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October 20, 2016

Mr. Gordon Nettleton, Partner
McCarthy Tétrault LLP
PO Box 48, Suite 5300
Toronto-Dominion Bank Tower
Toronto, ON
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Dear Mr. Nettleton:

Re: Board File No.: EB-2016-0160
Hydro One Networks Inc. 2017-2018 Cost of Service Rate Application

The Independent Electricity System Operator (IESO) is writing to you with regards to Environmental Defence's (ED) September 29, 2016 notice of motion requesting that Hydro One provide "full and adequate" responses to ED's interrogatories 1 to 5, and the Board's recent Procedural Order No. 3.

The IESO, as you are aware, filed a letter with the Board dated September 16, 2016 responding to ED's counsel's request that the IESO expand on Hydro One's answers to certain interrogatories. The IESO also spoke directly with ED's counsel regarding the data available to answer ED's interrogatories.

Having reviewed ED's motion requesting additional information in response to interrogatories 1 to 5, some of which ED proposes be obtained from the IESO, this letter supplements the IESO's September 16, 2016 letter. The IESO also wishes to address what appear to be fundamental misunderstandings underlying ED's requests for information on transmission system energy losses and import and export capacity. Please feel free to file this letter as part of Hydro One's response to ED's motion.

Interrogatories 1 to 5

The IESO responses to interrogatories 1 to 5 are set out in the attached Appendix A. These answers reiterate and supplement the responses provided in the September 16, 2016 letter. The IESO is providing these responses to assist Hydro One in responding to those interrogatories for which ED proposes additional information be obtained from the IESO, and to assist the Board in deciding this matter.

ED's Request for Transmission Loss and Intertie Capacity Information

As stated in ED's motion, its goal in pursuing information from Hydro One and the IESO is to investigate whether "it may be possible to make investments that ultimately reduce customer bills by reducing costly energy losses or by increasing Ontario's capacity to import inexpensive clean power". ED's motion, however, presupposes that these objectives may be considered and addressed in isolation in the context of this proceeding. That is not the case. Both reducing transmission losses and increasing opportunities for clean imports are matters that have been and continue to be considered and addressed as part of other processes, including bulk system planning, regional planning, market evolution and government policy initiatives. Moreover, within these processes, the objectives of reducing transmission losses and increasing opportunities for clean imports are considered and weighed in light of other interrelated and competing priorities.

Transmission Losses

With respect to transmission planning, reducing losses is one of many considerations to be balanced in ensuring that new infrastructure investments or equipment upgrades are in the best interests of the province and ratepayers. Others include reliability, cost and related benefits such as increased capacity for new generation and/or load. For example, a new transmission line that has a voltage of 500 kV would typically mean that less energy would be lost to resistance as compared to a 230 kV line. On the other hand, the higher voltage may require more costly step-down equipment and may limit the amount and type of resources that could be connected to it due to reliability concerns. This is one example, but it illustrates the fact that making capital investments to reduce transmission line losses entails other economic, social and environmental policy trade-offs.

Transmission system planning issues, including the matter of transmission losses, are being considered and addressed through other processes including through the development of the Ministry of Energy's next Long-Term Energy Plan (LTEP), which is currently underway. There are also power system planning engagement activities conducted by the IESO. These processes and others offer opportunities for stakeholders to provide input at the early planning stages of major generation or transmission projects, prior to the associated costs of the transmission projects being reflected in transmitters' cost of service applications.

Intertie Capacity

With respect to electricity imports and exports, trade between jurisdictions is driven by many factors including economics, market/system conditions and policy objectives, not simply by physical intertie and/or transmission capability. For example, there may be sufficient capability for Ontario to accept an import, but the exporting jurisdiction may sell elsewhere if the price it is offered is higher. ED's suggestion that intertie capacity can be "unlocked" through transmission system upgrades in Ontario does not take into account the balancing of all these factors nor does it account for upgrades in transmission and/or generation that may be required in the neighbouring jurisdictions. As noted in the 2013 LTEP, "While clean energy imports offer potential benefits to Ontario, the value to Ontario depends on the willingness of those supplying imports to offer a product that matches Ontario needs and represents better value than the domestic alternatives."

Enhancing opportunities for Ontario through trade with other jurisdictions has been and continues to be the focus of several IESO-led, public initiatives. The Review of Ontario Interties report, which was released by the IESO in October 2014, provides thorough and relevant context. It can be found at http//www.ieso.ca/Documents/IntertieReport-20141014.pdf. Also, a stream of the IESO's current Market Renewal engagement that will be investigating capacity trading with neighbouring jurisdictions will include environmental considerations such as clean energy imports. All materials related to this and other public engagements, including feedback received to date, can be found on the IESO's website at http://www.ieso.ca/Pages/Participate/Stakeholder-Engagement.

The analysis that ED proposes to conduct with the information requested of Hydro One and the IESO, much of which is unavailable or would require substantial time and effort to develop, does not sufficiently take into account the complexity of the subject matter and the limited value of considering this information in the relative isolation of Hydro One's rate proceeding. Further, the concerns and opportunities ED is seeking to address through its IRs to Hydro One and the IESO are being considered and addressed in other public forums and processes.

Yours truly,

Adrian Pye
Acting Senior Manager, Regulatory Affairs

APPENDIX A: IESO RESPONSES TO ED INTERROGATORIES 1 - 5

1. Reference: Ex. B1, Tab 1, Sch. 2, Page 8

a) Please provide the theoretical maximum import and export capacity (MW) of each of Hydro One's 26 interconnections with adjoining jurisdictions (Manitoba, Quebec, Minnesota, Michigan and New York);

b) Please provide Hydro One's best estimate of the actual maximum amount of electricity (MWhs) that can be imported per year via each of these interconnections;

c) Please provide Hydro One's best estimate of the actual maximum amount of electricity (MWhs) that can be exported per year via each of these interconnections;

d) Please describe all the actions that Hydro One is taking to increase the amount of electricity (MWhs) that can be imported and/or exported via each of these interconnections. In each case where actions are being taken, please state the expected increase in annual imports and/or exports (MWhs) that these actions will allow.

e) Has Hydro One estimated the benefits and costs of upgrading its transmission system to permit increased imports and/or exports of electricity? If yes, please provide copies of these analyses.

a) As stated previously in the IESO's letter dated September 16, 2016, the theoretical maximum transfer capability limits for each major interface between Ontario and other jurisdictions can be found in the Ontario Transmission System reports available at the following link: http://www.ieso.ca/Documents/marketReports/OntTxSystem_2016jun.pdf.

(b) and (c) The IESO further clarified in its September 16 letter that the "amount of power that can be transferred at Ontario's interjurisdictional interfaces at any given time is affected by many dynamic factors in and outside Ontario" including such complex considerations as "generation, customer demand and limits imposed on the transmission system due to thermal, voltage, and stability conditions during a particular time period."

In practice, the IESO and its neighbouring balancing authorities coordinate hourly interjurisdictional trades on an economic basis within the flow limits (i.e. physical security limits) of the intertie and of their respective grids. Although flow limits for each intertie point are affected in real time by dynamic and

unpredictable factors, the IESO calculates estimates in its Ontario Transmission System reports to support analysis for the 18-Month Outlook reports. The estimates assume that all transmission elements expected to be in place during the assessment period are in service. Information on these reports was provided to ED by the IESO in the September 16, 2016 letter.

Market reports displaying the day-ahead, pre-dispatch and real-time intertie scheduling limits as well as intertie schedule and flows can be found on the IESO's public reports site at http://reports.ieso.ca/public/. General information on imports and exports can be found on the IESO's website at http://www.ieso.ca/Pages/Media/Imports-and-Exports.aspx.

d) and (e) The IESO cannot speak on behalf of Hydro One on the actions it is taking.

2. Reference: Ex. B2, Tab 1, Sch. 1

a) Please provide, for each of the last 10 years, Hydro One's annual transmission energy losses as a percent of its total annual transmission throughput volumes; and

b) Please provide, for each of the last 10 years, Hydro One's transmission energy losses during the annual peak demand hour as a percent of the total demand of its customers during the peak hour.

a) and (b) As noted in the September 16, 2016 letter, the IESO does not calculate and publish transmission system losses associated with Ontario-only demand or transmitter-specific losses.

The IESO calculates and publishes estimated transmission system losses associated with total market demand (Ontario demand plus exports) in 5-minute intervals in the Real-time Constrained Totals report available at the following link: http://reports.ieso.ca/public/RealtimeConstTotals/.

The IESO also noted in its September 16, 2016 letter that Ontario and market demand peak values back to market opening are publicly available on the IESO's website at http://www.ieso.ca/Pages/Power-Data/Data-Directory.aspx or upon requests to customer.relations@ieso.ca.

ED suggested in its motion that the IESO could make a "best efforts attempt" to calculate Hydro One-specific transmission losses, possibly by "multiplying the total system transmission losses by the percentage of the total system transmission volumes that are transmitted Hydro One" or by "subtracting the

MWhs provided to its customers (i.e. LDCs and transmission-connected customers) from the MWhs that generators transmit to Hydro One's system (Hydro One has confirmed that all of these figures are metered)". The IESO does not have the information to calculate losses associated with Hydro One's transmission system directly.

3. Reference: Ex. B2, Tab 1, Sch. 1

a) Has Hydro One undertaken benchmarking studies which compare its annual transmission energy losses as a percent of its total annual transmission throughput volumes to those of other electricity transmission companies? If yes, please provide these studies; and

b) Has Hydro One undertaken benchmarking studies which compare its transmission energy losses during the annual peak demand hour as a percent of the total demand of its customers during the peak hour to those of other electricity transmission companies? If yes, please provide these studies; and

c) What are the average transmission energy losses for transmission companies in (i) the United States and (ii) Canada? To the extent that they are available, please provide the figures for both the annual transmission energy losses as a percent of total annual transmission throughput volumes and the transmission energy losses during the annual peak demand hour as a percent of the total demand of its customers during the peak hour.

a) and (b) The IESO cannot speak on behalf of Hydro One on the actions it has taken.

c) It is not within the IESO's mandate, as reliability authority or system planner, to conduct analysis on *transmitter-specific* losses within or outside of Ontario. ED asserts that it would be more efficient and effective for Hydro One or the IESO to "seek out" information about average transmission energy losses for transmission companies in (i) the United States and (ii) Canada, rather than having ED obtain this information via an expert consultant. The IESO disagrees. In fact, it is the IESO's view that, if there were value in undertaking this analysis, an expert consultant with research experience in North American electricity markets would be much better equipped and suited to conduct a jurisdictional scan of transmission losses across North America and could perform that review more efficiently than Hydro One or the IESO. It is also the IESO's view that this sort of analysis could take substantial effort.

4. Reference: Ex. B2, Tab 1, Sch. 1

a) Please provide a detailed description of the various sources of Hydro One's transmission energy losses. Please include a percentage breakdown by geographic region and type (e.g. line losses versus losses from equipment such as transformers). Please also attach any internal documents, reports, presentations, etc. on this issue.

b) Please provide a detailed description of Hydro One's plans to reduce its transmission energy losses from the various sources of those losses. Please also attach any internal documents, reports, presentation, etc. on this issue.

c) Please describe and list all of the actions that Hydro One could take but will not be taking to reduce its transmission energy losses (e.g. due to cost, viability, priorities, etc.).

a) The IESO does not have the system visibility or data necessary to provide a description of the various sources of Hydro One's transmission energy losses.

b) and (c) The IESO cannot speak on behalf of Hydro One on the actions it has or could be taking.

5. Reference: Ex. B2, Tab 1, Sch. 1

a) Please make best efforts to estimate the gross cost of the energy lost in each of the last 10 years via transmission energy losses. Please make and state assumptions as necessary.

b) To the extent that the figure would be different than the one provided in response to (a) above, please estimate the cost of the transmission energy losses to Hydro One's customers.

c) Please estimate the cost of transmission energy losses to Hydro One itself.

a), (b) and (c) The IESO does not calculate and does not have loss data specific to Hydro One. It is also, as noted above, outside of the IESO's scope of responsibilities to calculate the cost associated with transmitter-specific energy losses.