

Elson Advocacy

July 3, 2019

BY COURIER (2 COPIES) AND RESS

Ms. Kirsten Walli

Board Secretary
Ontario Energy Board
2300 Yonge Street, Suite 2700, P.O. Box 2319
Toronto, Ontario M4P 1E4

Dear Ms. Walli:

Re: EB-2019-0082 – Hydro One Rates – 2020-2022

Enclosed please find the interrogatories of Environmental Defence in the above matter.

Please do not hesitate to contact me if anything further is required.

Yours truly,



Kent Elson

cc: Parties in the above matter

EB-2019-0082

Hydro One Networks Inc.

**Application for electricity transmission rates for the
period from January 1, 2020 to December 31, 2022**

Interrogatories of Environmental Defence

1. Reference: Exhibit B

Preamble: The IESO has asked Hydro One to increase its import capability from Quebec by up to 1,650 megawatts (MW) by December 2022 at a cost of approximately \$20 million. For further details see: <http://www.ieso.ca/en/Sector-Participants/IESO-News/2019/02/IESO-increasing-reliability-of-the-electricity-system-in-the-Ottawa-area> and <http://www.ieso.ca/-/media/Files/IESO/Document-Library/regional-planning/Greater-Ottawa/IESO-Handoff-Letter-Hydro-One-Ottawa.pdf?la=en>.

Interrogatory:

- a) Is the IESO's request that Hydro One increase its import capability from Quebec by up to 1,650 megawatts (MW) by December 2022 included in Hydro One's Transmission System Plan?
- b) What is the expected in-service date for this upgrade?

2. Reference: Exhibit B-1-1, TSP Section 1.8

- (a) Has Hydro One made improvements to its investment decision processes to better explore opportunities for economically reducing line losses since the Board's decision in EB-2016-0160? If not, please explain why not. If yes, please explain those improvements in detail. Please focus exclusively on improvements made since the decision in EB-2016-0160 and do not reiterate the information already on the record regarding investment decision processes.
- (b) To the extent that Hydro One has made improvements to its investment decision process with respect to transmission loss mitigation since the Board's decision in EB-2016-0160, please provide two examples of relevant investment decision-making documentation relating to projects considered before and after the improvements that would illustrate the improvements in question.

3. Reference: Exhibit B-1-1, TSP Section 1.8

- (a) What cost effective opportunities for transmission loss reductions has Hydro One identified since the Board's decision in EB-2016-0160 that Hydro One would not have otherwise identified but for the Board's directive to explore said opportunities?
- (b) Please list and quantify the incremental transmission loss reductions (kWh and \$) associated with each of the opportunities discussed in (a), if any.

4. Reference: Exhibit B-1-1, TSP Section 1.8

- (a) What cost effective opportunities for transmission loss mitigation has Hydro One identified since the Board's decision in EB-2016-0160 that Hydro One would not have otherwise implemented due to other drivers such as reliability, safety, and so on?
- (b) Please list and quantify the incremental transmission loss reductions (kWh and \$) associated with each of the opportunities discussed in (a), if any.

5. Reference: Exhibit B-1-1, TSP Section 1.8

- (a) Please file Hydro One's internal documentation that describe its approach to evaluating line losses as part of its investment planning process.
- (b) Please file Hydro One's internal documentation describing how losses are taken into account where selection of new equipment is evaluated for procurement purposes.

6. Reference: Exhibit B-1-1, TSP Section 1.8

- (a) Please provide three examples of projects where transmission loss reductions were included in the cost-benefit analysis regarding the selection of equipment or project design.
- (b) For each of the three examples, please provide the cost-benefit analysis undertaken with respect to the relevant investment decision and identify the relevant sections.
- (c) For the three examples, please complete this cost/benefits analysis summary table:

	Project Name	Potential incremental cost to achieve loss reductions (e.g. incremental cost of more efficient transformer)	Forecast incremental lifetime loss reductions (lifetime)	Forecast incremental lifetime savings (\$)
Ex 1				
Ex 2				
Ex 3				

7. Reference: Exhibit B-1-1, TSP Section 1.8

- (a) What methodologies does Hydro One use to assess the cost effectiveness of transmission loss reduction measures?
- (b) Please provide internal documentation describing these methodologies
- (c) Please provide two examples of cost effectiveness analysis undertaken with respect to actual projects.

Please focus on incremental measures within projects driven by other factors (e.g. selecting an incrementally more efficient transformer during replacement).

8. Reference: Exhibit B-1-1, TSP Section 1.8

- (a) How does Hydro One calculate the financial benefits (\$) of transmission loss reductions as part of the investment decision-making process? Please provide details with respect to incremental investments (e.g. selecting more efficient equipment at the time of replacement) and investments where the financial benefit from loss reductions is included as one of many benefits compared to the overall cost of a project.
- (b) Please provide two examples from actual decision-making processes.

9. Reference: Exhibit B-1-1, TSP Section 1.8

Preamble: “The size of the conductor that can be considered is limited by the capability of the original tower structures and generally only conductors of the same size or one to two sizes larger can be accommodated.”

Interrogatory: Approximately what percent of Hydro One’s towers cannot accommodate a conductor that is one size larger?

10. Reference: Exhibit B-1-1, TSP Section 1.8

Preamble: Hydro One states: “There is typically little ability to cost effectively reduce line losses in line upgrade work where the existing conductor section is being replaced.”

Interrogatory: In approximately what percentage of conductor replacement projects would it be possible to select a larger conductor or one with less resistance than would otherwise be selected while remaining within the capabilities of the original tower structures?

11. Reference: Exhibit B-1-1, TSP Section 1.8

Interrogatory:

- (a) Approximately how many metres of conductors does Hydro One plan to replace over (i) 2020 to 2024 and (ii) 2020 to 2030?
- (b) Approximately how many transformers does Hydro One plan to replace over (i) 2020 to 2024 and (ii) 2020 to 2030?
- (c) In EB-2016-0160, Hydro One stated that it planned to replace 500 km of its lines annually going forward (see Transcript Vol. 5, p. 64, lns. 26-27). Is that still the case? If not, please explain.

12. Reference: Exhibit B-1-1, TSP Section 1.8, p. 6

Preamble: Hydro One states: “Transmission losses and their mitigation are not a focal point of transmitters, their independent system operators, or their regulatory bodies. At best, a few entities include the impact on losses that various design options may have in the selection of their project solutions.”

Interrogatory: Does Hydro One include the impact on losses that various design options may have in the selection of their project solutions?

13. Reference: Exhibit B-1-1, TSP Section 1.8, p. 6, 11.

Preamble: Hydro One states that it “has incorporated line loss reduction benefits into Hydro One’s proposed capital plan as demonstrated in Table 2.”

Interrogatory:

- (a) Were any of the investments listed in Table 2, or a portion thereof, driven by transmission loss reduction benefits? In other words, would any of the investments, or a portion thereof, not have been made but for transmission loss reduction benefits?
- (b) If yes, please reproduce table 2 adding a columns to indicate: whether the project was driven by loss reductions in whole or in part, the cost of the portion driven by loss reductions (if any), and the net benefits of the incremental investment.
- (c) For those projects driven by loss reductions, if any, please provide the cost/benefit analysis underlying the forecast net benefits from the incremental loss reduction investments.

14. Reference: Exhibit B-1-1, TSP Section 1.8, Attachment 1, p. 3-1

With respect to transmission losses, EPRI concludes that “efficiency must be considered in business cases” and that “transmission system expansion and refurbishment must incorporate efficiency considerations in the development of projects.”

- (a) With respect to transmission losses, does Hydro One agree that “efficiency must be considered in business cases”?
- (b) Does Hydro One consider transmission loss efficiency in all business cases?
- (c) If yes, please file a copy of two business cases where this has been done and indicate the page(s) on which transmission loss efficiency has been considered.
- (d) Does Hydro One agree that “transmission system expansion and refurbishment must incorporate efficiency considerations in the development of projects.”
- (e) Does Hydro One incorporate transmission loss efficiency considerations in the development of projects?

15. Reference: Exhibit B-1-1, TSP Section 1.8, Attachment 1, p. 4-6

EPRI concludes that "Loss mitigation costs and benefits should be considered in all project development and solution total cost analyses, such that the most cost-efficient solution is pursued that meets all reliability and safety criteria."

- (a) Does Hydro One agree that loss mitigation costs and benefits should be considered in all project development and solution total cost analyses, such that the most cost-efficient solution is pursued that meets all reliability and safety criteria?
- (b) Does Hydro One consider loss mitigation costs and benefits in all project development and solution total cost analyses, such that the most cost-efficient solution is pursued that meets all reliability and safety criteria?

- (c) If the answer to (b) is yes, please provide two examples of said total cost analyses conducted by Hydro One and indicate the page(s) on which the loss mitigation costs and benefits are considered.

16. Reference: Exhibit B-1-1, TSP Section 1.8, Attachment 1, Table 3-1 and Table 5-3

Please ask EPRI to confirm that the lists of transmission loss reduction methods in Tables 3-1 and 5-3 were based on a survey of utilities conducted in 2008. If they survey was conducted prior to 2008 (the publication date), please indicate the year.

17. Reference: Exhibit B-1-1, TSP Section 1.8, p. 9, table 1

Please confirm that the list of transmission loss reduction methods listed in Table 1, page 9, is based on a survey of utilities conducted in 2008. If they survey was conducted prior to 2008 (the publication date), please indicate the year.

18. Reference: Exhibit B-1-1, TSP Section 1.8, Attachment 1, vii

Preamble: EPRI concludes that: "Transmission Projects are initiated based on system need to ensure adequacy and reliability of supply or provide supply to customers. No utility is pursuing loss mitigation projects solely based on the potential mitigated loss savings over the life cycle of the asset."

Interrogatory:

- (a) Does EPRI agree that many energy efficiency measures involve incremental upgrades within wider projects (e.g. homeowners purchasing a more efficient equipment than they otherwise would at the time of replacement)?
- (b) Does EPRI agree that transmission owners generally do not replace wire or equipment in order to reduce transmission losses, but should consider the benefits of loss reduction when considering more efficient wires and equipment at the time of replacement driven by reliability, safety, or other factors?

19. Reference: Exhibit B-1-1, TSP Section 1.8, Attachment 1, vii

Does EPRI agree that the value of potential transmission loss reductions should be considered in the following circumstances?

- (a) In a cost/benefit analysis regarding operational measures which can mitigate losses;
- (b) In a cost/benefit analysis of equipment and design choices within wider capital projects;
- (c) In a cost/benefit analysis of capital projects driven primarily by other factors even though loss mitigation may only be a secondary factor that would not justify a project in isolation.

20. Reference: Exhibit B-1-1, TSP Section 1.8, Attachment 1

- (a) Please provide a list of all documentation Hydro One provided to EPRI for the purposes of its transmission losses report.
- (b) Please provide a copy of all documentation Hydro One provided to EPRI for the purposes of its transmission losses report.

21. Reference: Exhibit B-1-1, TSP Section 1.8, Attachment 1

- (a) Please provide a list of all documentation the IESO provided to EPRI for the purposes of its transmission losses report.
- (b) Please provide a copy of all documentation the IESO provided to EPRI for the purposes of its transmission losses report.

22. Reference: Exhibit B-1-1, TSP Section 1.8, Attachment 1, Chapter 5

- (a) Please provide a list of all the Hydro One documentation that EPRI reviewed in coming to its conclusions regarding Hydro One's loss mitigation efforts detailed in chapter five of its report. If not provided in response to interrogatory # 21, please also provide a copy of said documentation.

23. Reference: Exhibit B-1-1, TSP Section 1.8, Attachment 1

EPRI examined how other "transmitters, independent system operators, and regulatory bodies are addressing the loss mitigation concern."

- (a) Please confirm that EPRI conducted a jurisdictional scan and did not seek out and identify leading jurisdictions regarding loss mitigation.
- (b) How did EPRI decide which "transmitters, independent system operators, and regulatory bodies" to examine?

24. Reference: Exhibit B-1-1, TSP Section 1.8, Attachment 1

In EB-2018-0143, the Board accepted a settlement in which the IESO committed to "engage with stakeholders regarding the IESO's transmission losses work/report (similar to the 2017 engagement the IESO undertook on the development of its regulatory scorecard) including a discussion of the transmission losses processes used by National Grid UK, the recommendations of the Council of European Energy Regulators, and methodologies to assess the cost effectiveness of transmission loss reduction measures."

- (a) Please confirm that the IESO has agreed to conduct an engagement process that will include a discussion of the transmission loss mitigation processes used by National Grid UK and the recommendations of the Council of European Energy Regulators.
- (b) Please confirm that the EPRI transmission losses report does not include a discussion of the transmission loss mitigation processes used by National Grid UK and the recommendations of the Council of European Energy Regulators

- (c) Please confirm that the IESO has agreed to conduct an engagement process that will include a discussion of the methodologies to assess the cost effectiveness of transmission loss reduction measures.
- (d) Please confirm that the EPRI transmission losses report does not include a discussion of the methodologies to assess the cost effectiveness of transmission loss reduction measures.

25. Reference: Exhibit B-1-1, TSP Section 1.8, Attachment 1

EPRI examined how other “transmitters, independent system operators, and regulatory bodies are addressing the loss mitigation concern.” Attached are documents describing how the National Grid UK and the Council of European Energy Regulators are addressing loss mitigation.

Please list and describe the types loss mitigation efforts described in the attached documents which are not already described in the EPRI report. Please include a discussion of efforts by transmitters, independent system operators, and regulatory bodies.

26. Reference: Exhibit B-1-1, TSP Section 1.8, Attachment 1

Does EPRI have the expertise to prepare a transmission losses report that:

- (a) Identifies and focuses on the leading jurisdictions with respect to assessment and optimization of transmission losses;
- (b) Includes the National Grid UK and the Council of European Energy Regulators in its review of best practices;
- (c) Describes methodologies to assess the cost effectiveness of transmission loss reduction measures and makes appropriate recommendations in that regard; and
- (d) Makes recommendations regarding Hydro One’s and/or the IESO’s assessment and optimization of transmission losses.

Assume that EPRI is appropriately retained and funded for such a report. If EPRI is able to study and report only on some of those four items, please indicate which.

27. Reference: Exhibit B-1-1, TSP Section 1.8, Attachment 1

Is Hydro One willing to ask EPRI or another consultant to prepare a report that:

- (a) Identifies and focuses on the leading jurisdictions;
- (b) Includes the National Grid UK and the Council of European Energy Regulators in its review of best practices;
- (c) Describes methodologies to assess the cost effectiveness of transmission loss reduction measures and makes appropriate recommendations in that regard;
- (e) Makes recommendations regarding Hydro One’s and optimization of transmission losses.

If Hydro One is willing to ask EPRI or another consultant to examine only some of those items, please indicate which.

28. Reference: Exhibit B-1-1, TSP Section 1.8

Preamble: In EB-2018-0143, the Board accepted a settlement in which the IESO committed to “engage with stakeholders regarding the IESO's transmission losses work/report (similar to the 2017 engagement the IESO undertook on the development of its regulatory scorecard) including a discussion of the transmission losses processes used by National Grid UK, the recommendations of the Council of European Energy Regulators, and methodologies to assess the cost effectiveness of transmission loss reduction measures.”

The IESO engagement is ongoing.

Interrogatory:

- (a) Does the Hydro One believe is has completely fulfilled the directions of the Board regarding transmission losses in EB-2016-0160?
- (b) What orders or relief are Hydro One seeking with respect to transmission losses in this proceeding?
- (c) Will Hydro One participate in the IESO’s engagement process required by EB-2018-0143?
- (d) Will Hydro One commit to continue to “work jointly with the IESO to explore cost effective opportunities for line loss reduction” and to “explore, as part of its investment decision process, opportunities for economically reducing line losses” through the IESO’s transmission losses engagement process and otherwise?
- (e) Will Hydro One commit to report on the initiatives described in (d) as part of its next rate application?