

July 3, 2019

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File 93901

VIA RESS FILING AND COURIER

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

Dear Ms. Walli,

**Re: Hydro One Networks Inc. 2020 Transmission Rate Application
EB-2019-0082**

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

Yours very truly,
PALIARE ROLAND ROSENBERG ROTHSTEIN LLP


Richard P. Stephenson
RPS:pb

Encl.

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Hydro One Networks Inc.
2020-2022 Transmission Rate Application

Power Workers' Union Interrogatories

PWU 1

Ref (a): Exhibit A, Tab 2, Schedule 4, Attachment 1, Pages 6-7 of 10

Hydro One has three maintenance categories: preventive; planned corrective; and demand corrective, which are defined as follows:

- **Preventive: time-based and condition-based maintenance activities that follow a defined work standard task list. Approximately 62% of Hydro One's maintenance work is preventive.**
- **Planned corrective: maintenance to correct unacceptable asset deficiencies discovered during preventive maintenance work, which may be addressed along with preventive maintenance work or in the near future as planned work that does not require a forced outage. Approximately 18% of Hydro One's maintenance work is planned corrective.**
- **Demand corrective: maintenance that must be completed imminently to address critical conditions discovered by chance or through failure but not during**

The TCB study combined Hydro One's planned corrective maintenance and demand corrective maintenance into a single "corrective maintenance" category.

- a) To Hydro One's knowledge, is its classification of preventative, planned corrective, and demand corrective maintenance categories consistent with other utilities in Ontario?
- b) Is the level of maintenance work required for planned corrective maintenance greater than preventive maintenance work?
- c) Is the level of maintenance work required for planned corrective maintenance greater than what was in fact "planned"?
- d) What asset condition (or risk level) are assets that are maintained within the planned corrective maintenance category?

PWU 2

Ref (a): Exhibit A, Tab 3, Schedule 1, Page 2 of 50

In 2020, a typical Hydro One medium density (R1) residential customer consuming 750 kWh/month will see an increase of \$0.79/month or 0.6% on their total bill as a

result of the Application. Almost half of this increase is attributable to load decline due to government conservation initiatives and lower consumption.

Ref (b): Exhibit A, Tab 3, Schedule 1, Page 27 of 50

The proposed decrease in the 2020 charge determinant load forecast relative to the currently approved 2018 load forecast (per EB-2016-0160) results in an estimated 3.8% impact on rates due to load.

- a) If the load remained unchanged from the most recently approved forecast, and holding all else constant, what would be the bill impact for a Hydro One R1 customer?

PWU 3

Ref (a): Exhibit A, Tab 3, Schedule 1, Page 3 of 50

In addition, Hydro One will spend \$552 million to add capacity to the system to accommodate new customers and businesses, enabling economic growth in Ontario in communities such as Leamington and delivering on the requirements of Regional Planning processes and the government's Long Term Energy Plan.

Ref (b): Exhibit A, Tab 3, Schedule 1, Attachment 1, Pages 12-13 of 24

The Transmission System Plan also includes \$1.1 billion of development capital to provide transmission access and additional capacity for new customer connections and to implement regional development plans that were developed jointly with large industrial customers, distributors and the Independent Electricity System Operator (IESO). This will result in the following system additions:

- **Six new transformer stations, 14 customer-owned stations, and 470 new or upgraded transmission line circuit-km; and**
- **Major projects including the development work for the North-West Bulk Transmission Expansion, new transmission switching and lines facilities required to support the 1300+ MW load growth in the Leamington Area, transformation and lines at Milton Switching Station, and upgrades/expansion in Barrie and Toronto areas.**

- a) What is the forecast load if the number of customers and businesses remained unchanged from the most recently approved forecast?
- b) Please confirm the \$552 million figure in reference (a) applies only to the 2020-2022 rate period.

PWU 4

Ref (a): Exhibit A, Tab 3, Schedule 1, Page 3 of 50

Hydro One's plan will address critical safety and environmental risks in its system. It will improve reliability performance by 13% to return to top quartile performance that Hydro One's transmission customers are expecting.

- a) Will Hydro One return to top quartile performance only if the reliability of its comparators remains constant?
- b) Does Hydro One track reliability trends of its comparators? If so, please describe the current trends.

PWU 5

Ref (a): Exhibit A, Tab 3, Schedule 1, Page 6 of 50

The proposed 2020 revenue requirement reflects a year-over-year increase of 4.9% versus the 2019 revenue requirement proposed in Hydro One's 2019 Transmission Application (EB-2018-0130). The average year-over-year increase in the revenue requirement over the 3 year test period is expected to be 5.2% per year.

- a) Please provide the average year-over-year increases to the revenue requirement from 2018 to 2022.
- b) Does Hydro One agree that the average year-over-year rate increase is higher than it would have been had Hydro One submitted a 4-year CIR from 2019-2022 as it had originally intended?

PWU 6

Ref (a): Exhibit A, Tab 3, Schedule 1, Page 22 of 50

Table 2: Productivity Savings Forecast Summary (\$Millions)

\$mm	2020	2021	2022	2023	2024	Total
Operations	47	52	53	53	54	259
Operations Progressive (Defined)	6	12	12	10	10	49
Corporate	12	11	9	7	6	45
Capital Total	\$65	\$74	\$73	\$70	\$70	\$353
Operations	9	10	9	9	9	45
Information Technology	6	9	10	10	10	44
Corporate	7	6	5	4	3	25
OM&A Total	\$22	\$25	\$23	\$23	\$22	\$114
Total Defined	\$87	\$99	\$97	\$93	\$92	\$468
Operations Progressive (Undefined)	11	27	49	68	81	237
Grand Total	\$98	\$126	\$146	\$161	\$173	\$704
Progressive (Defined)	6	12	12	10	10	49
Progressive (Undefined)	11	27	49	68	81	237
Progressive Placeholder	17	39	61	78	91	286

The Operations, Information Technology and Corporate savings above reflect the expected quantifiable productivity savings for initiatives that have been identified by each group and verified through Hydro One's productivity governance framework. In addition, the Operations group has committed to identifying additional productivity savings over the planning period in the form of Progressive Productivity.

Ref (b): Exhibit A, Tab 3, Schedule 1, Page 23 of 50

Progressive Productivity savings total \$286 million over the planning period and are included in the Transmission Business Plan in the form of:

1. \$49 million in Progressive (Defined) savings associated with initiatives that have been identified but which have not yet been proven and verified through the productivity governance framework; and
2. \$237 million in Progressive (Undefined) savings which are included as placeholder in the Business Plan to be allocated to any future initiatives that have not yet been identified.

- a) What is the basis for the forecast figures for savings that have not yet been identified?
- b) If the figures are in any way calculated, please provide any underlying calculations for undefined savings.

PWU 7

Ref (a): Exhibit A, Tab 3, Schedule 1, Page 47 of 50

Table 14: Average Bill Impacts on Transmission and Distribution-connected Customers

	2019*	2020
Rates Revenue Requirement (\$ millions)	\$1,552.3	\$1,628.0
% Increase in Rates RR over prior year		4.9%
% Impact of load forecast change		3.8%
Net Impact on Average Transmission Rates		8.7%
Transmission as a % of Tx-connected customer's Total Bill		7.4%
<i>Estimated Average Bill impact</i>		<i>0.6%</i>
Transmission as a % of Dx-connected customer's Total Bill		6.2%
<i>Estimated Average Bill Impact</i>		<i>0.5%</i>

* 2019 rates revenue requirement as per Table 2 in the OEB's Decision and Order for Hydro One's 2019 Transmission Revenue Requirement application (EB-2018-0130), issued on April 25, 2019. Exhibit Reference: I2-5-1, Table 2.

- a) Please provide the basis for the percentages used for the transmission share of total bills for transmission and distribution-connected customers.

PWU 8

Ref (a): Exhibit B, TSP Section 2.2 Page 1 of 117 , lines 8-13:

Hydro One uses the Expected Service Life ("ESL") of assets as a general guideline to inform investment decisions...Assets operating beyond ESL generally have a higher likelihood of failing or being in poor condition. ...

The term End of Life ("EOL") is also used and is defined as the likelihood of failure, or loss of an asset's ability to provide the intended functionality, wherein the failure or loss of functionality would cause unacceptable consequences. Therefore, while assets may be operating beyond ESL they may not be at EOL. At the same time, as the primary driver of replacement decisions, asset condition will be verified prior to the work being undertaken.

- a) Please explain the relationship between ESL and EOL confirming whether or not assets reaching EOL are more likely than not to be assets that are operating beyond their ESL

- b) HO defines EOL as ‘the likelihood of failure, or loss of an asset’s ability to provide the intended functionality...’ Please explain how HO determines an asset has reached EOL and what criteria need to be met to declare an asset has reached EOL.
- c) HO’s definition of EOL also includes a qualification that says: ‘wherein the failure or loss of functionality would cause unacceptable consequences’. Does that mean there are instances when HO lets EOL assets continue to operate wherein the consequences are acceptable?

PWU 9

Ref (a): Exhibit B, TSP Section 2.2 Pages 1-2 of 117:

Figure 1 shows the forecasted cumulative number of assets that will exceed their ESL from 2019 through to 2029 in the absence of any planned or unplanned replacements. There is significant demographic pressure on some asset classes as their ESL will increase by 1.7 to 2.9 times absent replacement. This rapid shift poses inherent operating and resourcing risks that must be planned for and mitigated through proactive and strategically paced investments in order to prevent pressure on OM&A and capital costs and to maintain customers’ expected level of service.

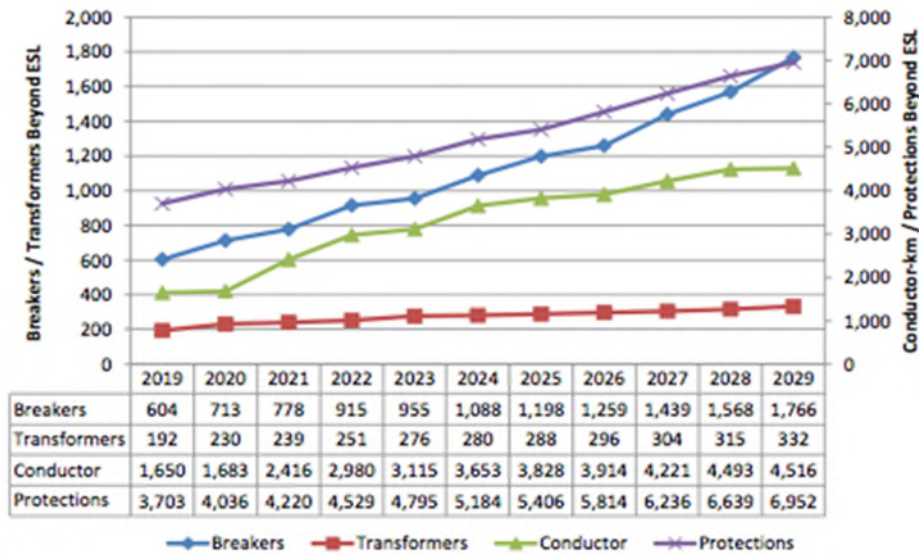


Figure 1 - Number of Assets beyond ESL per Year Summary

- a) The PWU’s understanding is that the deferral of capital investments would typically create pressure on OM&A costs. Please explain how HO’s proactive and strategically paced investments can prevent pressure on both OM&A and capital costs at the same time.
- b) Please reproduce the table in Figure 1 (for the 2019-2024 period) indicating the percentage or share that the ESL numbers represent.

PWU 10

Ref (a): Exhibit B, TSP Section 2.2 Page 3 of 117

Table 1 - Major Asset Condition Summary

Asset Type	Very Low Risk*	Low Risk	Fair Risk	High Risk	Very High Risk*	To be Assessed
Transformers	336	163	95	99	23	-
Circuit Breakers	2035	1475	804	293	167	-
Protection Systems	4,800	3,846	497	2,387	976	-
Conductors (km)	16,050		3,316	3,680		6,061
Wood Poles	-	17,640	0	5,460	-	18,900
Underground Cables (km)	-	179	77	8	-	0

* These categories are not used for all assets.

Ref (b): Exhibit B TSP Section 2.2 Page 69 of 117

Based on wood pole assessments, 13% (5460) of Hydro One's wood pole population requires replacement, as illustrated in Figure 27.

- a) Why is such a significant proportion of poles (45%) not assessed at the time of filing this application?
- b) What proportion of these unassessed poles does HO estimate to be in the High Risk category?
- c) Please recast the chart to indicate the percentage or share out of total assets that each number represents in the table.
- d) Please confirm if the proposed replacement of 13% of wood poles in poor condition in Ref #2 is planned to take place over the 3-year test period. What is the annual replacement plan?
- e) Assuming the Board approves HO's proposed asset replacement plan, and HO successfully implements that plan, what is HO's forecast of the share of wood poles in the High Risk category by the end of the 3-year test period and by the end of the 5 year plan?
- f) Assuming the Board approves HO proposed asset replacement plan, what would be the share of transformers, circuit breakers, protection systems and conductors that would be in the High and Very High Risk category by the end of the test period and by the end of the planning period?

PWU 11

Ref (a): Exhibit B TSP Section 2.2 Page 8 of 117, lines 6-12

According to Hydro One's assessment of the transformer fleet's condition, 17% of transformers are rated high or very high risk based on oil testing results up to 2018...

Further, 40% of the transformer fleet has been confirmed via visual inspections to have oil leaks, with 10% being classified as major leakers...

Ref (b): Exhibit B TSP Section 2.2 Page 9 of 117, lines 9-11

As of December 2018, 43% of Hydro One's transformer oil-filled bushings that are manufactured pre-1985 require work related to PCB testing verification or replacements.

Ref (c): Exhibit B TSP Section 2.2 Page 14 of 117, lines 1-4

Consequently, Hydro One plans to manage this anticipated risk by replacing approximately 25 transformers annually from 2020 to 2023, which would allow Hydro One to maintain the ratio of transformers that are within, rather than beyond their ESL, with condition being the primary driver for replacement.

- a) Please confirm that the number of transformers that are considered major oil leakers (Ref #1) is approximately 70
- b) Please confirm that the 10% of transformers considered major leakers are not included in the 17% transformers that are in the High and Very High Risk categories
- c) Please provide the absolute number of transformer oil-filled bushings (expressed as 43% in Ref #2) that are manufactured pre-1985 and require work related to PCB testing verification or replacements
- d) Ref #3 indicates that HO plans to replace 25 transformers annually during the 2020-2023 period. Please confirm that HO's plan is to replace 75 transformers by the end of the test period (2022). If confirmed, please describe how many of these 75 transformers that are candidates for replacement are High/Very High Risk, PCB, or major oil leakage related?
- e) Please confirm that under HO's transformer replacement plan, the number of transformers beyond ESL by the end of the testing period and by the end of the planning period (2024) would be higher.

PWU 12

Ref (a): Exhibit F, Tab 1, Schedule 2, Page 2 of 2

Appendix 2-L shows the calculated OM&A cost per delivery point and per FTE. The OM&A cost per delivery point of \$563,466 in 2020 represents a compound average growth rate (CAGR) of -2.6% since 2015. The OM&A cost per FTE of \$41,092 in 2020 represents a CAGR of -4.6% since 2015.

- a) Please provide the OM&A cost per delivery point and per FTE for 2022 and CAGR for both from 2018 to 2022.

PWU 13

Ref (a): Exhibit F, Tab 1, Schedule 3, Page 5 of 59

Lines spending increases by approximately \$5.7 million primarily due to the increased spending on inspections for overhead lines, necessary to mitigate the growing inspection assessment backlog.

- a) What share of overhead lines have not been inspected within Hydro One's planned inspection cycle?

PWU 14

Ref (a): Exhibit F, Tab 4, Schedule 1, Page 6 of 47

In 2018, 1,029 employees or approximately 19% of the Hydro One regular workforce (transmission and distribution) were eligible to retire with an undiscounted pension. The percentage of Hydro One employees eligible for retirement in 2018 by employment category is shown in Figure 1 below. Within the next 10 years, another 20% of the current work force will become eligible for an undiscounted pension.

- a) How long to employees that do not retire when they are eligible to do so with an undiscounted pension remain employed? Please provide a figure for both PWU-represented workers and overall.
- b) Does Hydro One have any reason to expect retirements to increase or decrease from recent trends through the test period?

PWU 15

Ref (a): Exhibit F, Tab 4, Schedule 1, Page 9 of 47

Hydro One continues to hire, albeit at a decreased rate than in previous years, into its Apprentice and New Graduate Training Programs to help address the significant wave of retirements in its critical trades, technical and engineering groups.

- a) Why has the rate of hiring into the Apprentice and New Graduate Training Programs declined in recent years?

PWU 16

Ref (a): Exhibit F, Tab 4, Schedule 1, Attachment 5

(Detailed Compensation Table)

Ref (b): Exhibit F, Tab 4, Schedule 1, Page 13 of 47

Table 2: Full Time Equivalents (FTE), 2017 to 2022

		2017	2018	2019	2020	2021	2022
Regular	MCP	633	638	692	693	694	694
	Society	1,289	1,337	1,577	1,565	1,566	1,560
	PWU	3,382	3,527	3,739	3,790	3,824	3,852
	Total Regular	5,726	5,502	6,008	6,048	6,084	6,106
Temporary	MCP	18	22	6	6	6	6
	Society	36	28	13	12	9	9
	PWU	194	173	99	98	98	98
	Total Temporary	248	223	118	116	113	113
Casual	PWU Hiring Hall	1,230	1,351	1,794	1,717	1,781	1,782
	Casual Trades	1,364	1,353	1,296	1,265	1,205	1,159
	Total Casual	2,594	2,704	3,090	2,982	2,986	2,941
	Grand Total	8,146	8,429	9,216	9,146	9,183	9,160

² FTE assumptions: (1) A budgeted regular position is 1 FTE; (2) For non-regular positions, unless budgeted for less than 1 year, a non-regular position is 1 FTE; and (3) For casual (Hiring Hall and Casual Construction), FTE's are determined by "person months"/12

- a) In the two referenced tables Hydro One describes non-PWU Hiring Hall casual workers as "Casual Trades". These are the only references to "Casual Trades" in the application. Elsewhere in Exhibit F, Tab 4, Hydro One describes workers as "casual construction". Please confirm that both "Casual Trades" and "Casual Construction" refer to the the same group of workers that are described in section 7.5.5 of Exhibit F, Tab 4, Schedule 1.

PWU 17

Ref (a): Exhibit F, Tab 4, Schedule 1, Page 14 of 47

- the acquisition of Great Lakes Power Transmission LP resulted in 32 FTEs joining Hydro One Networks in late 2018.

- a) Please provide a breakdown of these 32 FTEs by representation.

PWU 18

Ref (a): Exhibit F, Tab 4, Schedule 1, Page 32 of 47

The compensation spend as a percentage of total work program spend declines from 48% in 2014 to 44% in 2022. Transmission related compensation as a percentage of total Transmission spend declines from 49% in 2014 to 40% in 2022.

- a) Please provide the figures in the referenced excerpt for only PWU-represented compensation.

PWU 19

Ref (a): Exhibit F, Tab 4, Schedule 1, Page 36 of 47

When assessing compensation positioning relative to the external market, a competitive range of +5% from market median is the desired positioning, due to limitations in published compensation data and fluctuations in market data year-over-year. This approach is consistent with typical market practice for publicly traded organizations.

Ref (b): Exhibit F, Tab 4, Schedule 1, Attachment 3, Page 7 of 11

- **Willis Towers Watson considers compensation for benchmark jobs to be aligned with the competitive market when it falls within +/- 10% of the target market position**
 - a) On what basis does Hydro One contend that $\pm 5\%$ within the market median is typical of publicly traded organizations?
 - b) Does Hydro One disagree with Willis Towers Watson's statement that $\pm 10\%$ of the median is aligned with the competitive market?

PWU 20

Ref (a): Exhibit F, Tab 4, Schedule 1, Page 47 of 47

Table B 1: PWU Base Rate Comparison

- a) Please provide the number of Engineering Technologist 2 incumbents.

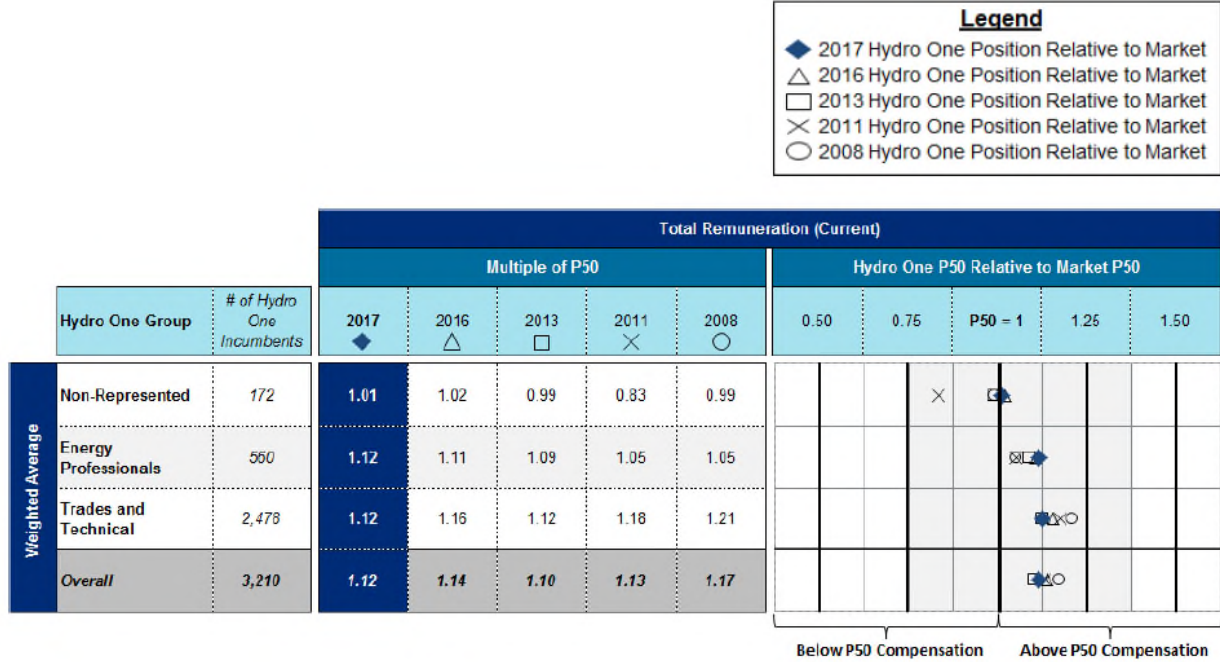
PWU 21

Ref (a): Exhibit F, Tab 4, Schedule 1, Attachment 2 (Mercer) Page 8 of 34

The selected benchmark job classes for the 2017 study represented 59% of Hydro One's employee population (excluding non-full time employees).

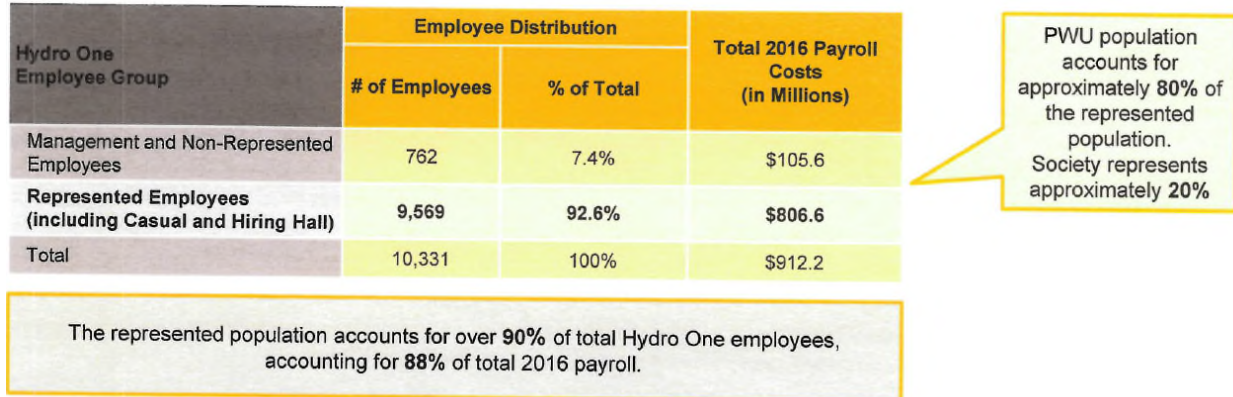
Ref (b): Exhibit F, Tab 4, Schedule 1, Attachment 2 (Mercer) Page 13 of 34

Table 4



Ref (c): Exhibit F, Tab 4, Schedule 1, Attachment 3 (Towers) Page 3 of 11

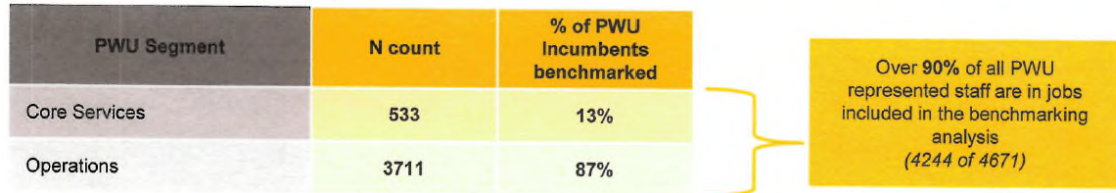
Current Workforce Population Composition*



Ref (c): Exhibit F, Tab 4, Schedule 1, Attachment 3 (Towers) Page 4 of 11

Willis Towers Watson benchmarked over 90% of Hydro One's PWU represented workforce in this review

Hydro One PWU workforce summary



- a) Why is Mercer only able to benchmark 2,478 PWU incumbents and Willis Towers Watson is able to benchmark 4,244 PWU incumbents?
- b) Which positions was Willis Towers Watson able to benchmark that Mercer was not?
- c) Is it Hydro One's opinion that Willis Towers Watson's study is more reflective of Hydro One's relative compensation because it encompasses a much greater share of its employees? Please explain.

PWU 22

Ref (a): Exhibit F, Tab 4, Schedule 1, Attachment 5

- a) The PWU notes that the "Total Transmission Compensation" line does not equal the sum of MCP, Society, PWU, and Casual & Temporary compensation allocated to transmission in the years from 2020 to 2022. The balances match from 2014 to 2019. Please explain why there is a difference or provide a corrected table in excel format.
- b) From 2018 to 2022, Burdens (the total of Pension and OPEBs at the end of the document) increases by 7.3% while the sum of burdens by representation increases by 30.7%. What is included in Burdens aside from Pensions and OPEBs? Why is the increase in the the sum of Burdens by representation much greater than the increase in Pensions and OPEBs?
- c) Please confirm the figures in the following tables. Please explain and correct any disagreements.

	2014	2015	2016	2017	2018	2019	2020	2021	2022
Tx PWU Comp/FTE	175,600	174,441	157,741	170,835	169,737	169,933	171,469	174,544	179,246
Tx Total Comp/FTE	140,613	142,945	130,618	143,553	143,537	141,474	146,202	150,689	154,563

	Average Annual Change 2014-2022	Average Annual Change 2018-2022
Tx PWU Comp/FTE	1.19%	1.87%
Tx Total Comp/FTE	0.26%	1.37%

PWU 23

Ref (a): Exhibit A, Tab 6, Schedule 3, Attachment 1, Pages 1-2 of 10

Additionally, HOI is appealing a October 2017 Ontario Energy Board (OEB) decision that the tax savings from the net deferred tax asset recorded by the Company's transition from the payments in lieu of tax regime under the *Electricity Act (Ontario)* to the federal and provincial tax regime in 2016, should not accrue entirely to HOI's shareholders and that a portion should be shared with ratepayers. HOI has estimated that should the decision be upheld, there could be a one-time decrease in net income of approximately \$885 million and an annual reduction in operating cash flow by around

\$50 million to \$60 million. A decision is expected by Q2 2018, and DBRS will review the outcome of the appeal to assess its impact on the credit profile of the Company.

- a) What provision, if any, has Hydro One made in this case to collect incremental revenues in the event its appeal with respect to the tax issue is successful?

PWU 24

Ref (a): Exhibit B, Tab 1, Schedule 1, TSP Section 1.1, Pages 49-50 of 58

Figure 10 shows the forecasted cumulative number of assets that will exceed their expected service life during the 2019 to 2029 period in the absence of any planned or unplanned replacements.

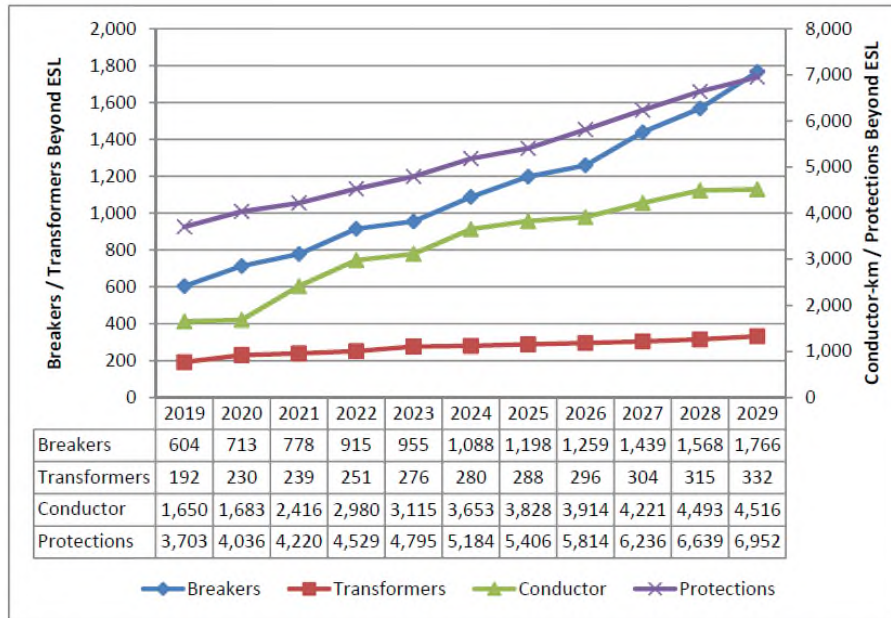


Figure 10 – Number of Assets Beyond End of Service Life Per Year Summary

- a) What is the demographic profile at the end of the rate period assuming the plan is completed?

PWU 25

Ref (a): Exhibit B, Tab 1, Schedule 1, TSP Section 1.1, Page 51 of 58

In its Decision and Order in EB-2016-0160, the OEB directed Hydro One to establish firm short and long-term targets for productivity improvements and associated reductions in revenue requirements as a means to drive continuous improvement and improve the company’s internal and external benchmarking standings. As a result of its efforts to address those expectations, and to further its commitment to delivering outcomes that are valued by its customers, Hydro One has developed a comprehensive and rigorous process for identifying, developing, implementing, monitoring and measuring productivity initiatives that will reduce costs while maintaining or improving service quality and work outputs.

- a) How do the units of output (accomplishment) compare to the cost, relative to the prior period?

PWU 26

Ref (a): Exhibit B, Tab 1, Schedule 1, TSP Section 1.1, Page 52 of 58

Hydro One has identified savings opportunities totaling approximately \$704 million over the 2020-2024 TSP period. There are \$353 million in capital productivity savings, \$114 million in OM&A productivity savings and \$237 million in undefined capital savings. This latter category of savings falls within “Progressive Productivity”. Progressive Productivity is a further reduction in cost that Hydro One has included in the final Transmission Business Plan in response to concerns that were raised in the OEB’s decision in the Prior Proceeding regarding the level of investment. It represents a commitment from Hydro One to find further efficiencies over the planning period when executing the necessary planned investments in its transmission system without reducing work volumes.

- a) When this capital goes into service, they it be going in at a number lower than their actual cost if productivity savings haven’t been achieved?
- b) How will these savings amounts be allocated across assets?
- c) How is this captured in the IRM?

PWU 27

Ref (a): Exhibit B, Tab 1, Schedule 1, TSP Section 1.3, Page 24 of 33

Scenario C, which maintains the current level of investment proposed in EB-2016-0160, reduces reliability risk, improves long-term reliability performance and offers level future rate increases, was strongly favored over the other three scenarios with 24% of respondents selecting this scenario. Respondents indicated their preference through the selection of a point along a line showing the spectrum of scenarios; 21% chose a point between Scenario B and Scenario C and 17% chose a point between Scenario C and Scenario D. This clustering informed the initial funding envelope.

Ref (b): Exhibit B, Tab 1, Schedule 1, TSP Section 1.3, Attachment 1, Page 1 of 144

Scenario C: Maintain current level of investment

- Extends investment plan in rate application currently before the Ontario Energy Board to 2023
- Maintains current level of sustainment capital investments affecting key assets
- Percentage of key assets beyond Expected Service Life decreases from 21% in 2019 to 19% in 2023, decreasing expected future investment requirements
- Incorporates strategic investments that mitigate future rate impacts, such as tower coating
- Total 5 year Capital Investment Plan: \$6.6 B

- Average Annual Transmission Rate Increase: 5.1%

- a) Were customers told that the Board had ordered reductions from the investment levels proposed in EB-2016-0160?

PWU 28

Ref (a): Exhibit B, Tab 1, Schedule 1, TSP Section 1.4, Pages 1-2 of 32

List of Benchmarking and Other Studies

- a) Why didn't Hydro One commission a benchmarking study to assess the cost effectiveness of contracted services?

PWU 29

Ref (a): Exhibit B, Tab 1, Schedule 1, TSP Section 1.4, Page 13 of 33

The Kinectrics report identified that Hydro One's ESL range is above the industry range of 13 to 19 years for solid-state relays and in-line with the range of 13 to 20 years for microprocessor relays. The study identified the possibility of increasing ESL for the examined solid-state and microprocessor relay models, but did not offer further guidance as to the appropriate level.

Relay replacements are selected based on various criteria and not solely dependent on ESL, as described in TSP Section 2.2. Hydro One will review its current practices and decision making process as well as continue to track and monitor the performance of its relays, based on the report's recommendations, to maximize the utilization of the relay fleet while managing its associated risk.

- a) Does Hydro One intend to increase the ESL of relays?

PWU 30

Ref (a): Exhibit B, Tab 1, Schedule 1, TSP Section 1.4, Pages 16-17 of 33

Based on its assessment of 87 insulators, EPRI found that the condition of polymer insulators currently in-service in Hydro One's transmission system varies based on voltage, manufacturer and use of corona rings. The results of this study have shown that Hydro One should plan to remove specific 230 kV insulators from service as soon as possible due to immediate or high risk of failure. Other types of 230 kV insulators should continue to be assessed periodically for signs and degree of degradation. EPRI further recommends that linemen should check the integrity of these insulators prior to performing any live maintenance procedures due to potential safety issues. Considering the study results, Hydro One will prioritize the removal of specific polymer insulators in its current replacement program.

- a) What does “immediate” mean in this context?
- b) How does Hydro One characterize the degree of risk (to both safety and reliability) while they remain in service?
- c) Over what period of time does Hydro One plan to have them all removed? Please explain why Hydro One considers that to be an acceptable period of time in view of the identified risk?

PWU 30

Ref (a): Exhibit B, Tab 1, Schedule 1, TSP Section 1.4, Page 17 of 33

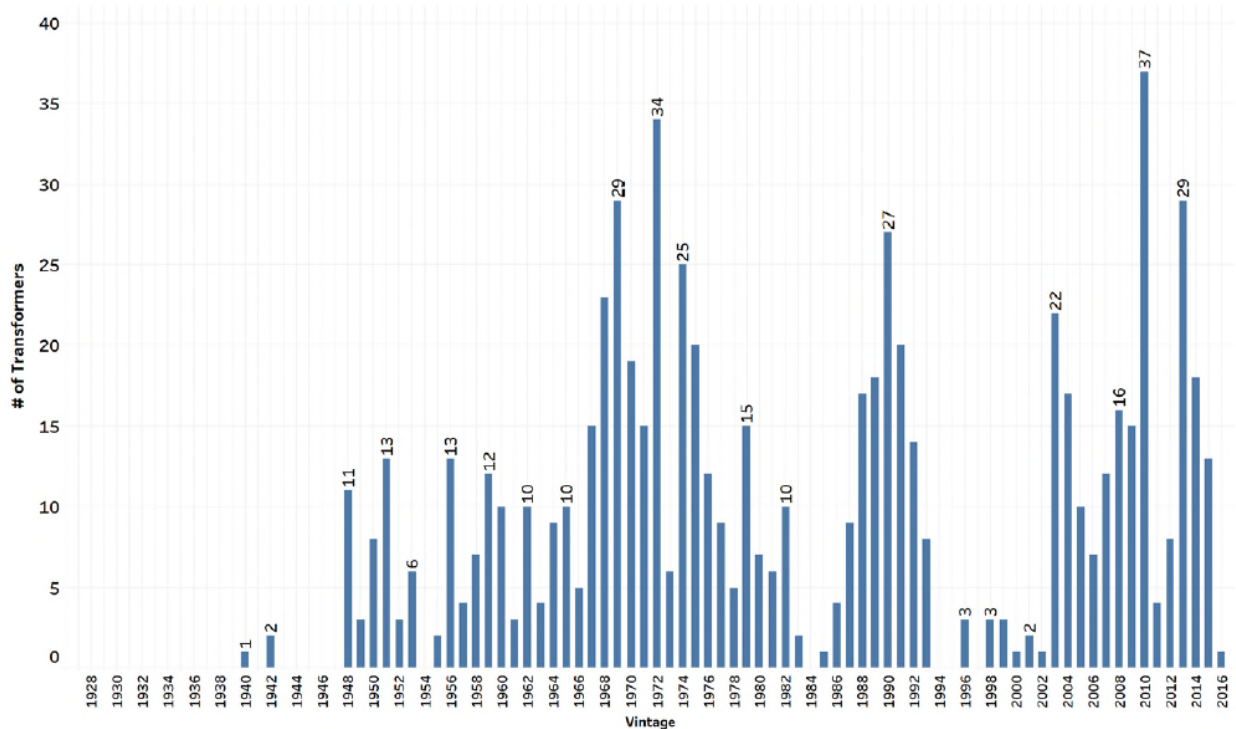
After testing 591 samples, EPRI found overwhelming evidence to support the recommendation that Hydro One should remove the fleet of COB and CP porcelain insulators from service as soon as is practically possible to mitigate the risk to safety and reliability. Based on the results of Phase 2 COB/CP testing, insulators posing a higher public safety risk (i.e. insulators in critical locations) will be replaced by 2022 at a rate of approximately 3,700 circuit structures per year.

- a) Why is 3 years acceptable given the overwhelming evidence to remove the insulators as soon as practically possible?

PWU 31

Ref (a): Exhibit B, Tab 1, Schedule 1, TSP Section 1.4, Attachment 1, Page 22 of 62

Figure 3-2 shows the number of transformers by vintage.

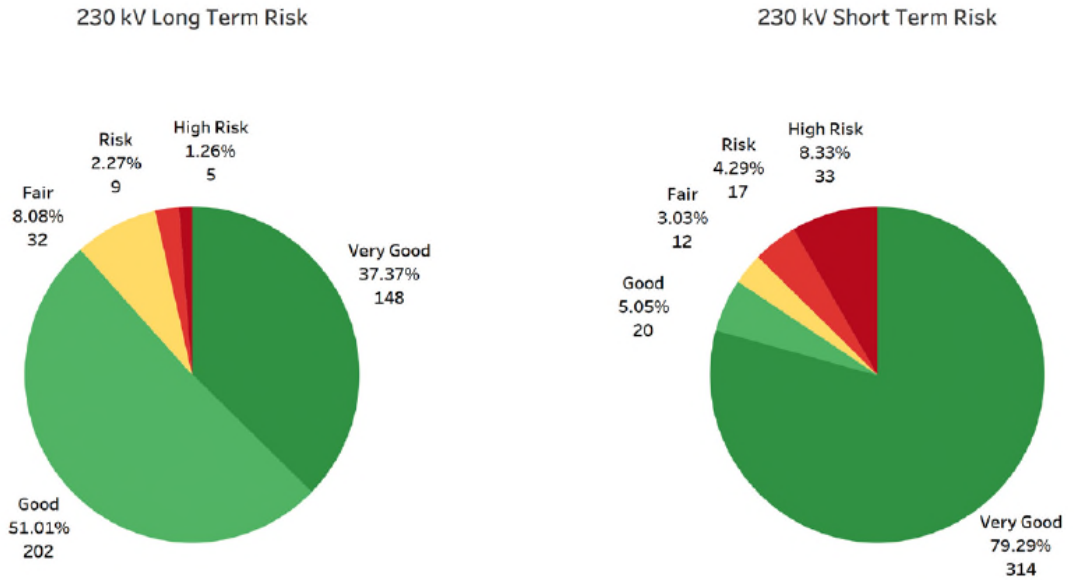


a) What will this chart look like at the end of the test period?

PWU 32

Ref (a): Exhibit B, Tab 1, Schedule 1, TSP Section 1.4, Attachment 1, Page 40 of 62

Figure 4-6 shows long-term and short-term risk for Hydro One’s 230 kV units using the five-category ranking.



- a) What does “short term” and “long term” mean in this context?
- b) Please define “high-risk”. Is it a measure of the probability of failure? If so, what is the threshold?

PWU 33

Ref (a): Exhibit B, Tab 1, Schedule 1, TSP Section 1.5, Page 17 of 55

Table 6 - Unit-Cost Measures

Performance Category	Measure	2013	2014	2015	2016	2017
	Line Clearing Cost per kilometer Completed (\$/km)	1,805	2,495	2,234	1,966	2,100
	Brush Control Cost per Hectare Completed (\$/Ha)	1,703	1,624	1,566	1,542	1,356

- a) Why has the cost of line clearing per kilometer varied so much over this period?

PWU 33

Ref (a): Exhibit B, Tab 1, Schedule 1, TSP Section 1.5, Page 41 of 55

Over the plan period, Hydro One aims to improve on results compared to its historical average, targeting 7.0 per cent.

- a) Why is 7.0% an appropriate target?

PWU 34

Ref (a): Exhibit B, Tab 1, Schedule 1, TSP Section 1.6, Page 10 of 13

Hydro One's Supply Chain division has made several changes to its sourcing processes to increase productivity and reduce expenses. Of the expected \$590M in total Operations savings (OM&A and Capital including progressive productivity), Hydro One forecasts that \$190M in savings over the 2020-2024 TSP period 1 will result from procurement enhancements.

- a) Does Hydro One benchmark its cost effectiveness with respect to procurement costs?
- b) If not, please explain why.