

1 **PWU INTERROGATORY #1**

2
3 **Reference:**

4 A-02-04-01 p. 6-7

5
6 **Interrogatory:**

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

- 9
- 10 • Preventive: time-based and condition-based maintenance activities that follow a
11 defined work standard task list. Approximately 62% of Hydro One’s maintenance
12 work is preventive.
 - 13 • Planned corrective: maintenance to correct unacceptable asset deficiencies
14 discovered during preventive maintenance work, which may be addressed along
15 with preventive maintenance work or in the near future as planned work that does
16 not require a forced outage. Approximately 18% of Hydro One’s maintenance
17 work is planned corrective.
 - 18 • Demand corrective: maintenance that must be completed imminently to address
19 critical conditions discovered by chance or through failure but not during
20

21 The TCB study combined Hydro One’s planned corrective maintenance and demand
22 corrective maintenance into a single “corrective maintenance” category.

- 23
- 24 a) To Hydro One’s knowledge, is its classification of preventative, planned corrective,
25 and demand corrective maintenance categories consistent with other utilities in
26 Ontario?
 - 27
 - 28 b) Is the level of maintenance work required for planned corrective maintenance greater
29 than preventive maintenance work?
 - 30
 - 31 c) Is the level of maintenance work required for planned corrective maintenance greater
32 than what was in fact “planned”?
 - 33
 - 34 d) What asset condition (or risk level) are assets that are maintained within the planned
35 corrective maintenance category?

Witness: Donna Jablonsky

- 1 **Response:**
2 a) Yes, most utilities.
3
4 b) No.
5
6 c) No, but in cases where there is discovery work while correcting something it can be
7 increased.
8
9 d) Assets condition (or risk level) in asset analytics does not generate planned corrective
10 maintenance. However, planned corrective maintenance is performed to correct the
11 defects detected on any assets irrespective of the asset condition (or risk level).

1 **PWU INTERROGATORY #2**

2
3 **Reference:**

4 A-03-01 p. 2, 27

5
6 **Interrogatory:**

7 In 2020, a typical Hydro One medium density (R1) residential customer consuming 750
8 kWh/month will see an increase of \$0.79/month or 0.6% on their total bill as a result of
9 the Application. Almost half of this increase is attributable to load decline due to
10 government conservation initiatives and lower consumption.

11
12 The proposed decrease in the 2020 charge determinant load forecast relative to the
13 currently approved 2018 load forecast (per EB-2016-0160) results in an estimated 3.8%
14 impact on rates due to load.

15
16 a) If the load remained unchanged from the most recently approved forecast, and
17 holding all else constant, what would be the bill impact for a Hydro One R1
18 customer?

19
20 **Response:**

21 a) If the load remained unchanged from the most recently approved forecast (Table 6,
22 Exhibit A, Tab 3, Schedule 1), and holding all else constant, the bill impact for a
23 Hydro One R1 customer consuming 750 kWh/month would be \$0.44/month or 0.4%
24 on their total bill.

1 **PWU INTERROGATORY #3**

2
3 **Reference:**

4 A-03-01, p. 3, A-03-01-01, p. 12-13

5
6 **Interrogatory:**

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

11
12 The Transmission System Plan also includes \$1.1 billion of development capital to
13 provide transmission access and additional capacity for new customer connections and to
14 implement regional development plans that were developed jointly with large industrial
15 customers, distributors and the Independent Electricity System Operator (IESO). This
16 will result in the following system additions:

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

- 24
- 25 a) What is the forecast load if the number of customers and businesses remained
 - 26 unchanged from the most recently approved forecast?
 - 27
 - 28 b) Please confirm the \$552 million figure in reference (a) applies only to the 2020-2022
 - 29 rate period.

1 **Response:**

- 2 a) With no change in the number of customers and businesses, which implicitly requires
3 no change in economic/demographic variables at the aggregate level, the load forecast
4 would have still been reduced due to the following factors.
- 5 i. Incremental conservation and demand management (“CDM”) and embedded
6 generation (“EG”) since the forecast base-year 2018.
 - 7 ii. Natural efficiency improvement by customers.
 - 8 iii. Inter-sectorial shift in load from electric intensive sectors (e.g.,
9 manufacturing) to less electric intensive industries (e.g., services). Another
10 example is replacement of retail shopping by on-line shopping leading to store
11 closures.
 - 12 iv. Fuel-switching from electricity to other sources of energy.
 - 13 v. Distributed Energy Resources/behind the customer meter generation.

14
15 The load forecast under the conditions noted above is presented in the following
16 table.

Forecast of Ontario Peak With no Change in Customers/Businesses
(12-Month Average Peak)

Year	Peak
2018	19,657
2019	18,998
2020	18,295
2021	17,893
2022	17,466

- 17 b) No, the \$552 million figure covers the 2020 to 2024 period.

1 **PWU INTERROGATORY #4**

2
3 **Reference:**

4 A-03-01 p. 3

5
6 **Interrogatory:**

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

10
11 a) Will Hydro One return to top quartile performance only if the reliability of its
12 comparators remains constant?

13
14 b) Does Hydro One track reliability trends of its comparators? If so, please describe the
15 current trends.

16
17 **Response:**

18 a) The statement made assumes that quartile performance remains constant; however as
19 shown in Exhibit D, Tab 2, Schedule 1, peer utility performance can vary from year-
20 to-year.

21
22 b) Yes. Based on 2014 to 2018, 5-year data, about half of the comparators are trending
23 better and the other half comparators are trending worse. Please Exhibit D, Tab 2,
24 Schedule 1 for the CEA composite for select reliability indices.

1 **PWU INTERROGATORY #5**

2
3 **Reference:**

4 A-03-01 p. 6

5
6 **Interrogatory:**

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

11
12 a) Please provide the average year-over-year increases to the revenue requirement from
13 2018 to 2022.

14
15 b) Does Hydro One agree that the average year-over-year rate increase is higher than it
16 would have been had Hydro One submitted a 4-year CIR from 2019-2022 as it had
17 originally intended?

18
19 **Response:**

20 a) 5.2% represents the expected average year-over-year increase in the *rates* revenue
21 requirement over the 3 year test period. The average year-over-year increase to the
22 *rates* revenue requirement from 2018 to 2022 is expected to be 4.6% per year.

23
24 b) Hydro One did not submit a 4-year CIR from 2019-2022 and therefore cannot
25 comment on this statement.

PWU INTERROGATORY #6

Reference:

A-03-01p. 22, 23

Interrogatory:

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.

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

Witness: Joel Jodoin

- 1 1. \$49 million in Progressive (Defined) savings associated with initiatives that have
2 been identified but which have not yet been proven and verified through the
3 productivity governance framework; and
4
 - 5 2. \$237 million in Progressive (Undefined) savings which are included as
6 placeholder in the Business Plan to be allocated to any future initiatives that have
7 not yet been identified.
- 8
 - 9 a) What is the basis for the forecast figures for savings that have not yet been identified?
10
 - 11 b) If the figures are in any way calculated, please provide any underlying calculations
12 for undefined savings.
 - 13

14 **Response:**

- 15 a) Please see Exhibit I, Tab 02, Schedule OEB-002 part b) and c)
16
- 17 b) The methodology for defining savings is described in Exhibit I, Tab 02, Schedule
18 OEB-002 part d). An undefined initiative cannot be calculated until an initiative is
19 established to be credited against the target.

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PWU INTERROGATORY #7

Reference:

A-03-01 p. 47

Interrogatory:

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.*

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

9
10

Response:

11 a) The basis for those values is provided in Table 1 of Exhibit I2, Tab 5, Schedule 1.

1 **PWU INTERROGATORY #8**

2
3 **Reference:**

4 TSP-02-02 p. 117 lines 8-13

5
6 **Interrogatory:**

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

10
11 The term End of Life (“EOL”) is also used and is defined as the likelihood of failure, or
12 loss of an asset’s ability to provide the intended functionality, wherein the failure or loss
13 of functionality would cause unacceptable consequences. Therefore, while assets may be
14 operating beyond ESL they may not be at EOL. At the same time, as the primary driver
15 of replacement decisions, asset condition will be verified prior to the work being
16 undertaken.

- 17
18 a) Please explain the relationship between ESL and EOL confirming whether or not
19 assets reaching EOL are more likely than not to be assets that are operating beyond
20 their ESL
- 21
22 b) HO defines EOL as ‘the likelihood of failure, or loss of an asset’s ability to provide
23 the intended functionality...’ Please explain how HO determines an asset has reached
24 EOL and what criteria need to be met to declare an asset has reached EOL.
- 25
26 c) HO’s definition of EOL also includes a qualification that says: ‘wherein the failure or
27 loss of functionality would cause unacceptable consequences’. Does that mean there
28 are instances when HO lets EOL assets continue to operate wherein the consequences
29 are acceptable?

30
31 **Response:**

- 32 a) Please refer to interrogatory I-01-OEB-45.
- 33
34 b) Condition data gathered through our condition assessment programs are primarily
35 used to determine if an asset has reached EOL and requires replacement. EOL criteria

Witness: Donna Jablonsky

- 1 vary by asset type and class. For an example, please refer to part a) of interrogatory I-
2 05-CME-45.
3
4 c) Once an asset is identified as reaching EOL it is prioritized for replacement. There are
5 situations where an EOL asset remains in-service until replacement can be completed,
6 however risks are minimized through prioritization which considers the consequence
7 of failure.

PWU INTERROGATORY #9

Reference:

TSP-02-02 p. 1-2

Interrogatory:

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.

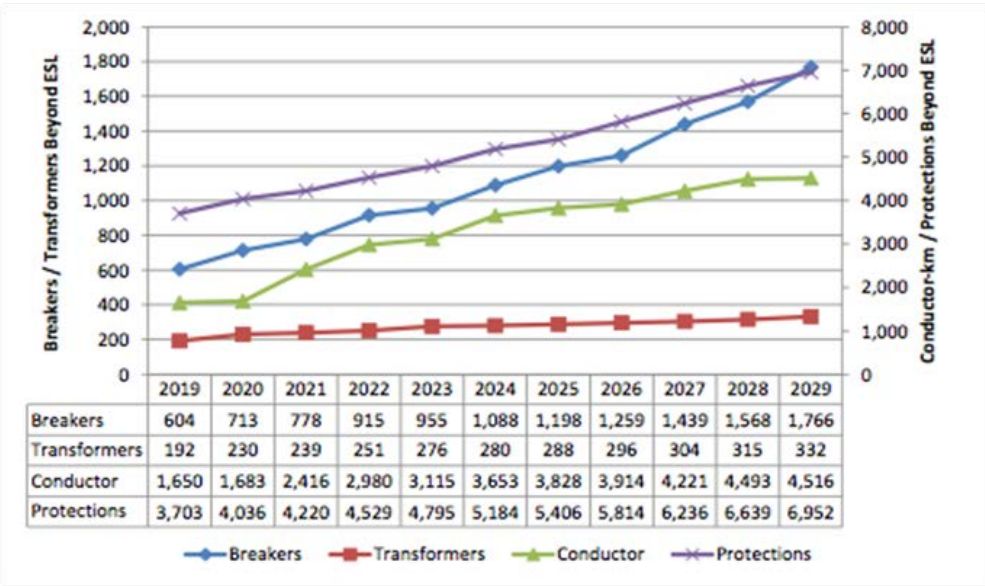


Figure 1 - Number of Assets beyond ESL per Year Summary

- 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.

Witness: Donna Jablonsky, Bruno Jesus

1 **Response:**

2 a) Hydro One's paced investments are selected through the comprehensive Investment
3 Planning Process documented in Exhibit B-1-1 TSP Section 2.1 to identify, prioritize
4 and optimize investments to manage costs and asset/system operational risks. This
5 process is designed to ensure that the highest priority investments are implemented,
6 considering multiple perspectives, to support Hydro One's business objectives and
7 deliver outcomes valued by customers. The figure presented above indicates the
8 resulting proportion of assets beyond ESL, in absence of investment. Hydro One's
9 plan seeks to prevent increased pressures associated with the aging asset base with
10 consideration to customer rate impacts.

11
12 b) See Table 1 below for the percentage of assets operating beyond ESL as it relates to
13 Figure 1 from TSP Section 2.2.

14
15 **Table 1: Percentage of Assets Beyond ESL per Year**

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Breakers	13%	15%	16%	19%	20%	23%	25%	26%	30%	33%	37%
Transformers	27%	32%	33%	35%	39%	39%	40%	41%	42%	44%	46%
Conductor	6%	6%	8%	10%	11%	13%	13%	13%	15%	15%	16%
Protections	30%	32%	34%	36%	38%	41%	43%	46%	50%	53%	56%

PWU INTERROGATORY #10

Reference:

TSP-02-02p. 3, 69

Interrogatory:

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.*

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

Witness: Donna Jablonsky

1 in the High Risk category by the end of the 3-year test period and by the end of the 5
 2 year plan?

3

4 f) Assuming the Board approves HO proposed asset replacement plan, what would be
 5 the share of transformers, circuit breakers, protection systems and conductors that
 6 would be in the High and Very High Risk category by the end of the test period and
 7 by the end of the planning period?

8

9 **Response:**

10 a) The 45% of the wood pole population that needs assessment is comprised of two
 11 groups: wood poles that need an initial assessment (at 25 years of age), and wood
 12 poles that have been previously assessed and need re-assessment (every 5 years). The
 13 majority of poles that require assessment falls into the second group, as wood poles
 14 require periodic re-assessment due to continuous degradation.

15

16 b) Hydro One cannot make this estimation because we do not currently have the ability
 17 to predict end of life. It is a function of various factors such as type of wood,
 18 treatment, weather, presence of pests, etc. Furthermore, wood poles are not
 19 engineered materials and the quality is not uniform and predictable. Therefore, Hydro
 20 One can only reliably determine wood pole end of life through condition assessment.

21

22 c)

23

Table 1 - Major Asset Condition Summary (Percentage)

Asset Type	Very Low Risk*	Low Risk	Fair Risk	High Risk	Very High Risk*	To be Assessed
Transformers	46.9%	22.8%	13.3%	13.8%	3.2%	-
Circuit Breakers	42.6%	30.9%	16.8%	6.1%	3.5%	-
Protection Systems	38.4%	30.8%	4.0%	19.1%	7.8%	-
Conductors (km)	55.1%		11.4%	12.6%		20.8%
Wood Poles	-	42%	0	13%	-	45%
Underground Cables (km)	-	68%	29%	3%	-	0%

24 *These categories are not used for all assets.

1 d) No, the 13% of structures in poor condition (high risk) are not scheduled to be fully
2 replaced in the 3-year test period. Those structures, along with any new end of life
3 discoveries, are scheduled to be replaced in a manner that mitigates the safety and
4 reliability risks by balancing wood poles needs, resource availability, and cost impact
5 to customers. For further information, refer to ISD-SR-21.

6
7 e) Assuming the OEB approves Hydro One's proposed asset replacement plan, the share
8 of wood poles in the High Risk category by the end of the 3-year test period (end of
9 2022) will be reduced to approximately 7%. By the end of the 5-year planning period
10 (end of 2024) it will drop to 3.5%. These percentages do not account for new end of
11 life discoveries from condition assessments during those periods.

12
13 f) Assuming the OEB approves Hydro One's proposed asset replacement plan, with no
14 additional High Risk asset discoveries or changes to the asset populations, the
15 proportion of High and Very High Risk assets in the system will be:

16
17 Conductors

18 At the end of the 3-year test period (end of 2022): 7.6%

19 At the end of the 5-year planning period (end of 2024): 4.9%

20
21 Breakers

22 At the end of the 3-year test period (end of 2022): 10.0%

23 At the end of the 5-year planning period (end of 2024): 7.1%

24
25 Transformers

26 At the end of the 3-year test period (end of 2022): 13.8%

27 At the end of the 5-year planning period (end of 2024): 10.9%

28
29 Protections

30 At the end of the 3-year test period (end of 2022): 20.6%

31 At the end of the 5-year planning period (end of 2024): 16.3%

1 **PWU INTERROGATORY #11**

2
3 **Reference:**

4 TSP-02-02p. 8 lines 6-12, p. 9 lines 9-11, p. 14 lines 1-4

5
6 **Interrogatory:**

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

9
10 Further, 40% of the transformer fleet has been confirmed via visual inspections to have
11 oil leaks, with 10% being classified as major leakers...

12
13 As of December 2018, 43% of Hydro One's transformer oil-filled bushings that are
14 manufactured pre-1985 require work related to PCB testing verification or replacements.

15
16 Consequently, Hydro One plans to manage this anticipated risk by replacing
17 approximately 25 transformers annually from 2020 to 2023, which would allow Hydro
18 One to maintain the ratio of transformers that are within, rather than beyond their ESL,
19 with condition being the primary driver for replacement.

20
21 a) Please confirm that the number of transformers that are considered major oil leakers
22 (Ref #1) is approximately 70

23
24 b) Please confirm that the 10% of transformers considered major leakers are not
25 included in the 17% transformers that are in the High and Very High Risk categories

26
27 c) Please provide the absolute number of transformer oil-filled bushings (expressed as
28 43% in Ref #2) that are manufactured pre-1985 and require work related to PCB
29 testing verification or replacements

30
31 d) Ref #3 indicates that HO plans to replace 25 transformers annually during the 2020-
32 2023 period. Please confirm that HO's plan is to replace 75 transformers by the end
33 of the test period (2022). If confirmed, please describe how many of these 75
34 transformers that are candidates for replacement are High/Very High Risk, PCB, or
35 major oil leakage related?

Witness: Donna Jablonsky

- 1 e) Please confirm that under HO's transformer replacement plan, the number of
2 transformers beyond ESL by the end of the testing period and by the end of the
3 planning period (2024) would be higher.
4

5 **Response:**

- 6 a) Confirmed
7
8 b) Confirmed
9
10 c) As of December 2018, there are 1721 transformer oil filled bushings that were
11 manufactured pre-1985, and require work related to PCB testing verification or
12 replacements.
13
14 d) Confirmed. All of these candidates.
15
16 e) Confirmed

1 **PWU INTERROGATORY #12**

2
3 **Reference:**

4 F-01-02 p. 2

5
6 **Interrogatory:**

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

11
12 a) Please provide the OM&A cost per delivery point and per FTE for 2022 and CAGR
13 for both from 2018 to 2022.

14
15 **Response:**

16 a) As this application is based on a Custom Incentive Rate-Setting (“IR”) approach
17 where OM&A beyond the first Test Year will be calculated using a formulaic
18 approach (escalation by Inflation less Productivity Factor), the estimated OM&A cost
19 per FTE and estimated OM&A cost per delivery point for 2022 are not applicable.

PWU INTERROGATORY #13

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Reference:

F-01-03 p. 5

Interrogatory:

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?

Response:

The table below summarizes the overhead lines assets and the corresponding population percentage which require condition assessment as per Exhibit B-1-1 TSP Section 2.2.

Overhead Lines Asset Type	% of Population Needs Assessment
Overhead Conductor	20.8%
Wood Pole	45%
Shieldwire	24%

1 **PWU INTERROGATORY #14**
2

3 **Reference:**

4 F-04-01 p. 6
5

6 **Interrogatory:**

7 In 2018, 1,029 employees or approximately 19% of the Hydro One regular workforce
8 (transmission and distribution) were eligible to retire with an undiscounted pension. The
9 percentage of Hydro One employees eligible for retirement in 2018 by employment
10 category is shown in Figure 1 below. Within the next 10 years, another 20% of the
11 current work force will become eligible for an undiscounted pension.
12

- 13 a) How long to employees that do not retire when they are eligible to do so with an
14 undiscounted pension remain employed? Please provide a figure for both PWU-
15 represented workers and overall.
16
- 17 b) Does Hydro One have any reason to expect retirements to increase or decrease from
18 recent trends through the test period?
19

20 **Response:**

- 21 a) The decision to retire is a personal decision therefore; it is difficult to provide a
22 definitive answer. However, based on past retirement levels typically an employee
23 will retire 4 years after reaching their undiscounted retirement eligibility date. There
24 is no material difference as to when an employee decides to retire within the different
25 representation groups.
26
- 27 b) No, our expectation is the retirement rates will remain relatively consistent.

1 **PWU INTERROGATORY #15**

2
3 **Reference:**

4 F-04-01 p. 9

5
6 **Interrogatory:**

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

10
11 a) Why has the rate of hiring into the Apprentice and New Graduate Training Programs
12 declined in recent years?

13
14 **Response:**

15 a) New Graduate hiring rate has been reduced in part due to budget and headcount
16 constraints. Between the years 2000 to 2010, Hydro One heavily invested in the New
17 Graduate Training Program. With this pipeline of talent in place, Hydro One is hiring
18 new graduates on an as need basis.

19
20 Apprenticeship hiring rate has been reduced due to the steady hiring of apprentices
21 over the past 20 years. This resulted in the apprentice programs reaching their natural
22 peak.

PWU INTERROGATORY #16

Reference:

F-04-01-05 p. 13

Interrogatory:

(Detailed Compensation Table)

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.

Response:

Confirmed.

Witness: Sabrin Lila

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PWU INTERROGATORY #17

Reference:

F-04-01 p. 14

Interrogatory:

- 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.

Response:

Please see the breakdown below:

Representation	FTE
MCP	3
Society of United Professionals	6
Power Workers Union	23
Total	32

PWU INTERROGATORY #18

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Reference:

F-04-01 p. 32

Interrogatory:

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.

Response:

a)

	2014	2015	2016	2017	2018	2019	2020	2021	2022
PWU Comp \$ as a % of TX Comp	23%	20%	18%	21%	20%	20%	20%	20%	19%

Note – the above PWU compensation includes PWU regular employees and PWU temporary employees only. Please refer to the updated compensation table as provided in Exhibit I, Tab 07, Schedule SEC-58.

1 **PWU INTERROGATORY #19**

2
3 **Reference:**

4 F-04-01 p.36, 7

5
6 **Interrogatory:**

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

- 11
12 • Willis Towers Watson considers compensation for benchmark jobs to be aligned
13 with the competitive market when it falls within +/- 10% of the target market
14 position

15
16 a) On what basis does Hydro One contend that $\pm 5\%$ within the market median is typical
17 of publicly traded organizations?

18
19 b) Does Hydro One disagree with Willis Towers Watson's statement that $\pm 10\%$ of the
20 median is aligned with the competitive market?

21
22 **Response:**

23 a) Market benchmarking is designed to provide directional information. Based on
24 guidance from Willis Towers Watson, we understand organizations typically consider
25 a defined range, as opposed to a single data point when assessing compensation
26 competitiveness. Many companies target compensation in aggregate to be at a
27 specified percentile of the market as part of their stated compensation philosophy.

28
29 Companies may consider overall findings that are within a certain percentage of the
30 desired target positioning to be "at market" from an external perspective. From an
31 internal perspective, companies may consider a different range which is considered to
32 be "competitive" to market.

33
34 b) Willis Towers Watson generally applies a +/-10% competitive range to address the
35 range of compensation studies that they perform. This range can be wider or
36 narrower depending on the underlying variability of the market data – which is

1 impacted by the compensation element (e.g., salaries are less variable than incentive
2 pay) and an expected distribution over a number of jobs.
3
4 Hydro One's use of a +/-5% range would also be considered a competitive range and
5 likely assumes a lesser degree of variability in the market data and a tighter
6 expectation for the relative market competitiveness of compensation.

1 **PWU INTERROGATORY #20**

2
3 **Reference:**

4 F-04-01 p. 47

5
6 **Interrogatory:**

7 Table B 1: PWU Base Rate Comparison

8
9 a) Please provide the number of Engineering Technologist 2 incumbents.

10
11 **Response:**

12 a) The Hydro One Area Distribution Engineering Technician (ADET) classification is
13 inclusive of the Engineering Technologist 1 and 2, as benchmarked with other
14 organizations. The Hydro One rate and number of incumbents (141) for the ADET
15 role applies to both the Engineering Technologist 1 and 2 roles in Table B1.

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PWU INTERROGATORY #21

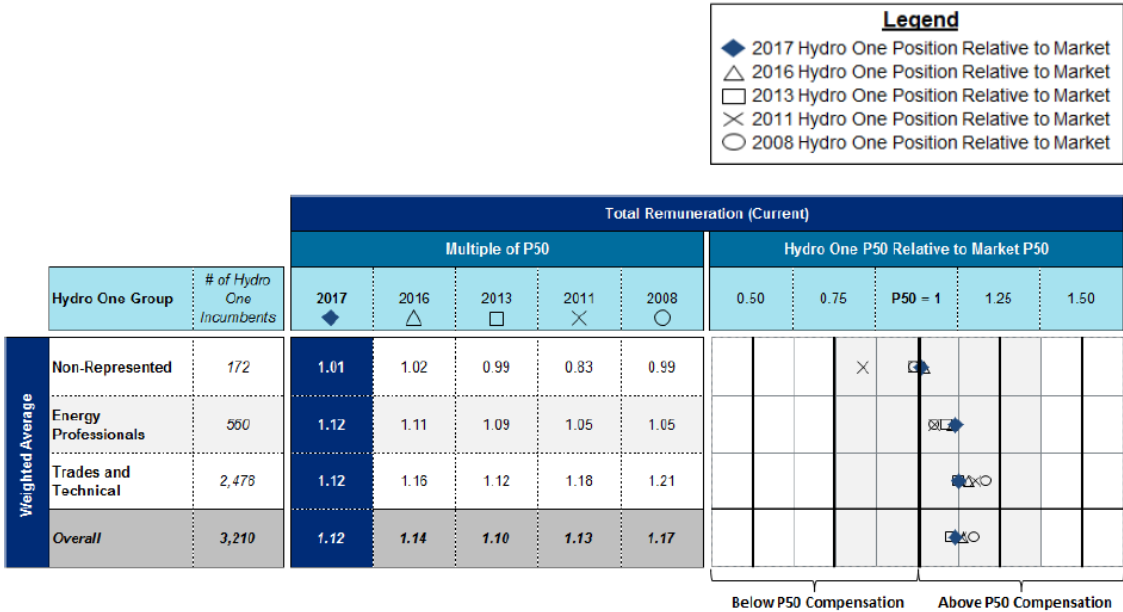
Reference:

F-04-01-02, p. 8, 13, F-04-01-03, p. 4

Interrogatory:

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

Table 4



Current Workforce Population Composition*

Hydro One Employee Group	Employee Distribution		Total 2016 Payroll Costs (in Millions)
	# of Employees	% of Total	
Management and Non-Represented Employees	762	7.4%	\$105.6
Represented Employees (including Casual and Hiring Hall)	9,569	92.6%	\$806.6
Total	10,331	100%	\$912.2

PWU population accounts for approximately 80% of the represented population. Society represents approximately 20%

The represented population accounts for over 90% of total Hydro One employees, accounting for 88% of total 2016 payroll.

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

Hydro One PWU workforce summary

PWU Segment	N count	% of PWU Incumbents benchmarked
Core Services	533	13%
Operations	3711	87%

Over 90% of all PWU represented staff are in jobs included in the benchmarking analysis (4244 of 4671)

- 1 a) Why is Mercer only able to benchmark 2,478 PWU incumbents and Willis Towers
- 2 Watson is able to benchmark 4,244 PWU incumbents?
- 3
- 4 b) Which positions was Willis Towers Watson able to benchmark that Mercer was not?
- 5
- 6 c) Is it Hydro One's opinion that Willis Towers Watson's study is more reflective of
- 7 Hydro One's relative compensation because it encompasses a much greater share of
- 8 its employees? Please explain.
- 9

10 **Response:**

- 11 a) The purpose and approach utilized by the Mercer and Willis Towers Watson studies
- 12 are unique, driving the variance in the number of benchmark matches between the
- 13 two studies.
- 14

15 Benchmarking studies should include a sufficient representative sample of the

16 employee population and there is no minimum requirement observed as a standard

17 methodology.

18

19 **Mercer Study:** The Mercer Compensation Cost Benchmarking Study was designed

20 by Mercer to comply with an OEB directive; and to apply market best practices in

21 conducting a comprehensive, customized total compensation, survey among a

22 targeted peer group of organizations. In 2008, at its onset, 10 Guiding Principles

23 were established in consultation with stakeholders. These Guiding Principles may be

24 found in Exhibit F-4-1, Attachment 2, p. 7 of 34.

25

26 The second Principle "Keep it simple to entice survey participants" is extremely

27 important when conducting a study of this type as it relies on the efforts and

28 commitment of third parties (the survey participants) to expend considerable effort to

29 provide data on major elements of compensation, at an incumbent level, for a set of

1 34 benchmark jobs in this case. Mercer believes that the 2017, and all of the previous
2 Studies, have respected this and all of the other Principles to present findings that are
3 highly reflective of Hydro One's relative total compensation.

4
5 The Study was specifically designed to benchmark compensation levels from a cross-
6 section of Hydro One's employee population selected hierarchically and functionally
7 across three groups: Non-represented; Energy Professionals; and Trades &
8 Technical. Together the benchmark jobs represent over 50% of Hydro One's full-
9 time workforce.

10
11 **Willis Towers Watson Study:** Utilizes Willis Towers Watson's published
12 compensation surveys, refined to meet the scoping criteria outlined in its
13 compensation philosophy. As a result, the surveys are able to match a wider range of
14 positions and draw on Willis Towers Watsons existing compensation databases of
15 organizations.

16
17 b) As described above, the Mercer study focused on select highly populated positions
18 within PWU. The additional matches included a broad range of PWU represented
19 roles in the Willis Tower Watson study.

20
21 c) In Hydro One's opinion, both studies are reflective of the market and are intended to
22 serve different purposes. The Mercer study is intended to provide targeted data on
23 specific highly populated positions, while the Willis Towers Watson Study is
24 intended to provide a view on PWU more broadly. In addition, Willis Towers Watson
25 study focuses on total target cash compensation, whereas the Mercer study is based
26 on total remuneration.

PWU INTERROGATORY #22

Reference:

F-04-01-05

Interrogatory:

- 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.

Table 1

	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

Table 2

	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%

Response:

- a) There was a calculation error in Exhibit F, Tab 4, Schedule 1 Attachment 5 which has been corrected in Exhibit I, Tab 07, Schedule SEC-58 Attachments 1. The error related to the shareholder allocation for non-represented compensation.

Witness: Sabrin Lila

- 1 b) To clarify, in Exhibit F, Tab 4, Schedule 1 Attachment 5, the Transmission Burdens
 2 noted at the bottom of the document are increasing by 7.3% over the 2018-22 period
 3 are limited to pension and OPEB burdens only . The other burdens not included in
 4 this line item but are included in the burdens by representation group include CPP, EI,
 5 employee health tax, WSIB, Group Life Insurance, Health and Dental, and
 6 OPRB/OPEB.
 7
 8 c) The data in Table 1 above is accurate. Hydro One could not reconcile the percentages
 9 in Table 2.
 10
 11 Below are the calculations performed by Hydro One for Table 2:

	2014	2015	2016	2017	2018	2019	2020	2021	2022	Average Annual Change 2014-22	Average Annual Change 2018-22
Tx PWU Comp/FTE		-0.66%	-9.57%	8.30%	-0.64%	0.12%	0.90%	1.79%	2.69%	0.37%	1.0%
Tx Total Comp/FTE		1.66%	-8.62%	9.90%	-0.01%	-1.44%	3.34%	3.07%	2.57%	1.31%	1.5%

1 **PWU INTERROGATORY #23**

2
3 **Reference:**

4 A-06-03-01 p. 1-2

5
6 **Interrogatory:**

7 Additionally, HOI is appealing a October 2017 Ontario Energy Board (OEB) decision
8 that the tax savings from the net deferred tax asset recorded by the Company's transition
9 from the payments in lieu of tax regime under the *Electricity Act* (Ontario) to the federal
10 and provincial tax regime in 2016, should not accrue entirely to HOI's shareholders and
11 that a portion should be shared with ratepayers. HOI has estimated that should the
12 decision be upheld, there could be a one-time decrease in net income of approximately
13 \$885 million and an annual reduction in operating cash flow by around \$50 million to
14 \$60 million. A decision is expected by Q2 2018, and DBRS will review the outcome of
15 the appeal to assess its impact on the credit profile of the Company.

16
17 a) What provision, if any, has Hydro One made in this case to collect incremental
18 revenues in the event its appeal with respect to the tax issue is successful?

19
20 **Response:**

21 Hydro One's application as filed did not make any provision to collect incremental
22 revenues in the event the appeal is successful. However, as the appeal remains ongoing
23 and is expected to be heard by the Divisional Court in late 2019, Hydro One believes it is
24 appropriate for the OEB in the present proceeding to provide for such a potential
25 outcome. Hydro One therefore requests approval to establish a variance account to track
26 the difference between Hydro One's revenue requirement underlying its approved
27 transmission rates and its transmission revenue requirement after reflecting the outcome
28 of a successful appeal, if applicable. As the amounts that are the subject of the appeal
29 were used by the OEB to offset Hydro One's transmission revenue requirement
30 commencing January 1, 2017, Hydro One requests a corresponding effective date for the
31 proposed variance account of January 1, 2017. It is Hydro One's expectation that this
32 will facilitate recovery of any amounts that may be awarded and which relate to periods
33 dating back to January 1, 2017. Upon receiving the appeal decision, if successful, it
34 would be Hydro One's intention to record the relevant amounts in the account, along with
35 applicable interest, and to apply to the OEB for disposition of the recorded balance over
36 such period and in such manner as it considers appropriate at that time.

Witness: Nancy Tran, Samir Chhelavda,

PWU INTERROGATORY #24

Reference:

TSP-01-01 p. 49-50

Interrogatory:

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.

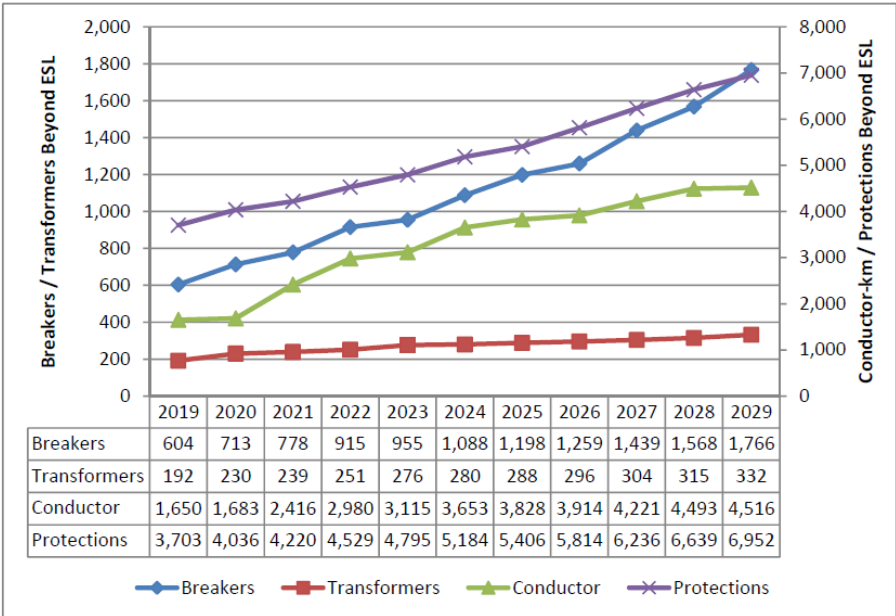


Figure 10 – Number of Assets Beyond End of Service Life Per Year Summary

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

Response:

a) See TSP Section 3.1, Figure 2 for the demographic profile of breakers, transformers, conductor, and protections following the completion of the 2020-2024 Transmission System Plan. The demographic profile following the completion of the plan over 2020-2022 is as follows:

Witness: Bruno Jesus

1

Table 1: Demographic Profile of Assets as of 2022

	As Planned		Naturally Aging	
	# of Units Beyond ESL	% Beyond ESL (2022)	# of Units Beyond ESL	% Beyond ESL (2022)
Breakers	592	13%	915	20%
Transformers	213	30%	251	35%
Conductor	2,690	9%	2,980	10%
Protections	3,593	29%	4,529	36%

1 **PWU INTERROGATORY #25**

2
3 **Reference:**

4 TSP-01-01 p. 51

5
6 **Interrogatory:**

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

16
17 a) How do the units of output (accomplishment) compare to the cost, relative to the prior
18 period?

19
20 **Response:**

21 a) Please refer to the OM&A Program Accomplishment and Capital Program
22 Accomplishment metrics included in Exhibit B, Tab 1, Schedule 1, Section 1.5.

1 **PWU INTERROGATORY #26**

2
3 **Reference:**

4 TSP-01-01 p. 52

5
6 **Interrogatory:**

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

- 17
18 a) When this capital goes into service, they it be going in at a number lower than their
19 actual cost if productivity savings haven’t been achieved?
20
21 b) How will these savings amounts be allocated across assets?
22
23 c) How is this captured in the IRM?
24

25 **Response:**

- 26 a) Progressive productivity savings has been layered into the capital expenditures and
27 in-service additions total figures filed in this application. These savings have not been
28 specifically identified to specific capital work program as it represents the
29 commitment level by Hydro one to find further efficiencies. If achievement of the
30 work program and the progressive savings occur consistent with the Plan, holding all
31 else constant, Hydro One will achieve the in-service figures identified within this
32 application.
33
34 b) The process for identifying undefined progressive savings is discussed in Exhibit I,
Tab 01, Schedule OEB-002 part d)

Witness: Joel Jodoin

Filed: 2019-08-02
EB-2019-0082
Exhibit I
Tab 08
Schedule 26
Page 2 of 2

- 1 c) The expected OM&A and Capital savings have been embedded into the 2020 OM&A
- 2 forecast and the 2020-2022 capital plan which have contributed to a reduction of
- 3 \$17.3M in revenue requirement for 2020.

Witness: Joel Jodoin

1 **PWU INTERROGATORY #27**

2
3 **Reference:**

4 TSP-01-03, p. 24, TSP-01-03-01, p. 1

5
6 **Interrogatory:**

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

14
15 **Scenario C: Maintain current level of investment**

- 16
- 17 • Extends investment plan in rate application currently before the Ontario Energy
18 Board to 2023
 - 19 • Maintains current level of sustainment capital investments affecting key assets
 - 20 • Percentage of key assets beyond Expected Service Life decreases from 21% in
21 2019 to 19% in 2023, decreasing expected future investment requirements
 - 22 • Incorporates strategic investments that mitigate future rate impacts, such as tower
23 coating
 - 24 • Total 5 year Capital Investment Plan: \$6.6 B
 - 25 • Average Annual Transmission Rate Increase: 5.1%

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

28
29 **Response:**

30 a) The 2017 Transmission Customer Engagement Survey was conducted prior to the
31 Board's decision on EB-2016-0160, so respondents could not have been informed
32 about the OEB-directed reductions.

1 **PWU INTERROGATORY #28**

2
3 **Reference:**

4 TSP-01-04 p. 1-2

5
6 **Interrogatory:**

7 List of Benchmarking and Other Studies

8
9 a) Why didn't Hydro One commission a benchmarking study to assess the cost
10 effectiveness of contracted services?

11
12 **Response:**

13 a) Please refer to interrogatory responses I-01-OEB-175 and I-01-OEB-177, part (b).

1 **PWU INTERROGATORY #29**

2
3 **Reference:**

4 TSP-01-04 p. 13

5
6 **Interrogatory:**

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

12
13 Relay replacements are selected based on various criteria and not solely dependent on
14 ESL, as described in TSP Section 2.2. Hydro One will review its current practices and
15 decision making process as well as continue to track and monitor the performance of its
16 relays, based on the report's recommendations, to maximize the utilization of the relay
17 fleet while managing its associated risk.

18
19 a) Does Hydro One intend to increase the ESL of relays?

20
21 **Response:**

22 a) Hydro One currently does not have plans to increase the ESL of its relays. Hydro
23 One's ESL levels are in line with utility practice: 40 years for electromechanical
24 relays, 25 years for solid-state relays, and 20 years for microprocessor-based relays.

25
26 The ESL for a relay is used to trigger a further investigation regarding its health or
27 condition and the risk of its potential failure with respect to reliability and safety
28 (Please refer to Exhibit B-1-1 TSP Section 2.2.1.3).

1 **PWU INTERROGATORY #30**

2
3 **Reference:**

4 TSP-01-04 p. 16-17

5
6 **Interrogatory:**

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

- 17
18 a) What does "immediate" mean in this context?
19
20 b) How does Hydro One characterize the degree of risk (to both safety and reliability)
21 while they remain in service?
22
23 c) Over what period of time does Hydro One plan to have them all removed? Please
24 explain why Hydro One considers that to be an acceptable period of time in view of
25 the identified risk?

26
27 **Response:**

- 28 a) In this context, immediate means as soon as practically possible.
29
30 b) The degree of risk associated with polymer insulators is similar to that of COB/CP
31 insulators (discussed in Exhibit B-1-1 TSP Section 2.2). The priority to replace will
32 be driven by public safety and structure location.
33
34 c) Hydro One is planning to identify the number of 230kV insulators affected by the
35 described premature deterioration and anticipates to have this completed in 2020.
36 Once the insulators are identified Hydro One will assess replacement pacing.

Witness: Donna Jablonsky

1 **PWU INTERROGATORY #30**

2
3 **Reference:**

4 TSP-01-04 p. 17

5
6 **Interrogatory:**

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

- 13
14 a) Why is 3 years acceptable given the overwhelming evidence to remove the insulators
15 as soon as practically possible?

16
17 **Response:**

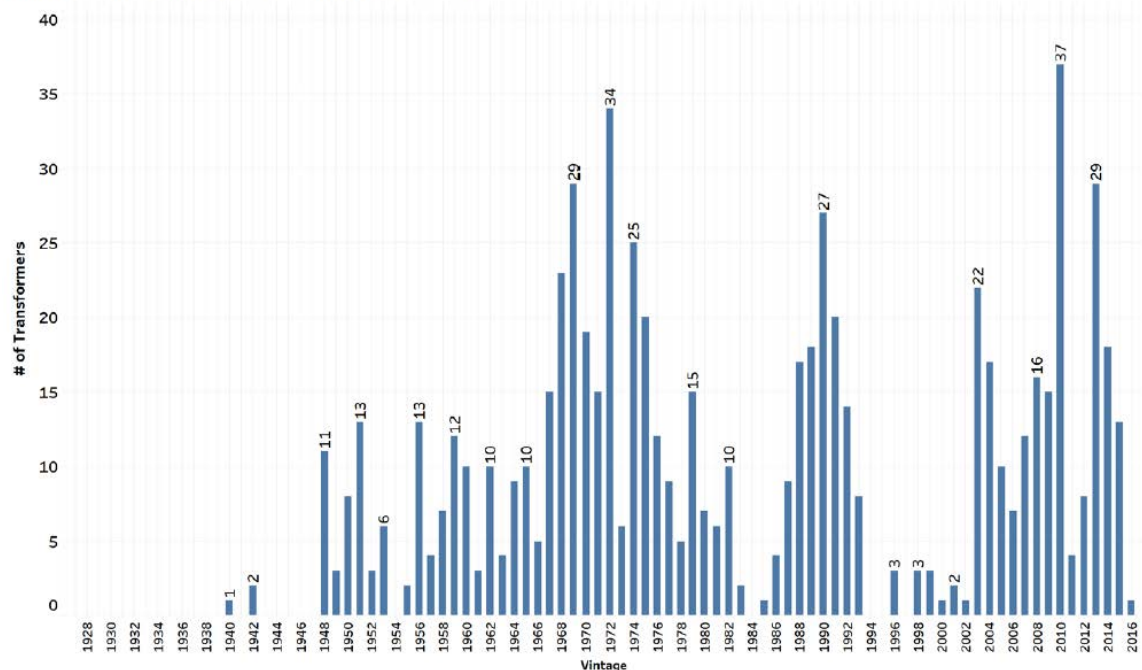
- 18 a) The pacing of the program is primarily determined by the degree of urgency stated in
19 EPRI's study. This pace represents the most practical and reasonable speed that
20 Hydro One can accomplish replacements while working within resource and outage
21 constraints.

PWU INTERROGATORY #31

Reference:
TSP-01-04-01 p. 22

Interrogatory:

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



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

Response:

a) The number of transformers with high condition risk factors from the 1970's and earlier vintages, is higher than ones built after 1970. After planned removal of these high condition risk factor transformers, the spikes on the chart prior to the 1970's will be smoothed out.

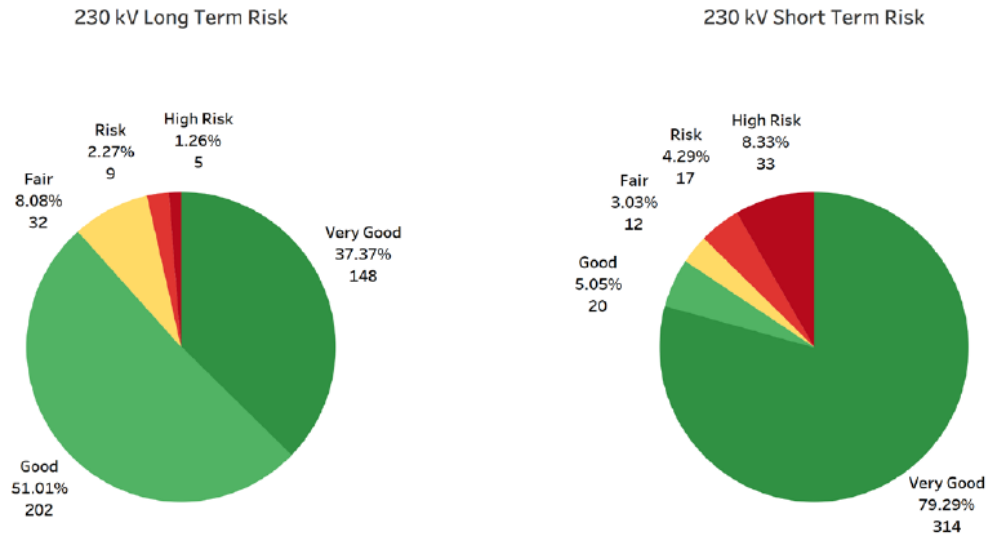
PWU INTERROGATORY #32

Reference:

TSP-01-04-01 p. 40

Interrogatory:

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?

Response:

- a) Please refer to Interrogatory I-05-CME-18.
- b) High risk means there are signs of internal transformer problems that require a timely response. If confirmed by further testing, consideration will be given to remove the unit from service.

Witness: Donna Jablonsky

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PWU INTERROGATORY #33

Reference:
TSP-01-05 p. 17

Interrogatory:

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

7
8
9
10

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

Response:

11
12
13
a) The cost of line clearing has varied based on factors such as terrain and tree density cleared.

1 **PWU INTERROGATORY #33**

2
3 **Reference:**

4 TSP-01-05 p. 17

5
6 **Interrogatory:**

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

9
10 a) Why is 7.0% an appropriate target?

11
12 **Response:**

13 a) Hydro One did not find a reference to 7.0% at the above reference; Hydro One has
14 assumed the question is related to Total OM&A and Capital per Gross Fixed Asset.

15
16 Hydro One's Transmission System Plan and planned maintenance balances the needs
17 of system, assets and customer preferences regarding outcomes and rates. In this
18 context, the inputs to the Total OM&A and Capital per Gross Fixed Asset measure
19 are appropriate and prudent, the resulting output of 7.0% further demonstrates
20 transmission cost effectiveness.

1 **PWU INTERROGATORY #34**

2
3 **Reference:**

4 TSP-01-06 p. 10

5
6 **Interrogatory:**

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

12
13 a) Does Hydro One benchmark its cost effectiveness with respect to procurement costs?

14
15 b) If not, please explain why.

16
17 **Response:**

18 a) Yes, Hydro One utilizes an industry leading tool to track and monitor pricing trends
19 amongst commodities and indices for the materials and services that are purchased.
20 One feature of the tool involves creating complex "Cost Models" which allows a
21 Category Manager to breakdown the major components of a material or service into
22 its cost drivers and calculate the "should cost" of the product or service as well as the
23 "projected cost" over the life of the contract. This information is critical for driving
24 down procurement costs in the negotiation phase of a sourcing event, as the Category
25 Managers will be able to set target prices and push back on suppliers looking for cost
26 increases that are not aligned with industry trends. It also allows Category Managers
27 to negotiate favourable derivative and/or inflation terms over the life of the contract
28 based on the indices forecasts.

29
30 b) N/A