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File 92867

VIA *RESS* FILING AND COURIER

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, 27th Floor
Toronto, Ontario M4P 1E4

Dear Ms. Walli,

Re: Hydro One Networks Inc. 2017-2018 Transmission Rates
EB-2016-0160

Attached please find the Power Workers' Union's Submissions with respect to the above-noted application.

Yours very truly,
PALIARE ROLAND ROSENBERG ROTHSTEIN LLP

Richard P. Stephenson
RPS:pb

Attach.

Doc 2057915 v1

EB-2016-0160

IN THE MATTER OF a cost of service application made by Hydro One Networks Inc. Transmission with the Ontario Energy Board on May 31, 2016 under section 78 of the *Ontario Energy Board Act,* 1998, S.O. 1998, c. 15, (Schedule B), seeking approval for changes to its transmission revenue requirement and to the Ontario Uniform Transmission Rates, to be effective January 1, 2017 and January 1, 2018;

Submissions of the Power Workers' Union

A. GENERAL

Issue 1: Has Hydro One responded appropriately to all relevant OEB directions from previous proceedings?

Issue 2: Are all elements of the proposed 2017 and 2018 revenue requirements and their associated total bill impacts reasonable?

1. Hydro One's evidence supports the prudence underlying the elements within the proposed revenue requirement. Operations, maintenance, and administration costs are declining from the bridge year through the test years. The levels of development and sustainment capital that contribute to the revenue requirement are increasing. Hydro One's evidence substantiates the necessity of these investments to address the needs of the transmission system.

2. Hydro One's evidence indicates a declining trend in total OM&A in the test period over recent years. Total OM&A declines by $27.4 million from $436.7 million in 2016 to $409.3 million in 2018, an average decline of 3.19% per year.[1] The cost pressures associated with inflation and increased accomplishments are outweighed by cost reductions from productivity and efficiency measures.

[1] TCJ1.1

3. The level of development capital in the test period is marginally higher than historic years. Mr. Penstone explained in direct examination that this category of capital expenditures is non-discretionary.[2]

> **MR. PENSTONE: So the development capital investment category is described in Exhibit B 1-3, schedule 3. It comprises work both on the network and connection facilities, and the various types of investment are listed in Exhibit B 1-3-3, table 1.**
>
> **These investments are non-discretionary, as the need and timing is driven by obligations, including but not limited to connecting new load and generation customers, upgrading existing delivery capability to meet customers' demand, increasing network transfer capability to enable electricity consumers to access supply, and maintaining system reliability.**

4. Furthermore, development projects are required to satisfy regulatory requirements and cannot be deferred. This is explained by Mr. Penstone later in the direct examination:[3]

> **MR. PENSTONE: These investments are determined based on the need to satisfy regulatory requirements established by the North American Electric Reliability Corporation, the Northeast Power Coordinating Council, or the Independent Electricity System Operator. These investments are also prompted by the need to connect new customers and upgrade existing equipment and network transfer limits -- sorry, network transfer levels when capabilities are exceeded and to achieve government policy objectives.**
>
> **In short, development investments are all non-discretionary within the meaning of the OEB's filing requirements for electricity transmission applications.**
>
> **MR. NETTLETON: Now, Mr. Penstone, can you comment on whether these development investments can be deferred to a later period?**
>
> **MR. PENSTONE: As I noted, the nature of non-discretionary projects is defined by both need and timing. From a planning perspective, projects are expected to meet the need within a prescribed time and therefore cannot be deferred to a later date.**

5. In contrast to sustainment projects, Hydro One does not determine the merits or timing of development projects but is obligated to complete them. In the Power Workers' Union's ("PWU") view, the level of development capital spending required to fulfill obligations are not at the discretion of Hydro One and should be considered reasonable.

6. The PWU notes that the level of sustainment capital is materially higher than historic years. From 2009 to 2012, Hydro One directed a significant amount of capital

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[2] Oral Hearing Transcript, Volume 5, Page 21
[3] Oral Hearing Transcript, Volume 5, Page 22

expenditures to development projects related to renewable energy generation integration.[4] Sustainment spending has increased steadily since 2012 and development capital has not exceeded 2012 levels since. The sustainment spending deficiency in those years contributed to increased system renewal needs in subsequent years. The increased level of sustainment capital is supported by customer feedback, more reliable information on asset conditions, new technologies, and the need to address an aging asset portfolio in a timely manner. The bill impact resulting from this increase in sustainment capital is supported by the customer engagement process. The evidence demonstrates the prudence of addressing the transmission system's needs at this time.

7. In cross examination, Hydro One witnesses explained that the increase in sustainment capital is "...prompted by the need to mitigate significant risks to public safety, reliability, and to seize an opportunity to avoid higher costs in the future."[5] Deferring the replacement of assets to a later period would result in a higher risk of failure and would require larger increases to the revenue requirement in future periods. The prudence of increasing sustainment capital is discussed further under issue 5. The PWU submits that the elements within the revenue requirement properly consider system needs and bill impacts and should be considered reasonable.

Issue 3: Were Hydro One's customer engagement activities sufficient to enable customer needs and preferences to be considered in the formulation of its proposed spending?

8. Hydro One's evidence demonstrates a renewed focus on customer needs and preferences. The increased focus on customers was articulated by Mr. Vels during direct examination:[6]

> **MR. VELS: Yes. It is a term that we have coined internally, and, as we discussed at the presentation day, the CEO, Mr. Smith [Schmidt], confirmed that our goal is to transform Hydro One to achieve its vision of becoming a best in class, customer centric, commercial entity, with a culture of continuous improvement and excellence in execution.**
>
> **Commercial orientation, as we define it and communicate it internally and externally, really means that the company must be excellent in all facets of its**

[4] Exhibit A, Tab 3, Schedule 1, Page 6
[5] Oral Hearing Transcript, Volume 5, Page 21
[6] Oral Hearing Transcript, Volume 1, Pages 21-22

operations. In particular, that means it needs to be very focused on customer needs and preferences, demonstrate corporate accountability for outcomes, particularly performance outcomes, and drive company-wide efficiency and productivity. Understanding customer needs and preferences and delivering transmission outcomes that are valued by our customers are critical to our future success. Our executive leadership and the board of directors are committed to building a strong performance culture in this business, including the ability to measure and track performance.

9. Hydro One's evidence demonstrates that it has continuous interactions with its customers. Beyond routine communications with customers during typical business operations, Hydro One participates in a number of working groups and committees with its customers. Additionally, formal customer satisfaction research has been conducted by independent expert consumer research firms on behalf of Hydro One since 1999.[7] These customer interactions have allowed Hydro One to maintain an informed understanding of customer priorities and customer expectations.

10. In addition to the continuous customer interactions, Hydro One initiated a formal customer engagement process. The customer engagement process was undertaken by Ipsos and comprised of three waves of consultations: one-on-one meetings, group consultations, and online consultations. Customers were provided with materials outlining Hydro One's transmission business plan to allow for informed discussions concerning this transmission rate application. Approximately 51 organizations were represented in the customer engagement process, though all of Hydro One's transmission customers were invited to participate.[8] The participants comprised of local distribution companies, large industrial businesses, generators, and three customers identified as "other". The customer engagement process allowed Hydro One to receive an enhanced level of input relative to other customer interactions. The informed discussions with customers allowed Hydro One to consider customer needs and priorities at a deeper level.

11. The Ipsos Report identifies reliability as the most frequently mentioned need raised by customers. A reduction in both the frequency and duration of outages were cited as a top need for most customers. Power quality and transmission capacity were also cited as major concerns for customers.

[7] Exhibit B1, Tab 2, Schedule 2
[8] Oral Hearing Transcript, Volume 3, Page 172

12. Large industrial customers generally considered the frequency of outages to be a larger concern than the duration of outages. This provides an example in which the customer engagement process informed customer priorities, as explained by Mr. McLachlan in cross-examination with AMPCO:[9]

> **MR. McLACHLAN: Ms. Grice, I think the way I would respond to that is that we have always understood, and myself having been at this company for over 30 years, that both SAIDI and SAIFI are measures that industrial companies, certainly members of AMPCO, were very concerned about.**
>
> **And I would say that duration was always considered to have been a very paramount measure for industries because for end users, due the fact that duration does imply a duration of interruption, time, production loss and so forth.**
>
> **I think what we were surprised to find out a bit more about how important frequency is because in a lot of cases, frequency seen at our end is a momentary action. You know, it's lightening strike that takes out an industry and the performance, from a network delivery standpoint is back to normal, but that it takes a period of time for the load to be returned. That was what I think we were quite interested in finding out, was the amount of time on the other side of the meter that the load takes to return to its normal phase for a production facility.**
>
> **So I think short answer is that we did go in with an expectation that SAIDI or duration was more important than SAIFI, but that SAIFI was important. I think we came out with the fact that customers indicated -- end user customers indicated to us that any interruption now, momentary or sustained, is causing in many cases the same impact if it's a one second interruption versus if it's, say, a five-hour or ten-hour interruption.**

13. Discussions regarding the trade-offs between reliability risk and rate impacts were informed by outputs from the reliability risk model. The reliability risk model is a new tool developed by Hydro One to estimate and compare the relative reliability risk of different investment portfolios. The model uses asset demographics, hazard curves, and the level of planned replacements as inputs to determine the reliability risk output.[10] Hydro One notes that similar methodology is being used in the UK under OFGEM.[11] Hydro One witnesses explained in cross-examination with Board staff: "We believe that this particular model provides a linkage that our past practices of describing to the Board and to our customers what are the outcomes of our investment plan, they didn't do."[12]

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[9] Oral Hearing Transcript, Volume 4, Pages 143-144
[10] Exhibit B1, Tab 2, Schedule 4, Attachment 1, Page 1
[11] Exhibit I, Tab 1, Schedule 14, Page 2 b)
[12] Oral Hearing Transcript, Volume 5, Page 123

14. Hydro One expects the recently developed reliability risk model to improve over time.[13] The model currently uses the three asset classes that most impact reliability: transformers, circuit breakers, and transmission lines[14]. The reliability risk output could be more accurate with the inclusion of additional asset classes. The reliability impact of failure is not uniform among all assets within an asset class. For example, an outage caused by a transformer failure on the multi-circuit system is less likely to cause an interruption than a transformer failure on the single-circuit. This is not considered in the reliability risk model.[15] The company's risk profiles in current and future periods are estimated with asset demographics and hazard curves. The model makes these normative estimates despite having actual current asset risk profiles available in evidence.[16] Incorporating current actual asset risk profiles in the model may improve the accuracy of reliability risk in the current period and help inform fleet risk assessments and reliability risk for future periods.

15. Customer engagement participants were presented with three illustrative investment scenarios.[17] The impact on rates and reliability risk were provided for each scenario. This was done to attain directional feedback on the trade-offs between rate impacts and reliability risk. The Ipsos Report shows that a majority of participants had a good understanding of the concept of reliability risk and did not conflate reliability risk with reliability.[18] In cross-examination with CME, Mr. Henderson explained that Hydro One "did not in any way limit what feedback they selected, and we were very clear that we were not asking them to choose between scenario 1, 2 or 3. It was a continuum that went beyond the endpoints, if that's what they felt was appropriate for their business."[19] The slide from the customer engagement materials outlining the investment scenarios is presented below.[20]

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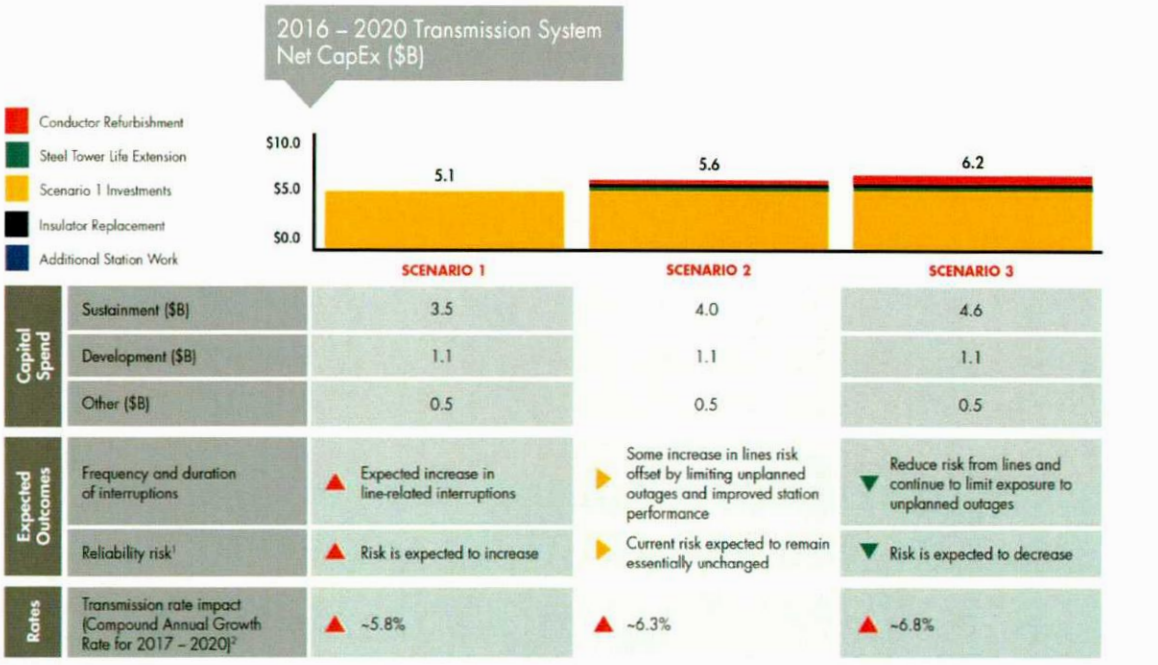
[13] Argument in Chief, Page 31
[14] Exhibit B1, Tab 2, Schedule 4, Attachment 1, Page 3
[15] Oral Hearing Transcript, Volume 5, Pages 133-134
[16] Exhibit B1, Tab 2, Schedule 6
[17] Exhibit B1, Tab 2, Schedule 2, Attachment 2, Page 23
[18] Exhibit B1, Tab 2, Schedule 2, Attachment 1, Page 23
[19] Oral Hearing Transcript, Volume 4, Page 29
[20] Exhibit B1, Tab 2, Schedule 2, Attachment 2, Page 23

OVERVIEW OF THREE POTENTIAL SCENARIOS



1. Reliability risk is a probabilistic calculation based on asset demographics and the historical relationship between its age and its failure or replacement.
2. Excludes impacts of potential changes in load forecast and any potential change to operations and maintenance spending.

23

16. This slide demonstrates the usefulness of the reliability risk model as it clearly outlines the rate impacts of different investment levels. The level of capital investment required to keep reliability risk unchanged is reflected in Scenario 2. The annual transmission rate impact required to maintain the same reliability risk is roughly 6.3%. The slide allowed participants to understand the reliability risk implications of a lower level of investment and rate impact, reflected in Scenario 1, or a higher level of investment, reflected in Scenario 3. The Ipsos Report indicates that, of those who offered an opinion, the majority of participants indicated that their preference lay between Scenarios 2 and 3.[21]

17. In the group and online consultations, customers were asked questions about the trade-offs between reliability risk and rates. Participants generally acknowledged that there is a trade-off between reliability risk and costs. A majority of those who were

[21] Exhibit B1, Tab 2, Schedule 2, Attachment 1, Page 31

asked indicated that they would accept a rate increase if reliability risk improves.[22] This is consistent with participants' preference of a level of investment between Scenarios 2 and 3.

18. The customer consultations took place in March 2016 in parallel with the investment planning process.[23] There was some discussion in the oral hearing of how the customer engagement outcomes were incorporated in the final investment plan. Part of the concern was that the planned capital investments prior the engagement process did not significantly alter after the consultations. Hydro One indicated that the continuous feedback they get from customers helped inform working assumptions used to develop the earlier investment plan. This is described by Mr. Penstone in cross-examination with the SEC:[24]

> **MR. PENSTONE: ...So as was mentioned in an earlier panel, we got and have received input from customers outside of the formal consultation process.**
>
> **So based on that, we had, I am going to say, working assumptions in terms of what the customers' expectations were as it relates to a number of factors. The customer consultation process was used to validate those assumptions.**

19. The investment plan did not materially change as a result of customer engagement because Hydro One had already considered customer preferences and expectations before the consultations occurred. Though there were no significant departures from prior plans, some changes were made due to participant feedback. Mr. Penstone provided an example of accelerating air blast circuit replacements at Middleport TS as a change made to the investment plan that was a direct result of the information attained in customer consultations.[25]

20. Another concern raised during the oral hearing was the selection of customers to participate in the customer engagement process. Hydro One's transmission customers comprise mostly of LDCs, large industrial businesses, and generators. Ninety-two percent of Hydro One's transmission revenue requirement is collected from LDCs.[26] It was argued that transmission rates are ultimately paid by ratepayers so LDCs would not

[22] Exhibit B11, Tab 2, Schedule 2, Attachment 1, Page 32
[23] Oral Hearing Transcript, Volume 6, Page 60
[24] Oral Hearing Transcript, Volume 6, Page 62
[25] Oral Hearing Transcript, Volume 6, Page 1
[26] J1.1

be concerned with rate impacts. In the SEC's cross-examination of the strategy panel, Mr. Rubenstein suggested that LDCs may be held accountable by their customers for an interruption whether it was caused by the LDC or by Hydro One as the transmitter.[27] The following is an excerpt from the Ipsos Report:[28]

> **LDCs expressed concern about the impact on ratepayers and the level of acceptance of an increase among their customers given that the transmission rate increase would be a pass-through cost to ratepayers. Ratepayers don't understand the distinction between transmission and distribution rates, and only know that their bills are increasing. The LDC is the one held accountable for these increases, and one customer mentioned that there is rate increase fatigue and sensitivity among ratepayers in their region.**

21. The LDCs are well aware that bill impacts are a major concern of ratepayers. Though it is true that ratepayers may hold their LDC accountable for transmission interruptions, it is also the case that ratepayers hold their LDC accountable for rate impacts. The consideration of rate impacts is further discussed in the PWU's cross-examination of the strategy panel:[29]

> **MR. STEPHENSON: So, from your perspective, I take it, when the LDCs are giving you feedback about the impacts of transmission level outages on their systems and how that's a problem and why it's a problem and the magnitude of the problem, I take it that that is -- you treat that as (a) accurate and (b) valuable. Is that fair?**
>
> **MR. PENSTONE: Yes. I would also point out, Mr. Stephenson, that, in our conversations with LDCs, they are also concerned about the rate impacts on their customers as well. So they are concerned about, yes, the reliability that is provided to an LDC, but they are also concerned about the resulting impact on their customers' bills.**
>
> **MR. STEPHENSON: Right. And that is because they are typically the customer facing –**
>
> **MR. PENSTONE: Yes.**
>
> **MR. STEPHENSON: -- and they are the first ones that have to deal with the complaints.**
>
> **MR. PENSTONE: Again, I just wanted to clarify, they were not only concerned about reliability impacts, but also the bill impacts.**
>
> **MR. HUBERT: If I may add, the topic of discussions with LDCs and their customers did come up at our stakeholder sessions, and they're documented in**

[27] Oral Hearing Transcript, Volume 1, Pages 88-90
[28] Exhibit B1, Tab 2, Schedule 2, Attachment 1, Page 27
[29] Oral Hearing Transcript, Volume 2, Pages 18-19

our evidence as well. There are two concerns that that we have heard and also expressed during those stakeholder sessions.

One of them is we feel that it would not be appropriate for Hydro One, as a transmitter, to reach into the LDCs' customer base and consult with them directly regarding transmission impacts. The other one is -- because that is the accountability of the distributors who have that relationship with their customers.

Secondly, we also felt that, given the amount of discussion that entities in this industry have with customers -- the OEB is actively engaging with customers; transmitters are engaging with customers; and distributors are engaging with customers -- it is very important for us to ensure that there is streamlined and coordinated discussions with various customer groups regarding issues and not to muddy the water.

22. Mr. Hubert makes the observation that it would not be appropriate to consult with ratepayers as they are not customers of Hydro One's transmission business. The customer engagement process was intended to get feedback from informed discussions of Hydro One's transmission business plan. The participants generally come into consultations with an understanding of Hydro One's transmission business and Ontario's electricity system. Informed discussions with ratepayers would have been difficult without the requisite knowledge and experience exhibited by Hydro One's transmission customers. The PWU submits that LDCs sufficiently represented ratepayers in the customer engagement process.

23. Hydro One's evidence shows that the company puts a strong focus on rate impacts. As discussed under Issue 11, a lot of effort has been put toward achieving productivity and efficiency savings. This effort is reflected in the declining level of OM&A expenditures over the test period. Rate impacts were a key consideration in determining the appropriate level of capital spending. This is discussed by Mr. Vels in a cross-examination with the PWU:[30]

MR. VELS: I think maybe it would be helpful to address the question on what the impact on bills is. What I can confirm is that, when we discussed both our transmission, in fact, and our upcoming distribution system plan with our board of directors and with our senior management, we had a significant amount of conversation in those discussions about the potential or the possibility to defer capital, and the reason for that is that we have provided some level of estimates to our board and to our management as to what the total impact on electricity bills will be, and we actively sought to work out to what extent we could reduce our impact on the bill in the context of our customers' increasing cost pressures.

[30] Oral Hearing Transcript, Volume 2, Page 13

So we did discuss how much capital could be deferred or reduced in that context, and the results, as reflected in this plan, are the informed judgment of our asset group in terms of the optimum level.

24. Hydro One's evidence demonstrates that customer needs and preferences, through the engagement process and continuous interactions, was a key consideration in the investment planning process and throughout their cost of service application.

B. TRANSMISSION SYSTEM PLAN

Issue 4: Does the Transmission System Plan adequately address customer needs and preferences?

Issue 5: Does Hydro One's investment planning process consider appropriate planning criteria? Does it adequately address the condition of the transmission system assets?

25. The Transmission System Plan, informed by the outcomes of the customer consultations, effectively considers the needs and preferences of customers. Hydro One's evidence supports a material increase in sustainment capital to address the condition of its assets. The increase is due mostly to an escalation in the lines category of assets: conductors, insulators, and steel towers.

26. Stations sustaining capital is steadily declining from $552.2 million in 2016 to $496.2 million in 2018.[31] The decline is attributable to savings from integrated station investment projects, recent completion of projects dealing with some of the higher-risk stations, and a deferral of stations projects to address pressing needs in the lines category.

[31] Exhibit B1, Tab 3, Schedule 2, Page 10

Conductors

27. Hydro One is proposing a large increase to conductor replacements over the test period. The increase is planned to continue beyond the test period. The following table displays the proposed increase:

Conductor Replacements					
	Historic Years		Bridge Year	Test Years	
	2014	2015	2016	2017	2018
Replacements (km)	93	201	183	192	440
% of Fleet	0.3%	0.7%	0.6%	0.6%	1.5%
Capital ($M)	40.7	58.4	76.9	67.1	143.1

Based on data from Exhibit I, Tab 6, Schedule 20, Attachment 1

28. A considerable share of the conductor fleet is nearing its end of service life. This is evident from the conductor age distribution graph presented below.[32] It is also supported by asset condition assessments and a third party evaluation conducted by Kinectrics.[33] The conductors put into service during an investment bulge in the 1950s to 1970s are reaching their end of service life.[34] This necessitates an increase to the pace of replacements in the upcoming years to avoid compromising reliability risk.

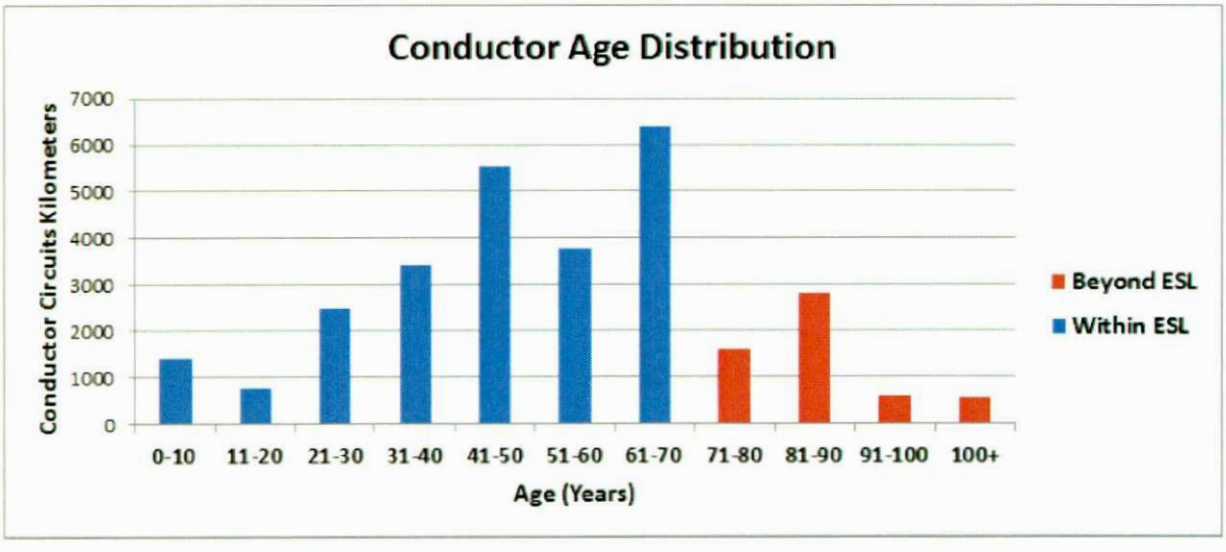


Figure 20: Demographics of Conductor Fleet

[32] Exhibit B1, Tab 2, Schedule 6, Page 32
[33] Exhibit I, Tab 9, Schedule 6, Attachment 5
[34] Oral Hearing Transcript, Volume 5, Page 119

29. The recent replacement rate of conductors has been lower than the historic average. In cross-examination with the CME, Mr. Ng explains why this low rate is not sustainable:[35]

> **MR. NG: Let's back up one step here, right? Going back to this conductor table here, table number 9, the historical replacement rate of 1 percent, .1 percent, .3 percent, .3 percent, what it means, that it takes an average of 200 years to 300 years to replace the conductor fleet.**
>
> **MS. BLANCHARD: Right.**
>
> **MR. NG: Conductor doesn't last 200 years or 300 years.**

The investment bulge allowed for a lower replacement rate, and lower rate impacts, in previous years. The replacement rate, and correspondingly the revenue requirement, must now increase to address the recent replacement deficit.

30. Ideally, this investment bulge would not exist and Hydro One could replace assets at a consistent rate. Mr. Penstone explained the difficulties in smoothing the investment bulge in cross-examination with Board staff:[36]

> **MS. LEA: Wouldn't it be better to spread it out a bit? I mean, I know you have certain demographics of your assets, but could you not replace based more -- I know you replace based on condition, but could you not take more account of condition and spread this bulge a bit?**
>
> **MR. PENSTONE: So again, we could spread it out. The difficulty or the outcome of doing that is we would then accept the fact that we are not replacing assets that are at their end of life right now, we are going to defer that replacement in order to sort of extend it over a larger period of time. That's possible. But we want to ensure that people understand that that particular tactic or strategy results in increasing risk.**

Allowing a significant amount of conductors that have passed their service life to remain in service would lead to an unacceptable increase in reliability risk. Similarly, it would not be prudent to replace assets earlier than their end of life.

31. The increased risk of asset failure will lead to more costly replacements of those failed assets. Hydro One witnesses explained that if replacement of an asset is "deferred and equipment fails, then we are going to have to undertake the work in a corrective manner as opposed to a manner that enables us to address asset condition

[35] Oral Hearing Transcript, Volume 7, Page 62
[36] Oral Hearing Transcript, Volume 5, Page 199

before failure."[37] In addition to reliability issues, additional costs will arise if asset replacements are deferred.

32. Deferring asset replacements may also cause execution issues in future periods. This is discussed with Hydro One witnesses in a cross-examination with the PWU:[38]

> **MR. STEPHENSON: Right. Now, another issue in relation to deferral is the pressure on Hydro One regarding your asset demographics isn't going to improve any time soon in the sense that -- and you reflected this earlier -- you have a portfolio of assets that were put into service 50 or 60 years ago, and you have a bulge that you are -- and that bulge is not self-improving any time soon; correct?**
>
> **MR. PENSTONE: That's correct. And that is also evident in our five-year forecast of proposed investments into the future.**
>
> **MR. STEPHENSON: So, in other words, even if you do work at the proposed rate, you've got some significant challenges and costs associated with that bulge in any event; right?**
>
> **MR. PENSTONE: Correct.**
>
> **MR. STEPHENSON: And if you defer this work, you are simply compounding that problem.**
>
> **MR. PENSTONE: You are compounding the amount of work that we have to do and the execution challenges to execute larger amounts of work in future periods.**
>
> **MR. STEPHENSON: Right. And this is the so-called bow-wave effect that we hear from time to time. Is that right?**
>
> **MR. PENSTONE: It's been referred to as a bow wave previously; correct.**
>
> **MR. STEPHENSON: And the point of that is simply that not only does it -- because you have more work to be done later that there are, by definition, higher costs. At some point in time, if the bow wave gets big enough, there are simply absolute problems in terms of being able to execute on that work in a timely fashion; correct?**
>
> **MR. PENSTONE: That's correct.**

33. Hydro One is planning to continue increasing the level of sustainment capital past the test period to address its ageing asset portfolio and future constraints caused by planned nuclear refurbishments.[39] The company may not have the resources to deal with asset replacements deferred from this period to a future period in addition to the increased replacements expected in those years. Hydro One would be forced to continue to defer prudent asset replacements or incur the costs of obtaining additional

[37] Oral Hearing Transcript, Volume 2, Page 8
[38] Oral Hearing Transcript, Volume 2, Pages 10-11
[39] Exhibit B1, Tab 3, Schedule 1, Page 4

resources to complete the necessary work. The PWU submits that deferring sustainment capital replacements would increase reliability risk in the test period and increase future costs.

34. Timely replacements are particularly important for Hydro One's conductor fleet. Of the company's 30,000km of conductor, 9% are in high risk condition and an additional 31% have not been assessed.[40] Currently, 19% of the conductor fleet is beyond its expected service life. This number is expected to nearly double over the next ten years if replacements continue at the historic rate.[41] The following chart shows the amount of conductor passed its expected service life at historic and proposed replacement rates.[42]

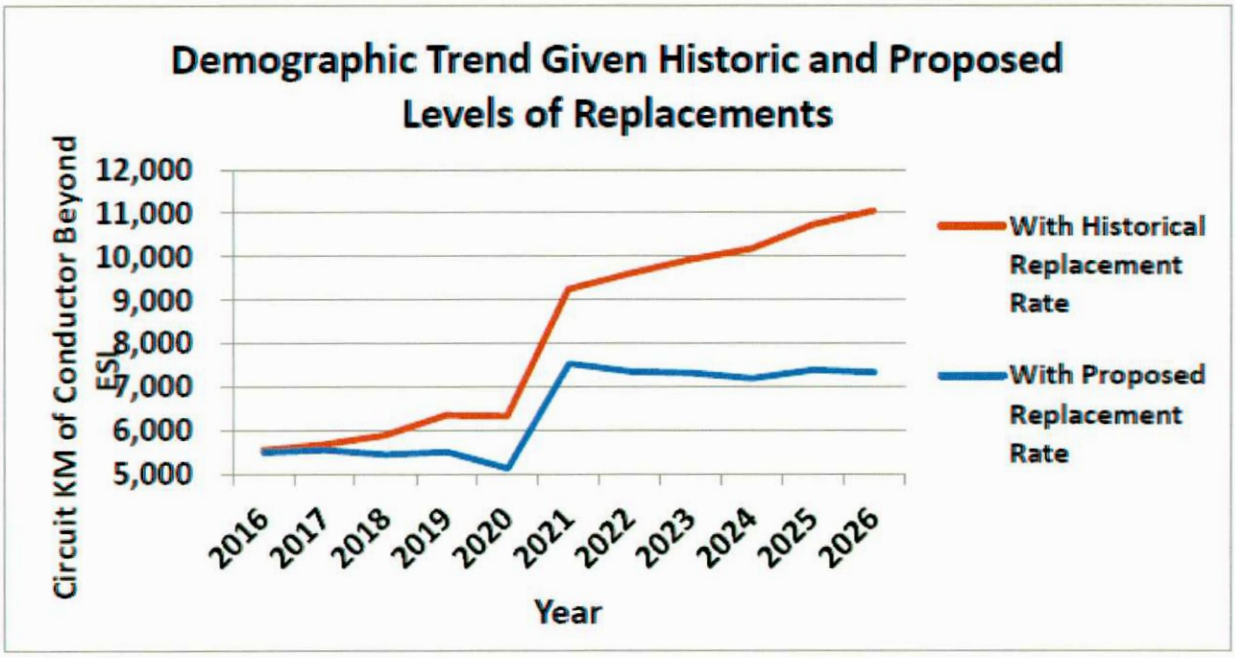


Figure 21: Projection of Conductor Beyond Expected Service Life

35. The increase to the proposed replacement rate from the historic rate is necessary to address the investment bulge. Over a third of Hydro One's conductor fleet would be beyond expected service life within 10 years if the increase to the proposed replacement rate is deferred. The investment bulge must be addressed and deferring

[40] Exhibit B1, Tab 2, Schedule 6, Page 35
[41] Exhibit B1, Tab 2, Schedule 6, Page 31
[42] Exhibit B1, Tab 2, Schedule 6, Page 33

these conductor replacements would likely increase future costs and reliability risk. The PWU submits that Hydro One's planned conductor replacement program is the most prudent option available to the company.

Insulators

36. A significant increase to the insulator replacement program is necessitated by new assessments of defective insulators. Hydro One's insulator fleet includes 34,000 circuit structures manufactured by Canadian Ohio Brass and Canadian Porcelain between 1965 and 1982, approximately 15,000 of which have been identified as high risk.[43] These insulators are considered defective due to cracks in the porcelain caused by cement expansion. Mr. Ng detailed the condition of these insulators and the necessity of replacing these units during cross-examination with Board staff:[44]

> **MR. NG: ...The continuous feedback from the field organizations was that, yeah, they look really bad. So we were given sample, given pictures, when the guys were out there doing helicopter inspections, they were telling us that they can visibly see the crack of the insulator.**
>
> **That really raised the concern to a higher level. Subsequent to that we made a decision that we need to raise the replacement rate in 2016, and we need to start removing sample from in-service circuit and send it to Electric Power Research to do a proper testing, which would inform us of, A), what are the remaining strength of the unit, and B), urgency of the problem, how much time do we have to deal with it.**
>
> **The report that came back in June essentially highlight two things. Number one, all of the entire lot of insulator that we remove and got tested, the -- only 37 percent of them fell below rating. That's number one.**
>
> **MS. LEA: I am sorry, please repeat that.**
>
> **MR. NG: The result that come back is that 37 percent of the insulator that we tested fell below ratings. That's a big problem. The other bigger problem that I think is keeping me up at night is the fact that the report reveals that 84 -- 85 percent -- sorry. The report reveals that 12 percent of the tested sample have less than 84 percent of the rated strength.**
>
> **That itself is a huge, huge problem. When you look at it, the 12 percent of insulator that have less than 84 percent of rated strength, it doesn't mean that you have 12 percent problem within the entire populations, which is about 120,000 strings.**
>
> **The reason I say that is, this type of insulator, they look like round shape. What happened is that you would string 14 unit of them together to make up one string of 230 KV insulator, so every string of 230 KV insulator consists of 14 individual**

[43] Exhibit B1, Tab 2, Schedule 6, Page 58
[44] Oral Hearing Transcript, Volume 5, Pages 163-164

unit. It only takes one to fail, the weakest link to break, to drop the conductor to the ground, so effectively your risk profile is the entire 120,000 string of insulator. That to me is a real big problem that we have to get going to deal with.

Mr. Ng refers to a third party study conducted by the Electricity Power Research Institute on these porcelain insulators. This study supports the timely replacement of the defective insulators.[45]

37. Hydro One's evidence suggests that public safety is a major consideration in the decision to replace these insulators now. Mr. Penstone describes what prompted this decision in cross-examination with the SEC.[46]

MR. PENSTONE: The information related to the requirement to replace insulators was precipitated by an incident that occurred in March of 2015 where we had an insulator failure and a conductor subsequently fall over a public parking lot in the west end of Toronto.

The subsequent investigation of that incident revealed the shortcomings and deterioration in a class of insulators that had been installed over a number of years by Ontario Hydro. These insulators are in such a state that they now have to be replaced, and they need to be replaced both from a reliability perspective, but also from a public health and safety perspective, as a number of our lines traverse public areas. So that was what prompted the need to address insulators.

38. The cement expansion issue was well known in the industry. Mr. Ng explained that, to the best of his knowledge, transmitters in each province would have had some defective porcelain insulators. Mr. Ng is aware of two transmitters, Manitoba Hydro and Newfoundland Power, that took the step to replace all defective porcelain insulators.[47] In cross examination with the Board, Mr. Ng describes the scope of the issue for Hydro One:[48]

MR. NG: A couple of points, Mr. Thompson. The one point that I mentioned before is, the quantum of the problem is such that the company, Ontario Hydro, went through a lot of expansions back in the years. We have by far, by far, the largest population of CP and COB. No one even comes close to what we have.

So the decision made by Ontario Hydro at that time was, let's take a look at it, let's do some monitoring, and if we do not rush through the replacement, let's keep the asset in the ground for a longer time and deferring the rate impact. That basically was the gist of it.

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[45] Exhibit I, Tab 9, Schedule 6, Attachment 1
[46] Oral Hearing Transcript, Volume 1, Page 63
[47] Oral Hearing Transcript, Volume 5, Pages 165-
[48] 166Oral Hearing Transcript, Volume 8, Page 61

39. Hydro One considered the rate impact of replacing the significant share of their insulator fleet and made the decision to monitor the condition of the defective porcelain insulators. Hydro One was aware of the probability that the defective insulators would reach their end of life before their initial expected service life. The company decided to leave the defective insulators in service and defer replacement until the insulators reached their end of life. The PWU submits that increasing the insulator replacement program at this time is prudent.

Steel Structures

40. New steel structure coating technology has created an economic opportunity for Hydro One and ratepayers. Prior to the new technology steel structure coating was expensive and labour intensive. The new product, the Galvatech2000, allows steel structures that would have required replacement in the near future to be coated with zinc at a materially lower cost.[49] The contribution of these sustainment capital investments to the revenue requirement in this period will be more than offset by the mitigation of high replacement costs in the future. The following table summarizes the net present value of steel structure coating compared with replacements.[50]

Table 3: Unit and Total Cost Savings

Single Tower Replacement		**Multiple Towers Replacement**	
115 kV Tower		**115 kV Tower**	
Unit Cost Saving	$62k	Unit Cost Saving	$27k
Total Cost Saving: $62K*2850*0.15	$26.50M	Total Cost Saving: $27K*2850*0.15	$11.54M
230 kV Tower		**230 kV Tower**	
Unit Cost Saving	$65k	Unit Cost Saving	$42k
Total Cost Saving: $65K*2850*0.85	$157.46M	Total Cost Saving: $42K*2850*0.85	$101.75M
Total NPV Capital Cost Saving Resulted from Test Years Tower Coating	**$184.0M**	**Total NPV Capital Cost Saving Resulted from Test Years Tower Coating**	**$113.3M**

[49] Oral Hearing Transcript, Volume 6, Page 118
[50] TCJ2.3

The table shows the net present capital cost savings of tower coating over tower replacements to be between $113.3 million and $184 million. The range reflects assumptions of cost efficiencies from replacing multiple towers at a time.

41. Mr. Ng describes the new technology and what prompted the decision to make this investment in cross-examination with the SEC:[51]

> **MR. NG: The really big game-changer is the product itself, the Galvatech2000. The EPRI study that maps out the corrosion zone, it is an engineering improvement. We are able to use the EPRI information to further refine the corrosion zone and determine with better accuracy what is the corrosion rate.**
>
> **The game-changer here is the product itself. The need for tower coating has been known, it's there, everybody would know that, most people would know that if you protect a steel member with a layer of zinc it lasts longer.**
>
> **The issue that we had for the longest time was productivity. The old product takes a long time to cure and is drippy. When you get a guy to get up to the tower and coat it, it drips. Every day you can only do so many tower, very little. Not only that, the old product require extensive surface preparations. You have to wire brush. You have to sandblast. You have to do a lot of prime work to get it ready to prime the surface.**
>
> **This new product came to us. We came across it in 2013-ish kind of time. We first got our guy to look into the property to see if it is good or not. Then we started using it as a test run. The real test came when we said to EPRI, "Our guy used it. It works quite well as promised. Can you do an endurance test to make sure that it lasts as long as it claim it would be?" That was done in 2015.**
>
> **And then we got the confirmation in March of 2016 that it is as good as advertised. It's really good. In fact, the EPRI guy said it is as good as hot dipped galvanizing. That is a very big statement to make.**
>
> **With that new product, we can do two, three different things differently. There is a breakthrough in lifeline method. We were not able to coat the tower live. With this particular product we have developed a method to coat the tower live, meaning that you do not need to take an outage to coat the tower. That comes from the fact that it doesn't drip. It dries quicker. It dries in two hours instead of 24 hours. You can get more tower in per day. It also doesn't require extensive surface preparations. Then you can put it on quicker, do not need to get guy up there to brush it, improve the cost-efficiency.**
>
> **Also, with the verification that it's going to last as long as the hot dip galvanized, the recoating cycle get pushed longer. All of those things come into fruition and make a really good economic case to say that, yeah, let's go for it, it makes sense to us.**

Once the protective zinc layer that is currently on the steel structures erodes the steel begins to corrode. Corroding steel structures lose strength and must be partially or

[51] Oral Hearing Transcript, Volume 6, Pages 118-119

completely replaced. It is therefore necessary to coat these structures in the near term before they corrode in order to capture the economic benefit.

42. The Board Staff's submission argues that since the tower coating program does not improve near-term reliability, the program should be reduced to reduce bill impacts.[52] The program is proposed as an opportunity to minimize long run costs by making an investment in the near term and is unrelated to minimizing reliability risk. The worthiness of the program should be evaluated only on its ability to reduce long run costs. Though it is true that Ontario ratepayers are very concerned with bill impacts, their concern is not exclusively about bill impacts in the test period. The PWU does not expect concerns with bill impacts to cease by the time these steel towers would have to be replaced. Furthermore, the steel structure coating program represents a relatively small share of overall capital expenditures, 3.9% and 4.8% in 2017 and 2018, respectively.[53] Hydro One transmission's proposed revenue requirement will increase typical residential and general service bills by 0.1% in 2017 and 0.2% in 2018.[54] Within this context, the steel structure coating program will not impact bills to such a degree that this economic opportunity should be ignored for the sole purpose of short-term bill mitigation.

43. Disallowing investments that benefit ratepayers in the long-run is not prudent. The Board's concern with respect to rate impacts is not limited to the rate impact in the current year. If the failure to spend a dollar today results in the need to spend (for example) five incremental dollars in a future year, that creates a serious intergenerational equity issue, and renders current rates unreasonable. The PWU submits that the increase in capital spending for the steel structure coating program should be approved in full to benefit ratepayers in the long run.

Other Assets

44. Though Hydro One's evidence supports the need to accelerate the aforementioned three asset programs, the age, condition, and replacement pace of other assets should be considered. Exhibit B1, Tab 2, Schedule 6 provides overviews of

[52] Board Staff Submission, Pages 8-9
[53] Exhibit B1, Tab 3, Schedule 1, Page 1 and Exhibit B1, Tab 3, Schedule 2, Page 35
[54] Exhibit A, Tab 3, Schedule 1, Page 2

the condition of various Hydro One transmission assets from a fleet perspective. For many assets, the number of units that are high or very high risk exceeds the number of units that are planned to be replaced in the test years.

45. Some intervenors, including the PWU, compared current fleet conditions with the fleet conditions reported in EB-2014-0140. The PWU in particular pointed out in its interrogatories and during cross examination that the level of asset replacement proposed for certain categories, both in EB-2014-0140 and in the current Application, is far less than the level of high and very high risk assets identified by Hydro One. Mr. Ng explained why comparisons to condition assessments of previous years and overall trend analysis would be difficult in cross-examination with the SEC:[55]

> **MR. NG: So let me deal with first the conditions of the transformers, the pie chart, so the number change from 2014 to 2016. Why is that happening? That really is a factor on -- the Auditor General highlighted this. So did our internal auditor.**
>
> **The pie chart, what it is, is that it is a condition output from our asset analytic program, which runs on algorithms. It takes data that we have available at that time. It produce an output.**
>
> **Over the past two years we have been able to improve the quality of the data and enrich the database, and that's one big reason why the number change. So that's the gist of it....**

46. Hydro One made it clear during the oral hearing that the asset analytic process used to determine asset fleet condition is not used to determine individual replacements. A detailed condition assessment is conducted on each asset before determining whether it should be replaced.

47. Hydro One plans to replace 49 transformers in the test years. This represents 6.8% of their fleet. This is less than half of the share of transformers that are considered either high-risk or very high-risk, 13% and 2% respectively.[56] The average age of the transformer fleet is 34 years and 28% of transformers are beyond their expected service life. The following chart shows the demographic breakdown of the transformer fleet.[57]

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[55] Oral Hearing Transcript, Volume 6, Pages 98-99
[56] Exhibit B1, Tab 2, Schedule 6, Page 7
[57] Exhibit B1, Tab 2, Schedule 5, Page 4

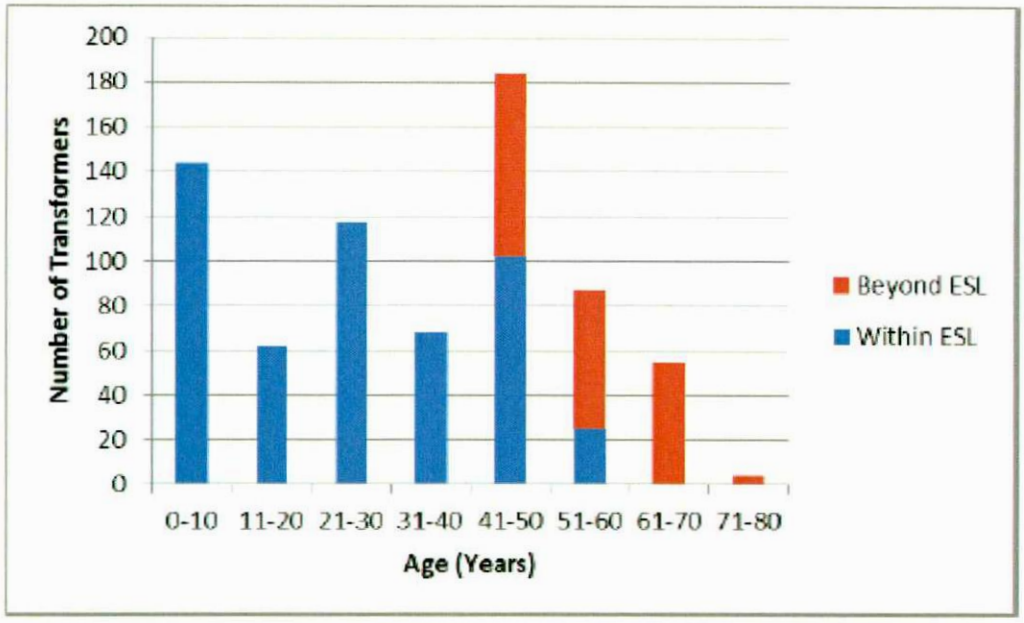

Figure 2: Demographics of the Transformer Fleet

48. Hydro One has marginally increased the pace of transformer replacements over the historic years. The large number of transformers put into service 41 to 50 years ago may necessitate a ramp up in the future similar to that of the conductor fleet as previously discussed.

49. Hydro One is proposing to replace 4.4% of its circuit breakers over the test period, an increase over previous years. There is a focus on replacing aging high voltage air blast circuit breakers, 80% of which are beyond their expected service life.[58] The air blast circuit breakers present reliability and safety issues. The following chart shows the consequences of aging air blast circuit breakers.[59]

[58] Exhibit B1, Tab 2, Schedule 6, Page 13
[59] Exhibit B1, Tab 2, Schedule 6, Page 15

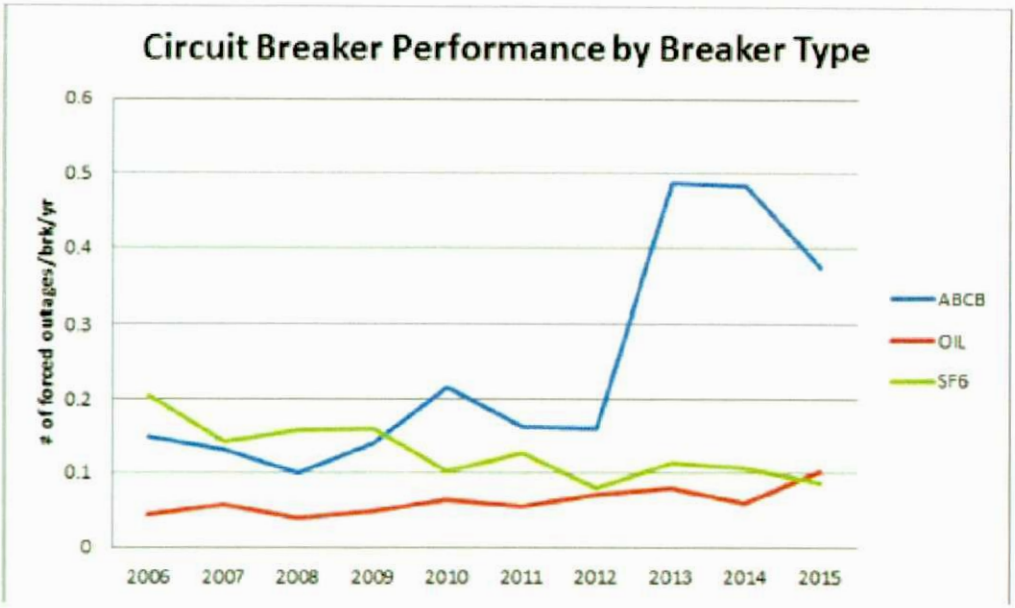

Figure 10: Forced Outage Frequency of Circuit Breaker by Type

The 4.4% replacement level is significantly lower than the share of circuit breakers that are considered high risk and very high risk, 10% and 1% respectively.[60]

50. Navigant and First Quartile Consulting's Transmission Total Cost Benchmarking Study demonstrates Hydro One's low capital expenditures relative to its peer group. The study was based on a five year period from 2010 to 2014. Hydro One was in the lowest quartile for substation capital expenditure per asset and the second lowest quartile for lines capital expenditure per asset.[61] The benchmarking results are consistent with the observed low rate of replacement for many assets.

51. In the future, Hydro One will be forced to deal with high risk assets in addition to assets that move into the high risk category over the test period. At the current pace, this issue will compound as the replacement of more and more high risk assets will be deferred. The continued deferral of high risk asset replacements is not prudent in the long run. The PWU submits that Hydro One's asset replacement rates have been unsustainably low and should increase to address the large number of high and very high risk assets that remain in service.

[60] Exhibit B1, Tab 2, Schedule 6, Page 16
[61] Exhibit B2, Tab 2, Schedule 1, Attachment 1, Pages 16-24

52. The Board Staff's submission lists outstanding issues in Hydro One's planning process. The PWU agrees that Hydro One's initial evidence did not exhaustively describe the process or chronology of investment decisions. The Board Staff notes that "it was only during oral hearing that the basis for the proposed capital investments became clear".[62] The PWU does not agree that the initial lack of clarity in Hydro One's evidence means there is a lack of prudence in the decision making process. The proposed investments were selected to address the needs of the transmission system. Even if the documentation surrounding investment decisions could have been more fulsome, that is not sufficient to conclude that the decisions themselves are not prudent. The PWU submits that the evidence clearly establishes that the proposed investment levels are reasonable and prudent.

Issue 6: Are the proposed 2017 and 2018 Capital Expenditures for Sustainment, Development and Operations appropriate?

53. Hydro One's evidence shows that the degree to which accomplishments are increasing exceeds the growth of capital costs. Unit costs have been steady or falling since 2014. The following PWU table shows the combined capital and OM&A costs per unit for assets in the lines category.

Total Cost per Unit ($M)						
	Historic		Bridge	Test		Average Annual Change
	2014	2015	2016	2017	2018	
Transformer Portfolio	6.504	6.451	6.589	6.416	6.517	0.05%
Circuit Breaker Portfolio	0.943	1.456	1.136	0.994	0.843	-2.76%
Protection Systems Portfolio	0.139	0.157	0.151	0.148	0.145	0.95%
Conductor Portfolio (km)	0.510	0.321	0.457	0.386	0.341	-9.56%
Wood Pole Portfolio	0.056	0.053	0.053	0.050	0.050	-2.93%
Steel Structure Portfolio	0.093	0.034	0.033	0.039	0.038	-20.12%
Underground Cable Portfolio (km)	7.935	-	-	-	5.771	

Based on data from Exhibit I, Tab 6, Schedule 20, Attachment 1

54. Hydro One is committing to lower unit costs in the test years for nearly each asset group. This table also demonstrates the significant savings available within the steel structure portfolio made possible with the new zinc coating product.

[62] Staff Submission, Page 10

55. Hydro One's shift in station planning to integrated station investments makes similar analysis for station asset cost trends difficult. In aggregate, stations sustaining capital is decreasing by $56 million from $552.2 million in 2016 to $496.2 million in 2018, a 10.14% decline.[63] The decrease is mainly attributable to increased cost-efficient integrated station investments and deferral of station investments to mitigate the rate impact of the increase in line investments.

56. Hydro One had typically replaced transmission assets on an individual asset basis. Recently the company has adopted an integrated capital planning approach. This approach allows it to take a holistic approach to station asset replacement. Instead of replacing one asset at a time, planners assess the condition of other assets within the same station and replace multiple units at one time. Mr. Penstone explained two of the main benefits in direct examination:[64]

> **Mr. PENSTONE: Our approach in making integrated station investments achieves planning efficiencies in the following fashions. It enables stations to be reconfigured when they are being refurbished to reduce the amount of major power equipment within the refurbished environment. This will reduce capital costs and long-term operation and maintenance expenditures.**
>
> **Secondly, integrated station investments enables us to reduce the number of planned outages necessary to accomplish the work. This reduces the risk of customer interruptions and contributes to increased customer satisfaction.**

Hydro One's evidence points to a number of additional integrated station planning benefits, including worker safety, environmental considerations, and execution excellence.[65]

57. Hydro One assesses the condition of various assets at a station and plans to replace any asset approaching its end of life. In cross-examination, Board staff asked whether this approach would lead to replacing assets that otherwise wouldn't be replaced:[66]

> **MS. LEA: But using the integrated station approach, does that not mean in some cases that you are doing work on assets, possibly replacing them, that would not be identified otherwise and are only being done because you are using this approach?**

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[63] Exhibit B1, Tab 3, Schedule 2, Page 2
[64] Oral Hearing Transcript, Volume 1, Page 29
[65] Exhibit B1, Tab 3, Schedule 2, Pages 7-8
[66] Oral Hearing Transcript, Volume 6, Page 5

MR. NG: No, that's not correct. The integrated investment, the idea there is we would go to our stations and we would look at, within three years' period of time, plus/minus three years, what do we need to do at that stations. We would be selecting asset that is at end of life or near end of life and bundle it together as one investment.

One example would be if we are going there to look at a breaker, next to the breaker there will be two switches. The idea is when the breaker is at end of life you will look at the switches. If they are also at end of life or near end of life you would package it together and say, let's do it in one shot, rather than replace the breaker this year, come back a year later, and do the switches. That's the idea.

58. The PWU submits that the capital expenditures required to meet customer needs exhibit efficiency and value for dollar improvements and should be considered reasonable.

Issue 7: Do the proposed capital expenditures include the consideration of factors such as customer preferences, system reliability and asset condition?

Issue 10: Is the benchmarking evidence adequate/sufficient and does it support the proposed Transmission System Plan and related cost forecasts?

59. Navigant and First Quartile Consulting's Transmission Total Cost Benchmarking Study provides cost and performance information for a period of five years from 2010 to 2014. There is an issue of whether the 2010 to 2014 timeframe properly reflects Hydro One's business going into the 2017 and 2018 test period. The company has experienced many changes since the end of the study period, including an IPO, changes to the management team, and new collective bargaining agreements with three unions. The PWU also acknowledges there are constraints that make the production of more timely studies unfeasible. The PWU submits that the Board should consider the benchmarking study within that context.

60. The study shows that Hydro One underspent on capital expenditures relative to its peers over the study period. The company's capital expenditure in 2014 was 4.8% of gross assets compared to a peer group median of 6.6%. Total transmission expenditure

was 9.1%, lower than the peer group median of 13.9%.[67] The low level of capital expenditures is consistent with low asset replacement rates in historic years.

61. The study includes two sets of reliability metrics that show markedly different reliability performance: Transmission Availability Data System ("TADS") metrics and Canadian Electricity Association ("CEA") provided SAIDI and SAIFI metrics. The TADS data show Hydro One among the worst-performing transmitters in the peer group. The CEA data shows Hydro One as one of the best-performing transmitters among a different, Canadian peer group.[68] There are a number of differences in the underlying data: CEA data does not include single circuits as TADS does, the CEA data does not include outages that did not result in interruptions as TADS does, and the reference peer groups are different.[69]

62. In response to a PWU interrogatory, Hydro One indicated that they rely on the CEA data to assets system outage performance.[70] The CEA data includes interruptions on the multi-circuit system that serves only 70% of Hydro One's delivery points.[71] The data does not reflect Hydro One's system-wide performance. The company's multi-circuit system has significantly better performance than the single-circuit system. For example, the multi-circuit SAIDI is 10 minutes and the single-circuit SAIDI is 3 hours and 31 minutes.[72] The PWU submits that system-wide performance should be reflected in system reliability metrics.

[67] Exhibit B2, Tab 2, Schedule 1, Attachment 1, Page 4
[68] Exhibit B2, Tab 2, Schedule 1, Attachment 1, Pages 20-23
[69] Oral Hearing Transcript, Volume 3, Pages 95-96
[70] Exhibit I, Tab 7, Schedule 10, Page 1
[71] Exhibit B1, Tab 2, Schedule 2, Attachment 2, Page 11
[72] ibid

C. PRODUCTIVITY IMPROVEMENT AND PERFORMANCE SCORECARD

Issue 11: Has Hydro One taken appropriate steps to identify and quantify productivity improvements in all areas of its transmission operations?

63. Hydro One's evidence shows that management has put a renewed focus on productivity and efficiency measures. In a technical conference undertaking response, Hydro One provided the following table to show the productivity savings embedded in their application.[73]

In $M	2017	2018
Procurement		
OM&A	2.1	2.8
Capital	11.2	21.4
Information Solutions Division (ISD)		
OM&A	3.4	4.5
Stations		
OM&A	2.9	3.5
Total		
OM&A	8.4	10.8
Capital	11.2	21.4

64. Total capital and OM&A savings over the test period is $51.8 million. The majority of the savings is attributable to procurement. In pages 3 and 4 of TCJ1.17, Hydro One has identified a target range for potential procurement savings for 18 asset and service categories and approaches to reduce their costs.

65. Mr. Vels discussed some of the current and future productivity measures during direct examination.[74]

> **MR. VELS: Yes. As I mentioned, part of our focus and the work that we completed between December and May was a very significant focus, both on productivity and efficiency, and the measurements and the systems underlying the opportunities that we believe there should be in those areas. We have investigated a great number of processes, policies, and activities that we believed could be changed, replaced, or eliminated to drive more value for customers.**

[73] TCJ1.17
[74] Oral Hearing Transcript, Volume 1, Pages 19-20

Part of our activity in addition was also to more clearly understand existing productivity initiatives, of which there were several, and particularly ascertained that we would be able to measure the financial benefits of those initiatives and ensure that the outcomes would be reflected in KPIs. Exhibit TCJ1.17 outlines productivity savings that we have included in this application. Examples of initiatives that we have studied and implemented since last year would be the procurement efficiencies that we expect to gain through improved procurement processes, improvements in our procurement group's talent, and additions to the systems. We expect to realize a total of $13.3 million for 2017 and $23.2 million for 2018, combining both OM&A and capital efficiency savings.

We are also completing and are close to finalizing a very extensive review of opportunities related to our IT operations and, at the time of the rate filing, had identified a total of almost $8 million in efficiencies for the two years. These are only the start. We do expect that we should be able to continue to drive increased and sustainable savings for several years to come.

66. Hydro One's evidence points to a number of specific productivity and efficiency measures that contribute to reducing costs over the rate period and beyond. Some of these measures include improved planning, schedule, and reporting practices, increased work bundling, improved equipment inventory management, implementing new technologies, and improving labour productivity.[75]

67. An outcome of recent collective bargaining negotiations is increased work force flexibility, allowing Hydro One to outsource positions when internal employees are not available. Increasing flexibility reduces the degree to which labour is a constraint to the work program. Hydro One is also focusing on expanding the skill sets of existing employees so a greater number of employees are capable of performing various functions.

68. Mr. Vels also discussed other significant savings that were not described by Hydro One as productivity or efficiency savings in cross-examination with Board staff:[76]

MR. MILLAR: Could you turn to page 28 of the Staff compendium. I'm sorry, 29. This is a question about, I think, a new services agreement that you have. If you look at page -- or, pardon me, line 21, 22, you discuss the savings that you are going to realize on account of that. And that's $80 million over the ten-year term of the agreement.

Would that be included in JTC1.17 as well, or is that a different category?

[75] Exhibit C1, Tab 2, Schedule 6
[76] Oral Hearing Transcript, Volume 2, Pages 154-155

MR. VELS: No, it's not included in TCJ1.17. There are various other elements of either cost avoidance or cost reduction that we did not define as productivity or efficiency savings. This would be one of them where we have reduced our cost base through outsourcing our facilities, and this particular schedule provides an estimate of what the value of that is compared to what the costs would have been had we continued to in-source those services.

There are also other examples. For example, we do in the evidence -- and I won't waste time by trying to find the page -- refer to integrated station projects, where we also made an estimate of how much it would have cost the company had we not been following this strategy.

And then, lastly and thirdly, we also included some initiatives which reduced the costs, such as the reduced pension contributions, which themselves contributed $11.1 million in 2017 and $10.2 million in 2018 to OM&A.

Those are the way we defined them and how we are measuring and tracking them. They are clearly significant benefits, but they didn't meet the definition as we define it of productivity savings.
So all we have included in TCJ1.17 are what we are tracking as productivity savings that our management has committed to. Other cost benefits, such as the outsourcing contract, the pension reduction, and integrated station replacements, for example, are not included in this schedule.

69. Hydro One's evidence demonstrates an increased focus on productivity and efficiency. These measures contribute to declining OM&A and declining unit capital costs in the test period. Hydro One should continue to identify feasible productivity and efficiency sources moving forward to mitigate the impacts of future sustainment capital increases.

D. OPERATIONS MAINTENANCE & ADMINISTRATION COSTS

Issue 13: Are the proposed spending levels for Sustainment, Development, Operations, and Customer Care OM&A in 2017 and 2018 appropriate, including consideration of factors such as system reliability and asset condition?

70. The proposed spending levels of OM&A demonstrate Hydro One's renewed focus on productivity and efficiency. OM&A expenditures declined from 2015 to 2016 and are set to continue this decline through the test period. The following table shows a summary of OM&A since 2012.[77]

[77] Exhibit C1, Tab 2, Schedule 1, Page 2

Table 1: Summary of Transmission OM&A Expenditures ($ Million)

Description	2012	2013	2014	Historic 2015	Bridge 2016	Test 2017	Test 2018
Sustainment	204.7	221.0	228.6	233.6	227.5	241.2	238.5
Development	8.4	8.6	7.5	6.1	5.3	4.8	5.0
Operations	54.8	56.7	56.6	59.0	60.0	61.3	62.1
Customer Care	4.4	5.3	5.4	5.1	4.1	4.0	3.9
Common Corporate Costs and Other OM&A	80.7	75.8	37.2	73.9	72.3	49.9	47.5
Taxes Other Than Income Taxes	62.1	21.2	64.1	63.9	62.9	63.6	64.3
Pension Adjustment*	-	-	-	-	-	-11.0	-8.0
B2M LP Adjustment*	-	-	-	-	-	-0.8	-2.1
Total	**415.2**	**388.4**	**399.5**	**441.6**	**432.1**	**413.1**	**411.2**

71. OM&A has been adjusted since the application was filed. Total OM&A is reduced to $412.7 million in 2017 and to $409.3 million in 2018.[78] OM&A in 2018 will be $32.3 million lower than it was in 2015, a 7.3% decline. This decline occurs despite an increase in accomplishments over the test period. A large portion of the OM&A reduction is due to a reduction in pension costs. The pension adjustment line item in the above table refers to an updated valuation of Hydro One's pension plan. The updated valuation reflects negotiated employee contribution rates and benefits, updated investment returns, and updated actuarial assumptions. The compensation cost savings from reduced Hydro One contributions is discussed in Issue 16.

Issue 14: Do the proposed OM&A expenditures include the consideration of factors such as system reliability, asset condition and customer preferences?

Issue 15: Are the proposed spending levels for Common Corporate Services and Other O&M in 2017 and 2018 appropriate?

[78] TCJ1.1

Issue 16: Are the 2017 and 2018 human resources related costs (wages, salaries, benefits, incentive payments, labour productivity and pension costs) including employee levels appropriate?

72. Hydro has made strides to control compensation levels. In the 2015 collective bargaining agreements, Hydro One successfully negotiated lower than inflation wage rate growth with the PWU, the Society of Energy Professionals ("Society"), and the Canadian Union of Skilled Workers ("CUSW").

73. The low growth of base wages is partially offset by lump sum payments and share grants for the PWU and Society represented employees. Low wage growth has a number of benefits beyond lower base wage costs. Overtime, pension, and other allowance costs are tied to base wage rates. These costs do not increase due to the lump sum payments. Additionally, the base wage rate at the time of future collective bargaining agreements will be lower than had wages grown with inflation. The savings from lower base wage growth was expressed by Mr. McDonell during cross-examination by the PWU:[79]

> **MR. STEPHENSON: Okay. And as I understand it, from Hydro One's perspective, you perceive that you actually successfully achieved something of a paradigm shift, at least in terms of the PWU agreement as coming out of those 2015 negotiations.**
>
> **MR. McDONELL: I liked your word, paradigm shift, because I was going the use the exact same terminology. Yes, and what we were able to do was we were able to negotiate with the PWU a lower than normal base wage increase and lump sums.**
>
> **And that's actually very significant for a couple of reasons. We'd never been able to do that with the PWU in the past, and having a lower base rate increase has a multiplier saving effect on other compensation elements that are driven by base rate -- for instance, over time, premium rates, the pension formula, a variety of different allowances that are based on the base rate. So by having a lower base rate, we are able to find savings in other compensation elements as well.**

74. Later in this cross-examination, Mr. McDonell described the benefits of providing share grants as a form of compensation:[80]

> **MR. STEPHENSON: Okay, fair enough. In order to achieve the positive outcomes from the company's perspective, there was some quid pro quos, right?**

[79] Oral Hearing Transcript, Volume 10, Page 9
[80] Oral Hearing Transcript, Volume 10, Pages 11-13

MR. McDONELL: Yes, there was.

MR. STEPHENSON: And a key element of the quid pro quo was the share grant, correct?

MR. McDONELL: That is correct.

MR. STEPHENSON: And I am not going to get into the details or the mechanics of the share grant beyond a couple of questions.

Number one, the share grants go only to your employees who were employed as of a certain date, correct?

MR. McDONELL: That is correct. There is a finite number of employees who are entitled to share grants.

MR. STEPHENSON: So somebody that was hired, for example, in 2016 into a PWU regular position simply isn't eligible for those share grants, correct?

MR. McDONELL: I believe, yes. And that date, I believe, is July 2015. So any new employees after that date aren't entitled to share grants.

MR. STEPHENSON: So from the perspective of that employee, they took certain -- in effect, they got -- they got the concessions that were in the agreement but didn't get the offset by way of the share grant; correct?

MR. McDONELL: If you mean that they would be paying the higher employee contribution rates without the benefit of the share grant, that's absolutely true.

MR. STEPHENSON: Okay. And the share grants also require -- there is a significant hold period for the employees, correct? They can't dump the shares, if I recall.

MR. McDONELL: I believe it's two years, but that's so that they could take advantage of a tax deduction by holding it for two years.

MR. STEPHENSON: Okay. I take it from the company's perspective they actually like the share grants for a completely different reason other than the -- that it allowed them to make the deal. From the company's perspective it aligns the employees' interests with the company's and the shareholders' and so forth.

MR. McDONELL: Yeah, I would say, you know, there is skin in the game, right? The employees' behaviour, their outcomes, are going to be more aligned with the goals and the objectives of the company by having part ownership by share grants.

75. As part of recent collective bargaining agreements, Hydro One achieved concessions, in part, by providing for share grants. Share grants are available only to existing employees and are set to be distributed for 11 years. Share grants are first paid to PWU represented employees on April 1, 2017 and Society represented employees on April 1, 2018. Share grant costs for PWU represented and Society represented

employees are $2.76 million and $0.97 million, respectively, in their first years of eligibility.[81] The costs are expected to decline over the 11 year period as employees retire or leave Hydro One and lose share grant eligibility. Hydro One's achievement of long term concessions for near term share grant costs will allow for greater compensation cost savings in the long run.

76. In 2010, the Board directed Hydro One to demonstrate progress toward bringing its pension plan in line with the sector.[82] Employee pension contributions have substantially increased for all employee groups since 2013.[83] The chart below demonstrates the increased share of pension contributions that is borne by PWU represented employees.[84] Similar charts for Society represented and MCP pension plan members are also available in Hydro One's evidence.[85]

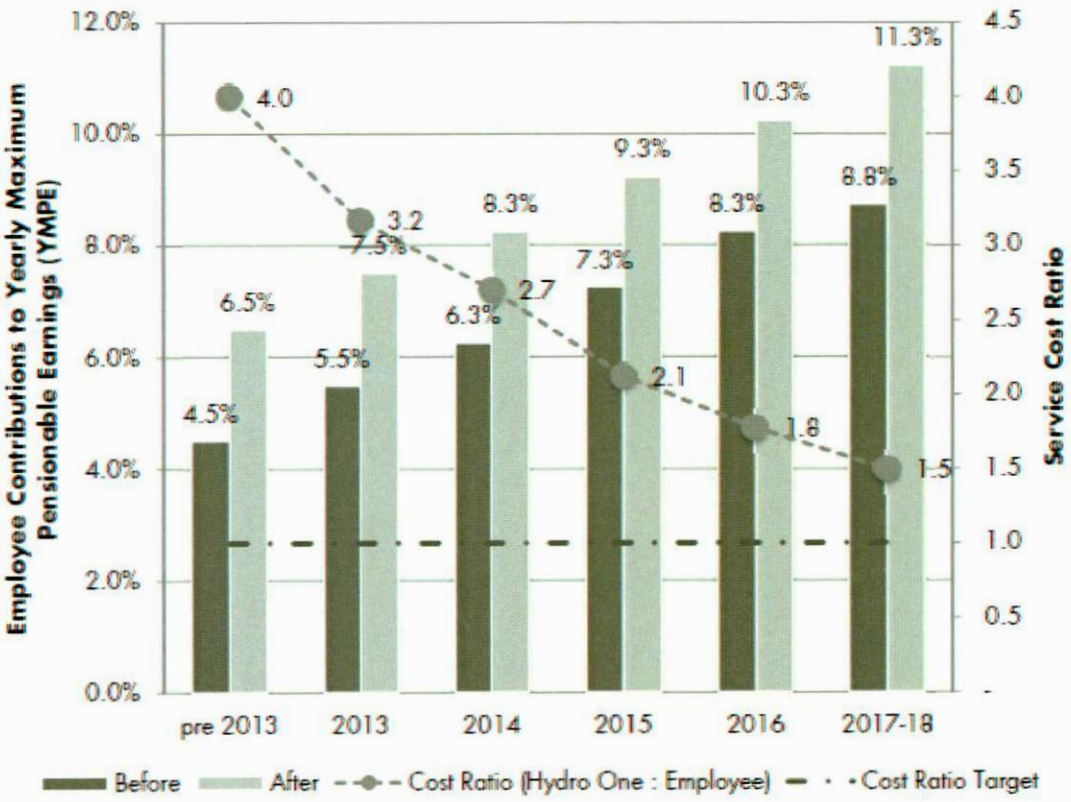


Figure 8: Employee Pension Plan Contributions - PWU

[81] J10.2
[82] Exhibit C1, Tab 4, Schedule 1, Page 28
[83] PWU represented employees' cash contributions to their pensions increased at an average annual rate of 14.9% from 2013 through the end of the test period. Exhibit C1, Tab 4, Schedule 1, Page 29
[84] Exhibit C1, Tab 4, Schedule 1, Pages 28-29
[85] Exhibit C1, Tab 4, Schedule 1, Appendix A

77. The share of pension contributions paid by PWU-represented employees doubles from 2013 to the test period (as did the dollar value of their contributions). The following table summarizes Hydro One's total pension and other post-employment benefits ("OPEB") costs. Hydro One's evidence does not separate pension and OPEB costs by employee group so the figures are for all transmission employees.

Pension & OPEB Costs							
	Historic Years			Bridge Year	Test Years		Total Change
	2013	2014	2015	2016	2017	2018	2013-2018
Pension Costs ($M)	79	77	77	50	49	46	-41.77%
OPEB ($M)	53	57	51	44	52	50	-5.66%

Based on data from J10.2

This table demonstrates the significant progress achieved by Hydro One in containing pension and OPEB costs.

78. Modified pension eligibility dates and average earning calculations are further contributing to reducing future pension costs. Early undiscounted pension eligibility has been extended from the Rule of 82 to the Rule of 85, effectively delaying pension eligibility for an average of one and half years. Final average earnings calculations are to be determined using five years instead of three years, reducing pension benefits. The new pension rules apply to all PWU represented employees and Society represented legacy pension plan members and are effective March 31, 2025.[86]

79. Hydro One's evidence cites increased resourcing flexibility as another outcome of the 2015 collective bargaining agreement with the PWU. Hydro One achieved more flexibility in utilizing temporary employees for a longer period of time and in contracting out work. Mr. McDonnell discussed the benefits of this type of concession in a cross-examination with the PWU.[87]

> **MR. STEPHENSON: The reality is that if you have bargaining with respect to a single item, it's very difficult. You need to have lots of items in play, and you trade one off against the other, correct?**

[86] Exhibit CA, Tab 4, Schedule 1, Page 28
[87] Oral Hearing Transcript, Volume 10, Page 7

MR. McDONELL: Yes, and I think both parties have shown the ability to find those trade-offs that's a benefit for both the employer, the union, as well as the customer, yes.

MR. STEPHENSON: And over the years, Hydro One has succeeded in getting certain things that are important to it in terms of being able to operate its business on a cost effective basis, in terms of flexibility and so forth, that don't necessarily involve absolute concessions with respect to wage rates, correct?

MR. McDONELL: Yes, I would agree with that. I mean, I think in our evidence, we do point to a number of what I would call incremental improvements for us in order to be able to constrain costs or increase flexibility without maybe reducing wages. But we have found other ways to reduce costs and constrain costs, yes.

The increased flexibility demonstrates an instance in which negotiations have led to cost savings that are not reflected in compensation cost trends for PWU represented employees.

Issue 17: Has Hydro One demonstrated improvements in efficiency and value for dollar associated with its compensation costs?

80. In addition to controlling wage growth, Hydro One is reducing employee complement to lower total compensation costs. The PWU submits that, from the Board's perspective, the critical issue with respect to compensation should be overall compensation cost, rather than wage rates, or the cost of individual element of employee compensation. Hydro One's holistic strategy with regard to compensation costs should be evaluated based upon its ability to reduce total compensation dollars. The base wage rate and total compensation per employee do contribute to the level of total compensation. However, they are not the only factors, and consideration of these measures should be made within the context of Hydro One's overall strategy. The PWU's cross-examination of the benchmarking study panel demonstrates an instance in which an attempt to achieve a reduction in one compensation related metric can lead to higher actual compensation per employee.[88]

MR. STEPHENSON: The last thing I just want to touch on is overtime, and specifically on the issue of overtime hours. And you make a recommendation, or maybe it's -- sorry, it's not a recommendation, it's actually an observation, which appears on page 30, about "minimizing overtime can lead to a significant benefit".

[88] Oral Hearing Transcript, Volume 3, Page 99

My understanding -- and we have heard evidence about this from time to time in prior cases here -- is that the company -- this company and I suspect other companies make business decisions about the use of overtime versus alternatives, and one of the issues that they have to confront is, if they are not going to deploy overtime, one of the alternatives is to simply hire more employees. And what companies -- this company has said is that, relative to increasing complement, overtime is cheaper.

Are you aware of that business rationale?

MR. GRUNFELD: Yes, that there is -- as we understand -- or as I understand, there was a business decision made by Hydro One, given all of the constraints associated with managing its resources and assets, that this was the effective -- an effective way to manage costs and resources.

81. Overtime costs are higher as a result of this business decision made by Hydro One. Higher overtime costs would lead to higher per employee compensation levels in compensation benchmarking studies, such as Mercer's 2016 Compensation Cost Benchmarking Study. Hydro One took the prudent course of action to minimize total global compensation instead of improving compensation comparison metrics. The PWU submits that evaluation of Hydro One's compensation should be made within the context of the global compensation for the company as a whole.

82. The following PWU table summarizes total compensation for all employees and for PWU represented regular employees.

Compensation Trends							
	Historic Years			Bridge Year	Test Years		Average Annual Change
	2013	2014	2015	2016	2017	2018	
Total Tx Compensation ($M)	476	523	517	499	539	526	2.00%
Total Regular PWU Tx Compensation ($M)	247	268	266	252	271	261	1.14%

Based on data from J10.2

83. Total compensation cost for all employees grows at a rate of 2% per year from 2013 to 2018. Total compensation for PWU represented regular employees only increases at a rate of 1.14% annually over the same period. Most of the increase occurred from 2013 to 2014. Total compensation from 2014 to 2018 increases at a rate of 0.14% for all transmission employees and actually declines for PWU represented

employees at a rate of 0.62% per year. Total compensation costs have been steady since 2014 and continue to remain close to that level through the test period.

84. Hydro One negotiated the most recent collective bargaining agreements with the PWU, the Society, and the CUSW in 2015. Since that year there has been a low increasing trend in total compensation costs. The following PWU table compares this trend with the trend in total revenue requirement. Total compensation includes share grants, lump sum payments, pensions, overtime, and other allowances for all regular and non-regular employees.

Total Compensation as a % of Revenue Requirement					
	Historic Year	Bridge Year	Test Years		Average Annual Change
	2015	2016	2017	2018	
Total Tx Compensation ($M)	517	499	539	526	0.54%
Total Revenue Requirement ($M)	1,477	1,481	1,511	1,589	2.47%
Total Compensation as a % of Revenue Requirement	**35.01%**	**33.70%**	**33.53%**	**32.92%**	

Based on data from J10.2, TCJ1.1, and EB-2014-0375 Draft Rate Order, Exhibit 4.0, Page 1

85. This table demonstrates the progress Hydro One has made since prior cost of service applications. Total transmission compensation is growing at an average of 0.54% per year from 2015 to 2018. This low annual growth is achieved at a time when the amount of work undertaken by the company is increasing. Over the same period, the revenue requirement is growing at an average of 2.47% per year. Furthermore, the share of the revenue requirement comprised by compensation is declining in this period. The PWU submits that compensation growth is not a key driver of revenue requirement growth.

86. The following PWU table replicates the previous table with compensation from only regular employees represented by the PWU.

PWU Compensation as a % of Revenue Requirement					
	Historic Year	Bridge Year	Test Years		Average Annual Change
	2015	2016	2017	2018	
Total PWU Tx Compensation ($M)	266	252	271	261	-0.65%
Total Revenue Requirement ($M)	1,477	1,481	1,511	1,589	2.47%
PWU Compensation as a % of Revenue Requirement	**18.04%**	**16.99%**	**17.82%**	**16.37%**	

Based on data from J10.2, TCJ1.1, and EB-2014-0375 Draft Rate Order, Exhibit 4.0, Page 1

87. The compensation trend for PWU represented employees demonstrates Hydro One's achievements in compensation cost control since 2015. The cost reduction from lower pensions and a lower level of complements outweigh the additional costs from share grants, lump sum payments, and modest base wage increases.

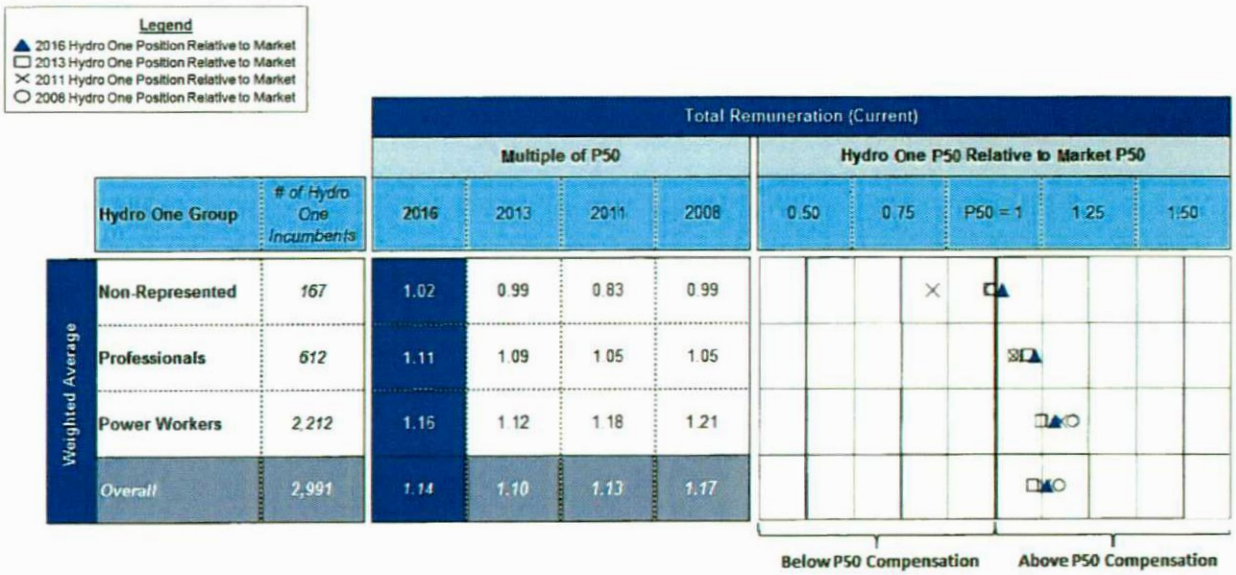
Mercer 2016 Study

88. Mercer's Compensation Cost Benchmarking Study evaluates Hydro One's compensation at the individual employee level against industry peers. This type of analysis can provide useful information in one aspect of the level of total compensation. However, individual employee compensation does not adequately reflect performance in total compensation cost control. As discussed earlier, decisions that lead to lower total compensation can lead to an appearance of poor performance at an individual level.

89. Mercer produced similar studies for Hydro One in 2008, 2011, and 2013. The 2016 peer group is made up of 17 Canadian companies with similar business characteristics to Hydro One. The compensation levels of various Hydro One employee groups and positions are measured against the median compensation level of the peer group. The study was undertaken to be filed with Hydro One's upcoming distribution rate application. The job classifications reflect positions that pertain to the distribution side of the business and do not necessarily reflect Hydro One's transmission employees. The majority of capital construction work is completed by CUSW represented workers. Hydro One's evidence points out that CUSW workers typically have lower wages than comparable positions represented by the International

Brotherhood of Electrical Workers. These workers are not included in Mercer's study so their lower than median wages are not reflected in the study.

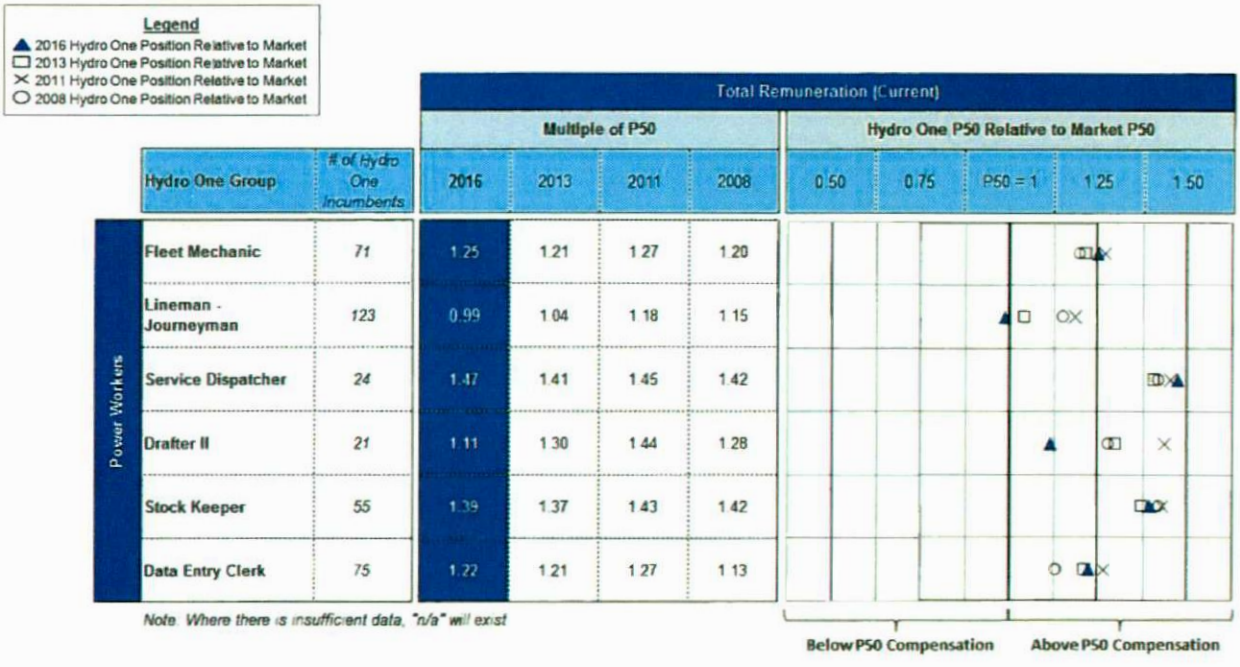
90. The study shows that compensation in 2016 is 14% above the median for all Hydro One employees and 16% above the median for PWU represented employees. The following table shows the overall results of the Mercer study.[89]



91. Mercer makes an effort to use the same peer group over time but, importantly, there are a few exceptions. Since 2013, two companies have exited the peer group and four companies have joined. As a consequence of the change in the peer group, the median has changed. Mercer was not made available as an expert witness so the actual implications of the median change could not be explored. Analysis of the compensation trend from previous Mercer studies to the current study is not reliable if the median is affected by the change in peer group. The median level of compensation is used as a proxy for the level of compensation within the industry. A changed peer group will move the median in a way that is not reflective of industry trends. The Mercer study shows a compensation increase of 10% above the median in 2013 to 14% above the median in 2016. It cannot be ascertained how much of this is due to changes in Hydro One compensation relative to the median and how much is attributable to changes to the median.

[89] K9.8: Mercer Slide Presentation, Slide 12

92. The compensation tables on pages 15 through 17 of the Mercer slide presentation illustrate the uncertain effect of the changed median. Of the 16 employee categories for PWU represented employees, 10 categories show higher compensation relative to the mean in 2016 compared to 2013, and the remaining 6 show declining compensation relative to the mean over the same period. One of these tables is reproduced below.[90]



	Hydro One Group	# of Hydro One Incumbents	Total Remuneration (Current) Multiple of P50 2016	2013	2011	2008
Power Workers	Fleet Mechanic	71	1.25	1.21	1.27	1.20
	Lineman - Journeyman	123	0.99	1.04	1.18	1.15
	Service Dispatcher	24	1.47	1.41	1.45	1.42
	Drafter II	21	1.11	1.30	1.44	1.28
	Stock Keeper	55	1.39	1.37	1.43	1.42
	Data Entry Clerk	75	1.22	1.21	1.27	1.13

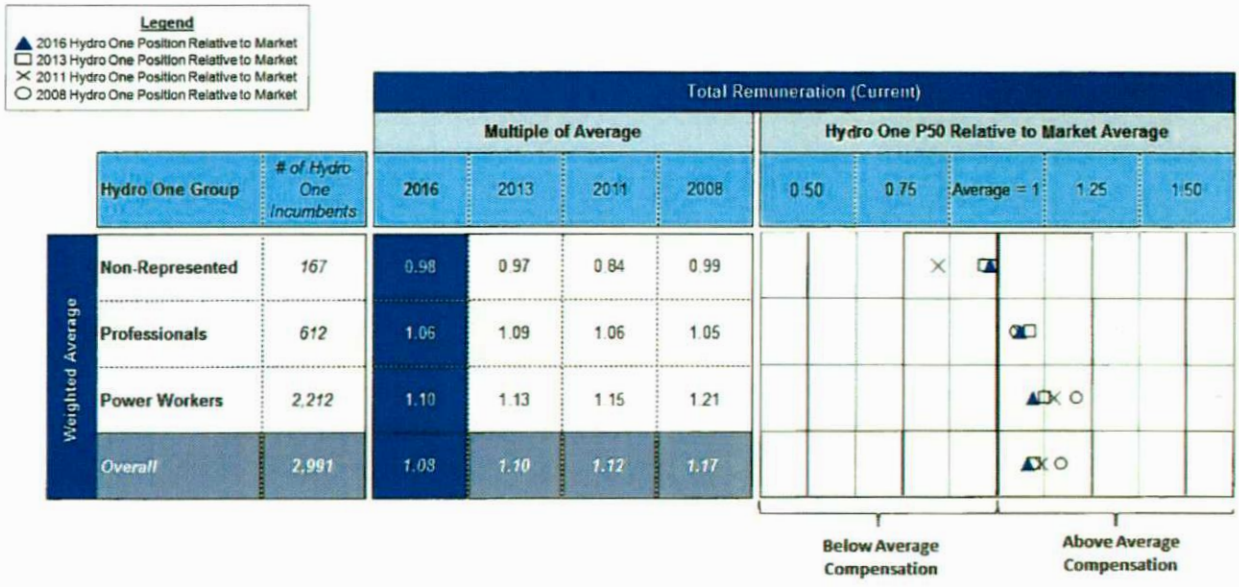
Note: Where there is insufficient data, "n/a" will exist

93. The compensation trends vary significantly by job group. These results vary despite the fact that the compensation of PWU represented employees has increased at the same rate for each job group. The variance in compensation trends is due to changes in the medians, not changes in PWU compensation.

94. Mercer also provides a comparison of Hydro One compensation levels to the mean peer group wage. The median is typically used in this type of compensation study over the mean because the use of mean can cause the reference measure to be largely influenced by outliers. As described earlier, the median can be unduly influenced by changes to the peer group. Within that context, it is appropriate to consider Hydro One's

[90] K9.8: Mercer Slide Presentation, Slide 16

wages relative to the mean in compensation trend analysis, which is reproduced below.[91]



This table shows a continuously declining trend in compensation costs from 2008 to 2016. The declining relative mean results conflict with the increasing relative median results.

95. The following PWU table compares Mercer's results with compensation per employee for both Hydro One as a whole and PWU represented employees. Consistent with Mercer's study, all compensation figures are for Hydro One Networks, including both transmission and distribution.

[91] K9.8: Mercer Slide Presentation, Slide 18

Comparison of Compensation Measures					
	Historic Years			Bridge Year	Total Change 2013-2016
	2013	2014	2015	2016	
Overall Compensation per Employee ($)	**99,472**	**103,231**	**103,165**	**104,106**	**4.66%**
Hydro One Compensation Relative to the Median	1.10			1.14	
Hydro One Compensation Relative to the Mean	1.10			1.08	
PWU Compensation per Employee ($)	**104,239**	**109,420**	**106,465**	**107,584**	**3.21%**
PWU Compensation Relative to the Median	1.12			1.16	
PWU Compensation Relative to the Mean	1.13			1.10	

Based on data from Exhibit C1, Tab 4, Schedule 1, Attachment 1 and K9.8: Mercer Presentation

96. This table demonstrates the difficulty in using this type of study in trend analysis. Over the 3 year period between studies, total per employee compensation grew by 4.66%. Mercer's study shows that employee compensation relative to the median increased by 4 percentage points and compensation relative to the mean declined by 2 percentage points. For the median figures to be an accurate representation of Hydro One's compensation relative to the industry, industry compensation would have had to increase at an unreasonably low rate (or actually decline) in order for Hydro One's low compensation growth to outpace industry growth to such a degree. The PWU submits this is an unlikely explanation. The much more likely explanation is that the results are distorted because the change in the median was materially affected by changes in the composition of the peer group.

97. The trend disparity is even more significant for PWU represented employees. While compensation per PWU represented employee grew by only a total of 3.21% from 2013 to 2016, compensation relative to the median increased by 4 percentage points. This suggests that the median must have actually declined from 2013 to 2016. The PWU submits that the change in the median from 2013 to 2016 is not reflective of the change in industry compensation.

98. Relative to Hydro One compensation, the peer group mean and median are moving in opposite directions. This is only possible with a material change to the peer

group. The PWU submits that the company's compensation trends reflected in the Mercer study do not reflect movements of the company's relative position in the industry.

99. The Mercer study is considered a snapshot of Hydro One's compensation relative to the median at September 1, 2016. This is only one year after the most recent collective bargaining agreements were completed. The full impact of Hydro One's achievements in these negotiations is not reflected in the study.

100. As discussed above, the collective bargaining agreements also resulted in lower pension contribution costs for the company. Lower pension costs reduce overall compensation costs and contribute to lower compensation per employee relative to the median going forward. As with the low base wage increases, actions that have been taken to reduce future compensation are not reflected in Mercer's study.

101. The PWU notes that in its written submissions, Board Staff proposes a disallowance of $12.5 million to OM&A on the basis of the results of the Mercer study. The PWU disagrees with this submission, for at least three reasons. First, for the reasons set out above, there is good reason to doubt the validity of the most recent Mercer study, at least its use in a trend analysis. We note that there was no witness from Mercer available to be examined in this respect.

102. Secondly, the focus of the Mercer study is on per employee compensation. While per employee compensation is a driver of total compensation, it is only one driver. The evidence reveals that Hydro One has taken significant steps to reduce total compensation through other means, in particular, reductions in employee complement, and shifts in the relative numbers of employees in the various employee categories. The Board should not second guess (and penalize) Hydro One in its management choices in this respect.

103. Finally, the Board received clear evidence from Hydro One that, at least in the case of the PWU, the achievement of further cost reductions in the 2015 collective agreement necessary to reduce the gap identified by Mercer simply was not possible.[92] The PWU submits that the disallowance of costs in circumstances where the utility

[92] Oral Hearing Transcript, Volume 10, Page 9

could not actually achieve the lower costs is confiscatory and a denial of prudently incurred costs. It cannot result in a just and reasonable rate.

Issue 19: Are the amounts proposed to be included in the 2017 and 2018 revenue requirements for income taxes appropriate?

104. The PWU's comment under this issue pertains to an issue that was raised during the course of the oral hearing, viz., the issue of whether the payment of the Departure Tax and any benefits thereof, both of which resulted from the decision by Hydro One's shareholder to sell more than 10 percent of the outstanding shares of the company, should be included or excluded from Hydro One's applied-for revenue requirement.

105. Hydro One has identified and outlined, during cross examination and in its Argument-in-Chief, the chronological sequence of events leading up to the payment of the Departure Tax, the applicable rules and standards under the federal and provincial corporate income tax acts, the applicable regulatory principles of cost causation, 'stand-alone' and 'benefits should follow cost,' and evidence from RP-2004-0188, all of which justify Hydro One's position that the IPO related costs and benefits including the tax bump should be excluded from revenue requirement. In particular, Hydro One has presented in its Argument-in-Chief irrefutable facts that justify the application of the stand-alone and benefits follow costs principles to this issue:

- Shareholder's ownership interest disposition caused Hydro One to incur the Departure Tax;
- There is no relationship between the incurrence of the Departure Tax cost and the provision of transmission regulated services;
- The Departure Tax was a real cost incurred by Hydro One; and
- Hydro One incurred a $2.6 billion tax liability funded entirely by the shareholder.

106. These facts support Hydro One's position that the provision of regulated transmission services is not what caused Hydro One to incur the Departure Tax costs. Similarly, the deferred tax asset did not result from the provision of regulated

transmission services. It is a fact that the Departure Tax Hydro One incurred, and therefore the deferred tax asset thereof, resulted from Hydro One's decision to issue the IPO.

The Board's findings in the RP-2004-0188 Report[93]

107. In RP-2004-0188, the Board addressed two issues that are relevant to the current case:

1. Tax savings arising from non-recoverable or disallowed expenses, including purchased goodwill and charitable donations; and
2. Fair market value ("FMV") "bump".

108. With respect to disallowed expenses, the Board found that the tax savings in question would not be allocated to ratepayers, but instead would flow to the shareholder. While this issue is less directly pertinent to the current issue than the fair market value bump issue, the reasons for the Board's findings are as relevant. In the PWU's view, there are two reasons why the Board would disallow expenses or costs proposed or incurred by a utility. The first is that the utility's proposed/incurred expenses/costs might be unrelated to its operation, i.e., the provision of services to customers, and therefore should not be included in revenue requirement. This is the express purpose of the stand-alone principle. The second reason may be that while the proposed/incurred expenses/costs may be related to the utility's operation, they might not stand the Board's prudence or reasonableness test. In both instances, the ultimate outcome of the Board's decision would be that the utility's shareholder would be forced to absorb the expenses/costs in question. By disallowing these expenses/costs, the Board would also fulfil its duty of protecting ratepayers from any harm caused by the actions of the utility. Moreover, by finding that tax savings relating to disallowed expenses/costs should flow to the shareholder, the Board affirmed the principle that ratepayers should not be entitled to benefit from tax savings that arise from costs that they have not borne.

[93] 2006 Electricity Distribution Rate Handbook: Report of the Board, May 11, 2005

109. It is clear therefore that the Board in this case applied principles of 'stand-alone utility', 'benefits follow cost', and 'no harm to ratepayers'. More importantly, it is the Board's normal regulatory practice to apply these principles consistently to all categories of cost included in revenue requirement applications. The Board does not and should not apply these principles to some cost categories and then disregard them in considering other cost categories, regardless of the ultimate impact (gain or loss) of its decision on the shareholder or ratepayers. This is because the Board's role is not to reward or penalise either party. This is a very important consideration relevant to the fair market value bump issue discussed below and also to the current issue in this application.

110. With respect to the fair market value bump issue in RP-2004-0188, the Board found that any tax savings resulting from the fair market value bump would be allocated to the ratepayers. The Board acknowledged that the rates themselves were based on book value, not market value, which suggested that under the stand-alone principle the fair market value bump should be disregarded. However, the Board determined that the shareholder had not incurred any cost related to the change in value for tax purposes; therefore, the "benefits follow costs" principle would not apply.

111. It is clear from the Board's decision that because the change in value for tax purposes did not have impact on rates, the stand-alone principle would require that the fair market value bump be disregarded; however, because the shareholder had not incurred any cost, any benefits associated with the market value bump amount to a windfall that should go to ratepayers. Given that the issue at the time was whether the tax savings arising from the FMV bump should be shared between ratepayers and shareholders, allocated 100% to the ratepayers, or allocated 100% to the shareholder, an argument can be made that the Board's decision to award all the benefits to ratepayers was unfair to the shareholders. Nevertheless, it was clear that the Board gave much more weight to the fact that the shareholder did not incur any cost (so the 'benefits follow cost' principle would not apply) than the 'stand alone' and 'no harm' principles.

112. In the current case, none of the rate making rules, standards, and principles would justify the allocation of the Departure Tax cost or the benefits thereof to ratepayers. As Hydro One points out, the Departure Tax it paid is the result of a decision by the shareholder to offer an IPO, which is different from a decision by the government to introduce a new tax regime or to require utilities to revalue their assets. Therefore, the stand alone principle requires Hydro One's shareholder absorb the cost. Secondly, because it is the shareholder that would absorb the cost, ratepayers are protected from any harm. Thirdly, the 'benefits follow cost' principle dictates that any benefits associated with the FMV bump flow to the party that bears the cost – Hydro One.

113. It would not be reasonable to allocate the Departure Tax to ratepayers. As Hydro One points out, the obligation and payment of the Departure Tax arose due to circumstances entirely unrelated to the costs and activities that Hydro One incurs to provide transmission regulated services. If the Board were to allocate the Departure Tax to ratepayers, then it would abandon the above mentioned applicable principles and standards. Also, the shareholder, as owner of Hydro One, can make business decisions that do not have impact on ratepayers and unrelated to Hydro One's regular operation of providing transmission/distribution services to its customers. Such decisions may result in net gain or loss to the shareholder. As long as ratepayers are whole, the nature and magnitude of the outcomes of such decisions should be irrelevant to the Board's consideration. Doing otherwise would render the Board's practice inconsistent and the applicable principles ineffective.

114. The PWU submits that it would be unreasonable to allocate any of the Departure Tax costs or the deferred tax asset benefits to the regulated transmission services and the rates charged for such services.

Other: Line Losses

115. Environmental Defence ("ED") raised the issue of line losses. Line losses necessitate increased generation to replace the lost electricity. Reducing line losses would reduce the cost of this additional generation and improve conservation. ED

provided expert evidence on line losses from Mr. Lusney of Power Advisory. The evidence provides useful background information on the issue including methods to reduce line losses and examples of measures taken to reduce line losses in other jurisdictions.[94]

116. Hydro One made the argument that line losses should not be a primary consideration in investment planning. Hydro One's position was explained by Mr. Young in direct examination:[95]

> **MR. YOUNG: Thank you. Our specific concern is that the ED evidence does not address two key issues; first, whether Hydro One considers appropriate planning criteria in the transmission system plan, because the evidence does not describe how historical loss data could be factored into Hydro One's planning process as a transmission system owner.**
>
> **Second, the evidence does not explain how historical loss data can be used to measure performance, again for a transmission system owner, given that the transmission losses are so much more influenced by other -- by factors outside the transmitter's control. And these would include the activities of market participants, including loads and generators, as well as the system operator.**

117. Mr. Lusney provided Norway's Statnett and the UK's National Grid Electricity Transmission ("NGET") as examples of transmitters that dealt with line loss regulation. Mr. Young explained that Statnett and NGET have control over line losses as they are system operators, which is not the case for Hydro One.[96]

118. Mr. Young explained that line losses are a "secondary or tertiary consideration". He discussed Hydro One practices to minimize line losses, one of which is the consideration of line losses in asset procurement decisions.[97] ED correctly pointed out that line losses are not mentioned once in the application.[98] Hydro One discussed line losses in additional evidence filed November 10, including an illustrative example of loss reduction costs and benefits.[99] The example evaluates the cost and benefit of making all 2018 conductor replacements with low resistance conductor. The calculations suggest it would cost $180 million to make 440km of replacements with low resistance conductor

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[94] K12.4
[95] Oral Hearing Transcript, Volume 5, Page 28
[96] ibid
[97] Oral Hearing Transcript, Volume 5, Pages 37-39
[98] Oral Hearing Transcript, Volume 5, Page 45
[99] Additional Evidence filed November 10, 2016, Page 18

for a benefit of $1 million. The PWU notes that Hydro One did not provide the incremental cost of low resistance conductor over standard conductor or a net present value calculation of annual loss reductions. Additionally, the method to evaluate benefits was disputed by both parties.

119. The PWU notes that line loss costs and benefits are asymmetric for Hydro One and ratepayers. The primary beneficiary of reduced generation costs is ratepayers. The burden of allocating resources toward the reduction of line losses would fall on Hydro One. Should it be the case that reducing line losses may result in material savings for ratepayers, the full benefit of avoided generation to ratepayers should be considered by Hydro One. The PWU submits that an incentive regulation tool may be appropriate to align Hydro One and ratepayer incentives.

120. Without reliable estimates of costs and benefits of line loss reduction methods, the degree to which line losses should be considered cannot be determined. The PWU submits that line loss reduction should be further explored going forward, but the treatment of line losses should remain unchanged for this cost of service period.

All of which is respectfully submitted.