 to 12 in response
1.	to Energy Probe Interrogatory 8 parts (b) and (c) and undated FTS Rates based on 2021
	data in response to Energy Probe Interrogatory 8 part (d).
ii.	Under Hydro One's revenue deferral proposal outlined in Exhibit O of EB-2021-0110,
	there is no proposed recovery of the incremental costs associated with the impacts of
	inflationary pressures during the 2023-2027 rate period. Therefore, there are no updates
	inflationary pressures during the 2023-2027 rate period. Therefore, there are no updates to Hydro One's transmission cost information as a result of its March 31, 2022 evidence
	Refe ETS R With Repo a) P a N Resp Resp a) P a N N i.

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**SCHOOL ENERGY COALITION INTERROGATORY - 11** 1 2 Reference: 3 4 H-9-1, Page 6 5 Interrogatory: 6 Please expand Table 1 to include the total forecast ETS revenue in each year, and if the OEB 7 approves each of the proposed methodologies included in the Elenchus Report. Please also 8 include the revised amounts requested in 2-SEC-10. 9 10 11 Response: *Response from Hydro One:* 12 13 See response in OEB Staff Interrogatory 4, parts (c) and (e) for total forecast ETS revenue in each 14 year under each of the proposed methodologies. See response in School Energy Coalition 15 Interrogatory 10 regarding Hydro One's evidence update in EB-2021-0110, filed March 31, 2022. 16

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Filed: 2022-05-13 EB-2021-0243 Exhibit I Tab 8 Schedule 12 Page 1 of 2

**SCHOOL ENERGY COALITION INTERROGATORY - 12 Reference:** Page 9-10 **Interrogatory:** Since each of the proposed Elenchus options for setting an ETS rate are based on Hydro One's 2023 forecast costs, please provide both the views of both Hydro One and Elenchus on potential mechanistic adjustments that the OEB may wish to consider adopting to adjust the ETS rate between Hydro One rebasing/Custom IR applications, to reflect the fact that Hydro One is seeking to recover from domestic ratepayers increased amounts each year, through its proposed Custom IR framework in EB-2021-0110. **Response:** Response from Hydro One and Elenchus: For the purposes of simplicity and stability of rates, Hydro One and Elenchus do not propose annual mechanistic adjustments to the ETS rate. This approach is consistent with how the ETS rate has been treated historically in past multi-year Hydro One applications and is analogous to the

19 treatment of many specific service charges on electricity distribution tariffs where the charges are 20

established at the time of rebasing and not adjusted throughout the incentive rate-setting term. 21

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Filed: 2022-05-13 EB-2021-0243 Exhibit I Tab 8 Schedule 13 Page 1 of 2

1	SCHOOL ENERGY COALITION INTERROGATORY - 13
2	
3	Reference:
4	Letter from Minister of Energy to the IESO, dated January 26, 2022
5	
6	Interrogatory:
7	At the request of the Minister of Energy, IESO is negotiating a contract with ITC with respect to its
8	proposed Lake Erie Connector Project. SEC understands one of the benefits of the project is the
9	ability of Ontario to increase exports. If a contract were to be entered into, please provide general
10	details regarding what are the options regarding how the costs would be recovered from
11	ratepayers, how a share of those costs would be allocated to exporters, and the forecast annual
12	export capacity and volumes created by the project.
13	
14	Response:
15	Response from IESO:
16	
17	In the event a cost recovery proceeding is initiated, a review of cost recovery methodology will be

18 undertaken in that proceeding.

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Filed: 2022-05-13 EB-2021-0243 Exhibit I Tab 9 Schedule 1 Page 1 of 4

2 Reference: 3 Submissions on the ETS Rate, Attachment 1 4 Submissions on the ETS Rate, Attachment 3, Page 5 5 6 Preamble: 7 IESO states that "[e]xporters contribute to the cost of the transmission system through two 8 mechanisms. The first mechanism is through the ETS rate, a fixed volumetric charge, which is the 9 focus of this rate application. The second mechanism is through the ICP mechanism, a dynamic 10 charge set based on its market value to traders, administered through the IESO-administered 11 market. ICP revenues are collected entirely from intertie importers and exporters for the purpose 12 of offsetting transmission service charges." (Attachment 3 at page 5) 13 14 Elenchus views the "...changes arise from the inclusion of "no free service" as an appropriate 15 principle to adopt in addition to the strict cost causality principle." (Attachment 1 at page 36) 16 17 Interrogatory: 18 Questions for Elenchus: 19 20 a) Please discuss why Elenchus did not consider Intertie Congestion Pricing ("ICP") in the ETS 21 22 Rate Cost Allocation Report. 23 b) Please discuss why Elenchus did not consider uplift or avoided system costs in the ETS Rate 24 Cost Allocation Report. 25 26 c) Please discuss why Elenchus views exporters as "free riders" in light of ICP, uplift and avoided 27 system costs. 28 29 d) Please discuss how the addition of ICP to Elenchus' analysis as a second "cost mechanism" 30 affects the conclusions in the ETS Rate Cost Allocation Report. 31 32 e) Please discuss what portion of the Shared Network Asset related costs are paid for by ICP, 33 uplift and avoided system costs. 34 35 Please update Tables 14 and 15 to reflect that fact that certain Shared Network 1 Asset related 36 f) 37 costs are already paid by exporters via ICP, uplift and avoided system costs.

**ASSOCIATION OF POWER PRODUCERS OF ONTARIO INTERROGATORY - 01** 

Filed: 2022-05-13 EB-2021-0243 Exhibit I Tab 9 Schedule 1 Page 2 of 4

1 2	g)	Please confirm that interties are included in the ETS Rate Cost Allocation Report.		
3	h)	How many interties were included in the ETS Rate Cost Allocation Report? What were the		
4	-	assumed costs, expenses or revenue requirements for those interties?		
5				
6	i)	Please confirm that the IESO is the designated operator of the transmission system.		
7				
8	j)	Please confirm that the IESO is responsible for billing and collecting all aspects of the		
9	•	transmission revenue requirement.		
10				
11	k)	Please confirm that the IESO is also responsible for billing and collecting ICP, uplift and other		
12	-	ratepayer benefits associated with electricity exports.		
13				
14	I)	Please update the ETS Rate Cost Allocation Report to include ICP, uplifts, avoided system costs		
15		and other benefits as a revenue offset directly beneficial to ETS rate class.		
16				
17	Re	sponse:		
18	Res	sponse from Elenchus		
19				
20	- \			
	a)	Elenchus did not consider Intertie Congestion Pricing ("ICP"), uplifts, avoided costs and other		
21	a)	Elenchus did not consider Intertie Congestion Pricing ("ICP"), uplifts, avoided costs and other benefits as a revenue offset to the cost of providing transmission assets used for export		
21 22	a)	Elenchus did not consider Intertie Congestion Pricing ("ICP"), uplifts, avoided costs and other benefits as a revenue offset to the cost of providing transmission assets used for export service in the ETS Rate Cost Allocation Report because, as stated in the ETS Rate Submissions,		
21 22 23	a)	Elenchus did not consider Intertie Congestion Pricing ("ICP"), uplifts, avoided costs and other benefits as a revenue offset to the cost of providing transmission assets used for export service in the ETS Rate Cost Allocation Report because, as stated in the ETS Rate Submissions, Attachment 1, page 5, of 44:		
21 22 23 24	a)	Elenchus did not consider Intertie Congestion Pricing ("ICP"), uplifts, avoided costs and other benefits as a revenue offset to the cost of providing transmission assets used for export service in the ETS Rate Cost Allocation Report because, as stated in the ETS Rate Submissions, Attachment 1, page 5, of 44:		
21 22 23 24 25	a)	Elenchus did not consider Intertie Congestion Pricing ("ICP"), uplifts, avoided costs and other benefits as a revenue offset to the cost of providing transmission assets used for export service in the ETS Rate Cost Allocation Report because, as stated in the ETS Rate Submissions, Attachment 1, page 5, of 44: Hydro One Networks Inc. ("HONI") retained Michael Roger and Andrew Blair of		
21 22 23 24 25 26	a)	Elenchus did not consider Intertie Congestion Pricing ("ICP"), uplifts, avoided costs and other benefits as a revenue offset to the cost of providing transmission assets used for export service in the ETS Rate Cost Allocation Report because, as stated in the ETS Rate Submissions, Attachment 1, page 5, of 44: Hydro One Networks Inc. ("HONI") retained Michael Roger and Andrew Blair of Elenchus Research Associates Inc. ("Elenchus") in order to supplement the May		
21 22 23 24 25 26 27	a)	Elenchus did not consider Intertie Congestion Pricing ("ICP"), uplifts, avoided costs and other benefits as a revenue offset to the cost of providing transmission assets used for export service in the ETS Rate Cost Allocation Report because, as stated in the ETS Rate Submissions, Attachment 1, page 5, of 44: Hydro One Networks Inc. ("HONI") retained Michael Roger and Andrew Blair of Elenchus Research Associates Inc. ("Elenchus") in order to supplement the May 2014 cost-based methodology to establish the Export Transmission Service		
21 22 23 24 25 26 27 28	a)	Elenchus did not consider Intertie Congestion Pricing ("ICP"), uplifts, avoided costs and other benefits as a revenue offset to the cost of providing transmission assets used for export service in the ETS Rate Cost Allocation Report because, as stated in the ETS Rate Submissions, Attachment 1, page 5, of 44: Hydro One Networks Inc. ("HONI") retained Michael Roger and Andrew Blair of Elenchus Research Associates Inc. ("Elenchus") in order to supplement the May 2014 cost-based methodology to establish the Export Transmission Service ("ETS") rate in Ontario, by identifying cost-based methodologies that could be		
21 22 23 24 25 26 27 28 29	a)	Elenchus did not consider Intertie Congestion Pricing ("ICP"), uplifts, avoided costs and other benefits as a revenue offset to the cost of providing transmission assets used for export service in the ETS Rate Cost Allocation Report because, as stated in the ETS Rate Submissions, Attachment 1, page 5, of 44: Hydro One Networks Inc. ("HONI") retained Michael Roger and Andrew Blair of Elenchus Research Associates Inc. ("Elenchus") in order to supplement the May 2014 cost-based methodology to establish the Export Transmission Service ("ETS") rate in Ontario, by identifying cost-based methodologies that could be used for allocating Shared Network Asset-related costs to exporters and which		
21 22 23 24 25 26 27 28 29 30	a)	Elenchus did not consider Intertie Congestion Pricing ("ICP"), uplifts, avoided costs and other benefits as a revenue offset to the cost of providing transmission assets used for export service in the ETS Rate Cost Allocation Report because, as stated in the ETS Rate Submissions, Attachment 1, page 5, of 44: Hydro One Networks Inc. ("HONI") retained Michael Roger and Andrew Blair of Elenchus Research Associates Inc. ("Elenchus") in order to supplement the May 2014 cost-based methodology to establish the Export Transmission Service ("ETS") rate in Ontario, by identifying cost-based methodologies that could be used for allocating Shared Network Asset-related costs to exporters and which take into consideration the fact that exporters do not receive the same priority		
21 22 23 24 25 26 27 28 29 30 31 32	a)	Elenchus did not consider Intertie Congestion Pricing ("ICP"), uplifts, avoided costs and other benefits as a revenue offset to the cost of providing transmission assets used for export service in the ETS Rate Cost Allocation Report because, as stated in the ETS Rate Submissions, Attachment 1, page 5, of 44: Hydro One Networks Inc. ("HONI") retained Michael Roger and Andrew Blair of Elenchus Research Associates Inc. ("Elenchus") in order to supplement the May 2014 cost-based methodology to establish the Export Transmission Service ("ETS") rate in Ontario, by identifying cost-based methodologies that could be used for allocating Shared Network Asset-related costs to exporters and which take into consideration the fact that exporters do not receive the same priority access as domestic service until they are scheduled.		
21 22 23 24 25 26 27 28 29 30 31 32 33	aj	Elenchus did not consider Intertie Congestion Pricing ("ICP"), uplifts, avoided costs and other benefits as a revenue offset to the cost of providing transmission assets used for export service in the ETS Rate Cost Allocation Report because, as stated in the ETS Rate Submissions, Attachment 1, page 5, of 44: Hydro One Networks Inc. ("HONI") retained Michael Roger and Andrew Blair of Elenchus Research Associates Inc. ("Elenchus") in order to supplement the May 2014 cost-based methodology to establish the Export Transmission Service ("ETS") rate in Ontario, by identifying cost-based methodologies that could be used for allocating Shared Network Asset-related costs to exporters and which take into consideration the fact that exporters do not receive the same priority access as domestic service until they are scheduled.		
21 22 23 24 25 26 27 28 29 30 31 32 33 34	a)	Elenchus did not consider Intertie Congestion Pricing ("ICP"), uplifts, avoided costs and other benefits as a revenue offset to the cost of providing transmission assets used for export service in the ETS Rate Cost Allocation Report because, as stated in the ETS Rate Submissions, Attachment 1, page 5, of 44: Hydro One Networks Inc. ("HONI") retained Michael Roger and Andrew Blair of Elenchus Research Associates Inc. ("Elenchus") in order to supplement the May 2014 cost-based methodology to establish the Export Transmission Service ("ETS") rate in Ontario, by identifying cost-based methodologies that could be used for allocating Shared Network Asset-related costs to exporters and which take into consideration the fact that exporters do not receive the same priority access as domestic service until they are scheduled. Elenchus notes there is no mention of Intertie Congestion Pricing in Elenchus' assignment or in the OEB's direction to HONI to consider the allocation of shared network costs and the ICP		
21 22 23 24 25 26 27 28 29 30 31 32 33 33 34 35	a)	Elenchus did not consider Intertie Congestion Pricing ("ICP"), uplifts, avoided costs and other benefits as a revenue offset to the cost of providing transmission assets used for export service in the ETS Rate Cost Allocation Report because, as stated in the ETS Rate Submissions, Attachment 1, page 5, of 44: Hydro One Networks Inc. ("HONI") retained Michael Roger and Andrew Blair of Elenchus Research Associates Inc. ("Elenchus") in order to supplement the May 2014 cost-based methodology to establish the Export Transmission Service ("ETS") rate in Ontario, by identifying cost-based methodologies that could be used for allocating Shared Network Asset-related costs to exporters and which take into consideration the fact that exporters do not receive the same priority access as domestic service until they are scheduled. Elenchus notes there is no mention of Intertie Congestion Pricing in Elenchus' assignment or in the OEB's direction to HONI to consider the allocation of shared network costs, and the ICP is not explicitly regulated by the OEB		
1 2	b)	Please see response to part a) above		
--------	---------------------	--	--	--
3	c)	As stated in the response to part a) above, Elenchus was asked to allocate shared Network		
4		Asset related cost to exporters and did not review ICP, uplift and avoided system costs.		
5				
6	d)	Please see response to part a) and c) above.		
7				
8	e)	Please see Elenchus's response to parts a) and c) above.		
9				
10		Response from Hydro One: As noted on pages 9 and 10 of Attachment 3 of the ETS rate		
11		submission, ICP revenues "are disbursed to domestic consumers and exporters." Given that		
12		ICP revenues are not remitted to transmitters, it is Hydro One's view that ICP revenues do not		
13		directly contribute to the recovery of the Shared Network Asset costs. The Shared Network		
14		Asset costs form a part of Hydro One's revenue requirement which is predominantly		
15		recovered through the rates on the OEB-approved transmission rate schedules.		
16	f)	Please see response to parts a) and c) above		
19	')			
19	Re	Response from Hydro One		
20				
21	Ple	Please see Hydro One's response to part e) above.		
22				
23	g)	Confirmed.		
24				
25	h)	Please refer to LPMA Interrogatory 6, part (b). The 2023 Revenue Requirement related to		
26		interties is \$11.7M.		
27				
28	Response from IESO:			
29				
30	i)	Confirmed.		
31				
32	j)	The IESO has the responsibility for collecting transmission service charges from entities		
33		participating in the IESO-administered markets and distributing payments received to the		
34		transmitter entitled to payments.		
35	ы	The IECO is responsible for billing and collecting ICD & whith sharpes accepted with surrante		
36	к)	The iESO is responsible for billing and collecting ICP & uplift charges associated with exports.		

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- 1 *Response from Elenchus:*
- 2
- 3 I) Elenchus cannot update the Elenchus report as requested since Elenchus did not review ICP,
- 4 uplifts, avoided system costs and other benefits as a revenue offset to the cost of providing
- 5 transmission assets used for export service.

## **ASSOCIATION OF POWER PRODUCERS OF ONTARIO INTERROGATORY - 02**

2

### 3 **Reference:**

- 4 EB-2019-0082, Exhibit I2-4-1, Prior Elenchus Report
- 5 Submissions on the ETS Rate, Attachment 1, Page 9
- 6 Submissions on the ETS Rate, Attachment 3, Pages 15-16
- 7

13

#### 8 Preamble:

- 9 The criteria for Elenchus' recommended methodology to allocate costs are 10 defined 27 below: ...Allocate only dedicated assets used to serve export 11 customers and related 5 expenses to the export customer class. No asset related 12 costs associated with 6 shared assets should be allocated to export customers.
- In its Decision and Order in HONI's most recent Transmission rate application, dated April 23, 2020 (EB-2019-0082), with respect to Export Transmission Service rates the Ontario Energy Board ("OEB") directed HONI to undertake further work on developing a cost based ETS rate... *Hydro One supported intervenor arguments that a cost allocation methodology that includes the allocation of shared network costs to exporters should be provided in Hydro One's next transmission rebasing application. The OEB agrees...*
- 21

In the case of exporters, their marginal costs and willingness-to-pay varies hourto-hour with market conditions as detailed above. Pole attachers by contrast make infrastructure usage decisions based on multi-year, fixed investments. In this context it can be seen that the dynamic approach of the ICP, which adjusts to reflect the changing marginal costs and willingness-to-pay of exports is more appropriate than the fixed rate approach used for pole attachers.

28

#### 29 Interrogatory:

30 *Questions for Elenchus:* 

- 31
- a) In the Prior Elenchus Report, Elenchus established criteria for its recommended methodology
   to allocate costs. In Decision EB-2019-0082, the OEB directed Elenchus to amend certain
   criteria when filing an updated report.
- 35 36

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a. Please confirm, in your professional opinion, that the criteria for Elenchus' recommended methodology to allocate costs in the Prior Elenchus Report continues to be the recommended methodology to allocate costs. Please provide a discussion to justify.

Filed: 2022-05-13 EB-2021-0243 Exhibit I Tab 9 Schedule 2 Page 2 of 2 b. Please discuss whether the direction by the OEB to allocate 1 shared network costs 1 to exporters is appropriate in light of the concerns raised by the IESO. 2 3 b) Please update the Prior Elenchus Report and include revenue offsets from ICP, uplifts, avoided 4 system costs and other benefits. 5 6 **Questions for IESO:** 7 8 c) Please confirm, in the IESO's view, that the hybrid methodology used in the pole attachment 9 case (EB-2015-0304) to allocate commons costs is not the approach that should be used to 10 11 allocate common network costs for exporters. 12 Response: 13 Response from Elenchus: 14 15 a) 16 a. It is Elenchus' opinion that the prior Elenchus' report would be the recommended 17 methodology to allocate costs if no Shared Asset Network costs would be allocated 18 to exporters. 19 20 b. It is Elenchus' views that the concerns raised by the IESO on the appropriate 21 methodology to allocate Shared Network costs to determine the ETS rate are better 22 23 articulated by the IESO to the OEB than for Elenchus to offer its opinion on the matter. 24 Response from Elenchus: 25 26 b) Please see response to APPrO Interrogatory 1, part I) 27 28 29 Response from IESO: 30 c) The IESO does not believe a cost allocation model is optimal for exporters for the reasons 31 discussed in the IESO ETS Rate Submission. A dynamic approach, like that of the ICP, aligns 32 with the changing marginal costs and willingness-to-pay decision-making of exporters, 33 ensuring efficient trade and maximizing the operational value of Ontario's interties. For 34 additional information, please see past IESO evidence on Pole Attachments Methodology in 35

the IESO's ETS Rate Submission - Attachment 3, pg. 14 and 15.

**ASSOCIATION OF POWER PRODUCERS OF ONTARIO INTERROGATORY - 03** 1 2 Reference: 3 4 Submissions on the ETS Rate, Attachment 1, Page 3 5 Preamble: 6 Elenchus states that "[i]f export customers are allocated a portion of Shared Network Asset-7 related costs, it is Elenchus' view that export customers should also be allocated a portion of 8 external revenues received by HONI for use of their assets. Elenchus recommends for full External 9 10 Transmission Revenues to be allocated by the same methodology as Shared Network Assetrelated costs." 11 12 **Interrogatory:** 13 *Questions for Elenchus:* 14 15 a) Please provide an estimate of revenues (2018-2021) for export customers allocated a portion 16 of Shared Network Asset-related costs. 17 18 b) Please provide a forecast for future estimated revenues. 19 20 Response: 21 Response from Elenchus: 22 23 a) External Transmission Revenues allocated to the Export class from 2018 to 2021 based on 24 actual loads in each year and total external revenues of \$19.59M are provided for the three 25 methodologies in the table below. 26 27

Methodology	2018	2019	2020	2021
Allocation on Basis of 100% of Shared Net Fixed Assets	\$1.86M	\$2.12M	\$2.09M	\$2.06M
Allocation on Basis of 50% of Shared Net Fixed Assets	\$0.98M	\$1.12M	\$1.11M	\$1.09M
Allocation on Basis of 80% of Shared Net Fixed Assets	\$1.52M	\$1.73M	\$1.71M	\$1.69M

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- b) A forecast of future External Transmission Revenues allocated to the Export class cannot be
- 2 provided as HONI is not proposing to reset ETS Rates each year and no cost allocation
- 3 models have been prepared beyond the 2023 test year.

1	ASSOCIATION OF POWER PRODUCERS OF ONTARIO INTERROGATORY - 04
2	
3	<u>Reference:</u>
4	Submissions on the ETS Rate, Attachment 1, Pages 31-33
5	
6	Preamble:
7	Tables 10, 11, 12 and 13.
8	
9	Interrogatory:
10	Question for Elenchus:
11	
12	a) Please provide tables 10, 11, 12 and 13 in excel format, including all calculations and data
13	upon which these numbers are based.
14	
15	Response:
16	Response from Elenchus:
17	
18	a) Please see APPrO-4, Attachment 1.

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Filed: 2022-05-13 EB-2021-0243 Exhibit I Tab 9 Schedule 4 Attachment 1 Page 1 of 1

# 2021 ELENCHUS REPORT ALLOCATOR TABLES

1 2

<sup>3</sup> This exhibit has been filed separately in MS Excel format.

1	AS	SSOCIATION OF POWER PRODUCERS OF ONTARIO INTERROGATORY - 05
2		
3	Re	ference:
4	Sub	omissions on the ETS Rate, Attachment 1, Pages 23, 28
5		
6	Pre	eamble:
7		"As the domestic peak demands have declined in recent years, the approximate
8		number of hours when exports curtailments were active have also fallen."
9		
10		"To provide an indication of the degree to which exports are curtailed at peak
11		times, the IESO provided the following:
12		Over the top 5 neak hours over the last 5 years, the IESO curtailed exports
13		in 11 out of 25 hours. The average quantity of exports curtailed was
15		158MW or approximately 10% of exports scheduled."
16		
17	Int	errogatory:
18	Qu	estion for IESO:
19		
20	a)	Please provide a spreadsheet of hourly curtailment (at wind and solar sites) and spill volumes
21		(at hydroelectric facilities) in the 2016 - 2018 timeframe. The data would reflect the amount
22		of energy (MWh) that was spilled/curtailed by fuel type in every hour.
23		
24	Qu	estions for Elenchus:
25	b)	Please discuss whether the decline in peak demand in recent years has resulted from COVID-
26		19.
27		
28	c)	Please update Table 6 and provide a forecast of "Hours with Export Curtailment" until 2027.
29		
30	d)	Please provide an annual break down for the statement in the preamble above at lines 7-11.
31		
32	e)	Please provide further clarification on what is meant by the phrase "top 5 peak hours over
33		the last 5 years".
34		
35	f)	In response to certain climate objectives, government authorities are implementing plans to
36		reduce greenhouse gas emissions (e.g. TransformTO Net Zero Strategy) primarily through
37		electrification. Please discuss the impact these initiatives will have on the curtailment of
38		exporters due to expected increases in future demand.

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#### 1 Response:

- 2 Response from IESO:
- 3

a) The IESO cannot provide the requested information. Please see Table 3 – Curtailed Exports in
Attachment 1 of OEB Staff Interrogatory 1 for the number of hours exports were curtailed
from 2016-2021 and Table 9 – Annual Avoided Energy Costs by Resource Type and Year for a
breakdown of annually avoided system costs based on regulated versus contracted resources
from 2017-2021. A further breakdown of information cannot be provided due to concerns
with market participant confidentiality.

10

12

- 11 *Response from Elenchus*:
- b) Elenchus does not have the necessary information to comment on the specific causes of peak
   load changes over time. Elenchus notes that the decline in peak demands started before 2020
   and the 2020 1CP is higher than any year since 2013.
- 16

17 Response from IESO:

- 18
- c) Please see the response to a) above. The IESO cannot provide the number of hours of export
   curtailment until 2027 because it does not forecast hours with export curtailment.
- 21

22 *Response from Elenchus with inputs from IESO:* 

23

25

Base Period	Number of Peak Hours with Curtailed Exports	Average Quantity of Exports Curtailed (MW)
May 2015 – April 2016	1	57
May 2016 – April 2017	4	232
May 2017 – April 2018	2	251
May 2018 – April 2019	2	26
May 2019 – April 2020	2	98

<sup>24</sup> d) A breakdown is provided in the table below.

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- Response from Elenchus with inputs from IESO: 1
- 2
- e) The top five system coincident peaks for each 12 month base period (May 1 April 30) over 3 the five year period spanning 2015 to 2020. 4
- 5
- Response from IESO: 6
- 7
- f) This question is outside the scope of this proceeding. 8

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1

1	A	SSOCIATION OF POWER PRODUCERS OF ONTARIO INTERROGATORY - 06
2		
3	Re	ference:
4	Sul	omissions on the ETS Rate, Attachment 3, Page 13
5		
6	Pre	eamble:
7	The	e IESO expects that any increase in revenue resulting from a higher ETS would be offset by an
8	eq	uivalent reduction in revenue from the ICP, which in turn will decrease the amount that is
9	dis	bursed from the TRCA to Ontario consumers.
10		
11	Int	errogatory:
12	Qu	estions for IESO:
13		
14	a)	Please quantify the relative increase in ETS and the reduction in revenue from the ICP. For
15		example, if the ETS is increased by \$3/MWh it is expected that revenue from the ICP will
16		reduce by \$3 million.
17	L- )	Without a subject of the the sector wild be superstant under the LCD standard scientis the FTC seto
18	D)	when combined with the costs paid by exporters under the ICP, at what point is the ETS rate
19		
20	c)	What other external market forces may dictate or limit the price of ETS?
21	C)	what other external market forces may dictate of minit the price of E15.
23	d)	Would the excess capacity on the transmission system be underutilized / idle for the
24		foreseeable future if not used by the electricity exporters?
25		
26	Re	sponse:
27	Res	sponse from IESO:
28		
29	a)	Please see response to OEB Staff Interrogatory 36 a). Please also see Section 4 page 13 of the
30		IESO's ETS Rate Submission, Attachment 3.
31		
32	b)	Since the ICP is set dynamically based on competition and market conditions between
33		jurisdictions, there are many instances where the costs paid by Ontario exporters through the
34		ICP and ETS is much higher than costs paid in other jurisdictions.
35		
36	c)	The ETS rate is currently set by the OEB. There is an inverse relationship between the ETS rate
37		and volume of exports so that a higher rate could result in lower total collection of ETS funds.

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- d) Yes. Ontario's interties would be significantly underutilized without competitive electricity
- 2 exporters.

1	ASSOCIATION OF POWER PRODUCERS OF ONTARIO INTERROGATORY - 07
2	
3	Reference:
4	Submissions on the ETS Rate, Attachment 1, Page 23
5	
6	Preamble:
7	The IESO considers exporters to be a "curtailable" rather than "interruptible" class, consistent
8	with the North American Reliability Council (NERC) definition of interruptible.
9	
10	Interrogatory:
11	Question for Elenchus:
12	
13	a) Please provide the authority / citation for this statement.
14	
15	Response:
16	Response from Elenchus:
17	
18	a) NERC's definition of "interruptible" is provided in the Glossary of Terms Used in NERC
19	Reliability Standards, as posted on NERC's website:
20	https://www.nerc.com/files/glossary_of_terms.pdf.
21	
22	The preamble to the glossary states:
23	
24	This Glossary lists each term that was defined for use in one or more of NERC's
25	continentwide or Regional Reliability Standards and adopted by the NERC Board
26	of Trustees from February 8, 2005 through March 29, 2022.

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1	A	SSOCIATION OF POWER PRODUCERS OF ONTARIO INTERROGATORY - 08
2		
3	Re	ference:
4	Sul	pmissions on the ETS Rate, Attachment 3, Page 15
5		
6	Pre	eamble:
7		
8		First, as noted above, the ETS is just one component of the total charges on
9		exporters, with other charges including ICP and Uplifts. Combining these charges
10		means total revenues collected from exporters in Ontario is far higher than the
11		\$1.85/MWh ETS rate (for example, the ICP alone has recently averaged \$7-
12		15/MWh). When comparing jurisdictions, it is important to consider all-in costs
13		which reflect that Ontario collects significant revenues from exporters through
14		the ICP in addition to the ETS.
15		
16	Int	errogatory:
17	Qu	estions for Elenchus / CRA / IESO:
18		
19	a)	Please provide an all-inclusive rate (\$/MWh) that reflects the true cost of exporting electricity
20		from Ontario.
21		
22	b)	Upon completion of (a), please update Table 1 and Table 2 in Charles River Associates'
23		Jurisdictional Review of Export Transmission Service (ETS) Rates Study.
24	,	
25	C)	Please provide a forecast for the all-inclusive rate for the period of 2022-2027. List all
26		assumptions and provide an excel spreadsheet setting out the calculations.
27	Π.	
28	<u>ке</u>	sponse:
29	Res	sponse from IESU:
30	- )	Multile leave is an eight light industriall wate that well at the two each of supersting out of
31	a)	While here is no single "all-inclusive" rate that reflects the true cost of exporting out of
32		ontario, the leso agrees that exports must pay a series of transaction costs as noted in the
33		(for uplifts) and domand (for ICD) which make defining a single rate an impossible task. For
34 25		more information on exporter costs, please see Table 10 - Average Total Unlifts and Eoos Daid
35		hy Exporters. For more information on the range of costs inlease see OER Staff Interrogatory
37		1 g). Please see Table 12 – Average Monthly ICP by the Michigan. Minnesota and New York

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Export ties and Table 27 – Average Annual ICP by the Michigan, Minnesota and New York
 Export ties in Attachment 1 of OEB Staff Interrogatory 1.

3

4 Response from CRA:

5

10

b) CRA notes that Table 2 in the CRA Jurisdictional Review is simply a reproduction of the results
 from the 2012 Jurisdictional Review which sets out 2012 ETS rates for the jurisdictions
 considered in that review. Moreover, Table 2 does not include any data for Ontario. As such,
 it is not clear as to what this aspect of the request is seeking.

Regarding Table 1, as stated on p. 4 of its report, CRA notes that while the focus of its study 11 was on jurisdictions other than Ontario, the approved export tariff for Ontario was included 12 in the table for comparative purposes. CRA further notes that the amounts presented in Table 13 1 reflect only the ETS rates, for each of the listed jurisdictions, which in its view is the most 14 15 appropriate basis for comparison since they are the rates charged for export service only (not including ancillary service and uplift adders. Appendix B of the CRA Jurisdictional Review 16 provides all of the ancillary services and other charges applicable to ETS transactions in each 17 of the jurisdictions studied. However, those adders are not directly comparable to Ontario's 18 Intertie Congestion Pricing (ICP). Please refer to the response to Staff 33(a), which reproduces 19 Table 3 from CRA's Jurisdictional Review inclusive of the total adder amounts for each 20 jurisdiction. Please also refer to the response to Staff 32(a), which provides the 2021 uplift, 21 ancillary and other charges applicable to ETS transactions in Ontario, but which does not 22 include ICP. Please also refer to Staff 34(g) for CRA's opinion as to why ICP charges are not 23 directly analogous to the ancillary services and other adders outlined in its Jurisdictional 24 25 Review at Appendix B.

27 Response from IESO:

28

26

c) The IESO cannot provide an "all-inclusive" rate that reflects the true cost of exporting out of
 Ontario because the applicable costs vary on an hourly basis based on costs incurred (for
 uplifts) and demand (for ICP).

**ASSOCIATION OF POWER PRODUCERS OF ONTARIO INTERROGATORY - 09** 1 2 **Reference:** 3 4 Submissions on the ETS Rate, Attachment 3, Page 11 5 Preamble: 6 "Revenues from the ICP are collected by the IESO in the Transmission Rights Clearing Account 7 (TRCA). In addition to ICP revenue, the TRCA also contains revenue from Transmission Rights (TR) 8 auctions. TRs are a financial contract that entitle their holder to a share of the ICP revenue on the 9 intertie specified in the contract. TRs do not involve any use of the physical transmission system, 10 and do not entitle the purchasers of the rights to utilize the transmission assets. By purchasing a 11 TR, the TR holder gains insurance against changes in the ICP on the specified intertie (which can 12 be unpredictable and volatile)." 13 14 Interrogatory: 15 **Questions for IESO:** 16 17 a) The numbers provided in Table 2: TRCA Historical Flows 2017-2020 do not balance. Please 18 explain. 19 20 b) Please explain how the share of ICP revenue in a contract is determined. Will this share 21 fluctuate in the future? If so, by how much? 22 23 **Response:** 24 Response from IESO: 25 26 a) As noted in the footnote to Table 2, the TRCA disbursements do not clear the TRCA balance 27 due to a combination of 1. maintaining the reserve threshold as defined in Chapter 8, section 28 4.18 of the Market Rules, and 2. time-lag between collection of revenues from Congestion 29 Rents and TR Auctions and disbursement. 30 31 b) When conditions are met, TR holders receive TR payments due to congestions. The payments 32 are based on ICP and the quantity of TR owned. Please refer to Chapter 8, Section 4.4 of the 33 IESO Market Rules for an explanation on how payments to TR holders are calculated. 34 Payments to TR holders fluctuate based on the level of ICP and will fluctuate based on ICP 35 fluctuations. 36

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1	ASSOCIATION OF POWER PRODUCERS OF ONTARIO INTERROGATORY - 10
2	
3	Reference:
4	Submissions on the ETS Rate, Attachment 3, Page 13
5	
6	Preamble:
7	"Any increase in ETS from its current rate will likely reduce the value to ratepayers of exports
8	using the interties, which in turn will result in higher system costs that would need to be recovered
9	from domestic consumers."
10	
11	Interrogatory:
12	Question for IESO:
13	
14	a) Please confirm whether a decrease in ETS from its current rate will likely increase the value
15	to ratepayers of exports using the interties, which in turn will result in lower system costs that
16	would no longer be recovered from domestic consumers.
17	
18	Response:
19	Response from IESO:
20	

a) Please see the response to OEB Staff Interrogatory 36 a).

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