EB-2013-0416

IN THE MATTER OF the *Ontario Energy Board Act*, 1998, S.O. 1998, c. 15, (Schedule B);

AND IN THE MATTER OF an application by Hydro One Networks Inc. for an order approving just and reasonable rates and other charges for electricity distribution to be effective January 1, 2015, each year to December 31, 2019.

POWER WORKERS' UNION INTERROGATORIES

1.0 CUSTOM APPLICATION

Issue 1.4
Is the proposed rate-smoothing mechanism appropriate? Given Hydro One's rate smoothing proposal, should the application include any other ratepayer protection measures such as an earnings sharing mechanism?

1.4-PWU-1

Ref (a): Exh E1, Tab 1, Schedule 1. Table 6, Comparison of Revenue Requirements: 2011 vs. 2015 ($ Millions)

Table 6 below compares, by element, the Year 2011 approved Revenue Requirement (as per EB-2009-0096) against the Year 2015 proposed Revenue Requirement as well as year over year comparisons of the proposed Revenue Requirement by element for all test years. Details explaining the year over year increase in Revenue Requirement are provided following Table 6.

Table 6
Comparison of Revenue Requirements: 2011 vs. 2015 ($ Millions)

Description	2015 vs. 2011	2016 vs. 2015	2017 vs. 2016	2018 vs. 2017	2019 vs. 2018
OM&A	39.3	45.9	3.8	-10.1	-3.9
Depreciation and Amortization	71.7	19.5	15.3	12.7	10.7
Income Taxes	18.3	8.0	2.5	2.4	4.1
Return on Capital	88.7	34.3	33.8	32.5	33.2
Total Revenue Requirement	**218**	**107.7**	**55.4**	**37.4**	**44.3**
Deduct External Revenues	-3.8	1.0	0.9	-0.7	0.6
Revenue Requirement less External Revenues	**221.7**	**106.7**	**54.5**	**38.1**	**43.7**

a) In Ref (a), Table 6, how much of the change in Revenue Requirement in 2015 over the approved Revenue Requirement in 2011 ($218m) is attributable to smart grid and smart metering initiatives?

2.0 OUTCOMES AND INCENTIVES

Issue 2.2

Does Hydro One Distribution's Custom Application promote and incent acceptable outcomes for existing and future customers (including, for example, cost control, system reliability, service quality, bill impacts)?

2.2-PWU-2

Ref (a): Exh D1, Tab 3, Schedule 2, Pages 18-20. Sustaining Capital, 3.4 Station Refurbishments.

Ref (b): Exh A, Tab 4, Schedule 4, Page 6. Vegetation Management 1 (Sustaining OM&A):

> **Vegetation management expenditures related to line clearing are expected to be approximately $540 million in the 5-year forecast as compared to $338 million in the preceding 5 year period. The ramp-up is required to address tree clearing in order to allow Hydro One to move to an 8-year vegetation management cycle across the province.**
>
> **The number of vegetation related customer outages on Hydro One's system over the last five years is set forth in the following table:**

Table 1:

Vegetation Caused Interruptions

(Excluding Force Majeure Events)

	Actuals					Targets					
Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of Interruptions	**6,445**	**6,116**	**6,113**	**6,953**	**5,791**	**6,300**	**6,300**	**6,300**	**6,200**	**6,100**	**6,000**

Ref (c): Exh A, Tab 4, Schedule 4, Pages 9-10. Substation Refurbishments (Sustaining Capital)

Ref (c) indicates:

Table 4:

Substation Caused Interruptions

(Excluding Force Majeure Events & Excluding Planned)

	Actuals					Targets					
Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of Interruptions	**153**	**190**	**159**	**144**	**129**	**155**	**155**	**155**	**155**	**155**	**155**

> **The Company has identified substation related outages as an area to be addressed in the 5 year plan. The projected level of capital spent on substation refurbishments is expected to be $203 million during the 5-year plan period compared to $46 million in the preceding 5 year period.**

Ref (d): Exh A, Tab 4, Schedule 4, Page 11. Distribution Line Equipment Refurbishment

Ref (d) states:

> **Hydro One owns over 120,000 circuit km of lines (approximately 3200 feeders). An ongoing assessment of the condition of the lines/feeders is performed by Hydro One. Small and large sustainment projects will be performed over the course of the 5-year plan to improve or sustain the performance of the system. Hydro One anticipates expending approximately $307 million on line projects during the 5-year plan period compared to $155 million in the preceding 5 year period.**
>
> **Hydro One's distribution system has experienced a number of line equipment related outages over the last five years. The following table summarizes the number of historical outages:**

Table 5:

Distribution Line Equipment Caused Interruptions

(Excluding Force Majeure Events)

	Actuals					Targets					
Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of Interruptions	**8210**	**5,971**	**7,681**	**7,316**	**7,266**	**7,300**	**7,300**	**8,300**	**7,300**	**7,300**	**7,300**

a) How did Hydro One come up with the 2015-2019 targets for each of the three types of interruption, i.e., vegetation, substation, and distribution line equipment caused interruptions?

b) In Ref (b), what would the level of vegetation caused interruption be for the test years assuming the level of vegetation management activities in the historical years is maintained? Specifically, would the level of interruption increase, decrease or remain unchanged in comparison to historical level of interruptions?

c) In Ref(c), Table 4, why do the targets for the substation caused interruption in the test years remain unchanged (155), i.e., why do the targets not reflect better performance year over year?

d) In Ref (c), Table 4, what would the level of substation caused interruption be for the test years assuming the level of substation refurbishment in the historical years is maintained? Specifically, would the level of interruption increase, decrease or remain unchanged in comparison to historical level of interruptions?

e) With regard to Ref (d), Table 5, please explain why the distribution line caused interruption target for the year 2016 is 8300 whereas for all the other test years the corresponding number is 7300? Does Hydro One expect a spike in interruption level for 2016, and if so, why?

f) In Ref (d), Table 5, why do the targets for the distribution line caused interruption in the test years remain unchanged and not much different from the historical levels of interruption in spite of the higher level of planned spending in the test years? Why do the targets not reflect better performance year over year?

g) In Ref (d), Table 6, what would the level of distribution line caused interruption be for the test years assuming the level of distribution line replacement or refurbishment in the historical years is maintained? Specifically, would the level of interruption increase, decrease or remain unchanged in comparison to historical level of interruptions?

3.0 PROGRAM AND PROJECT EXPENDITURES

Issue 3.1
Are the levels of planned operation, maintenance and administration expenditures for 2015-2019 appropriate, and is the rationale for the planning choices appropriate and adequately explained?

3.1-PWU-3

Ref (a): Exh D1, Tab 2, Schedule 1, Pages 25-30. Distribution Asset Investment Overview, 2.2.2 Right of Ways.

Ref (b): Exh D1, Tab 2, Schedule 1, Page 29. Table 7 – Total SAIDI and Vegetation Contribution

Table 7 - Total SAIDI and Vegetation Contribution

	All Interruptions (hours)			*Force Majeure Events (hours)*		
Year	**Total**	**Tree Contribution**	**Tree %**	**Total**	**Tree Contribution**	**Tree %**
2010	9.4	3.8	40%	1.9	1.4	74%
2011	22.1	11.9	54%	14.7	10.0	68%
2012	11.3	4.3	38%	3.8	2.1	55%
Total	**42.8**	**20.0**	**47%**	**20.4**	**13.5**	**66%**

a) Please provide kilometres of ROW cleared for each of the last five years.

b) Please add 2013 to Table 7 provided in Ref (b).

c) What is Hydro One's estimate of the percentage of Rights-of-Way (ROW) beyond the eight-year planning target by 2020 assuming the current rate of clearing of ROW is maintained?

Issue 3.1
Are the levels of planned operation, maintenance and administration expenditures for 2015-2019 appropriate, and is the rationale for the planning choices appropriate and adequately explained?

3.1-PWU-4

Ref (a): Exh C1, Tab 2, Schedule 7, Page 2. 2.1 Scope of Work

2.1 Scope of Work

The scope of work under the Current Agreement is comprised of services ("Base Services") and project services performed over a finite period to produce a project deliverable, solution or result ("Project Services"). Base Services are divided into the following six areas (individually, a "statement of work" or a "SOW"), each of which relates to a line of business within Networks: (1) information technology services; (2) customer service operations; (3) settlements; (4) source-to-pay; (5) payroll; and (6) finance and accounting services. Appendix A contains the descriptions of Base Services contracted for each SOW.

a) Please provide descriptions of Project Services under the Current Agreement referred to in the above statement.

b) Please provide descriptions of the services to be contracted under the new agreement.

3.1-PWU-5

Ref (a): Exh C1, Tab 2, Schedule 7, Page 12, Lines 12-22. 3.2 Phase 2 – Supplier Selection & Contract Negotiations

In early December 2013, the project team held individual discovery sessions to provide the pre-qualified suppliers with an opportunity to seek clarification regarding the RFP. Responses to the RFP were originally anticipated by February 18, 2014. RFP responses were deferred to April 10, 2014, pending the clarification of certain matters related to the Power Workers' Union settlement. RFP responses will be evaluated, as will the option of Networks performing any or all of the services itself. After the written responses are reviewed, pre-qualified proponents will be short-listed to give oral presentations later in April 2014. Following these presentations, the pre-qualified supplier submissions and oral presentations will be evaluated.

a) Please provide the clarifications that Hydro One has provided to pre-qualified suppliers in respect of matters related to the Power Workers' Union Settlement.

Issue 3.2
Is the level of planned capital expenditures appropriate for the period 2015-2019 and is the rationale for the planning and pacing choices appropriate and adequately explained?

3.2-PWU-6

Ref (a): Exh D1, Tab 2, Schedule 1. Distribution Asset Investment Overview.

Ref (b): Exh D1, Tab 3, Schedule 2, Page 19.

Ref (b) states:

The strategy is to address stations that are at a high risk of failure as determined by the asset risk assessment and prioritized based on the impact of failure of key factors including customer, safety and environmental risks.

Ref (c): Exh D2, Tab 2, Schedule 3, Reference #: S-07. Hydro One Distribution – Investment Summary Document Sustaining Capital – Stations

a) Please provide the current demographics of Hydro One Distribution Stations.

b) Please list Hydro One Distribution Stations that were replaced/refurbished in 2010, 2011, 2012 and 2013 historical years and projected for the 2014 bridge year.

c) Please provide the rate (share in total distribution stations) of stations replaced/refurbished for 2012, 2013 historical years and 2014 bridge year.

d) How many stations are currently at a high risk of failure?

e) How many stations would be at a high risk of failure by 2020 assuming Hydro One's proposed stations refurbishments over the test period 2015-2019 are accomplished?

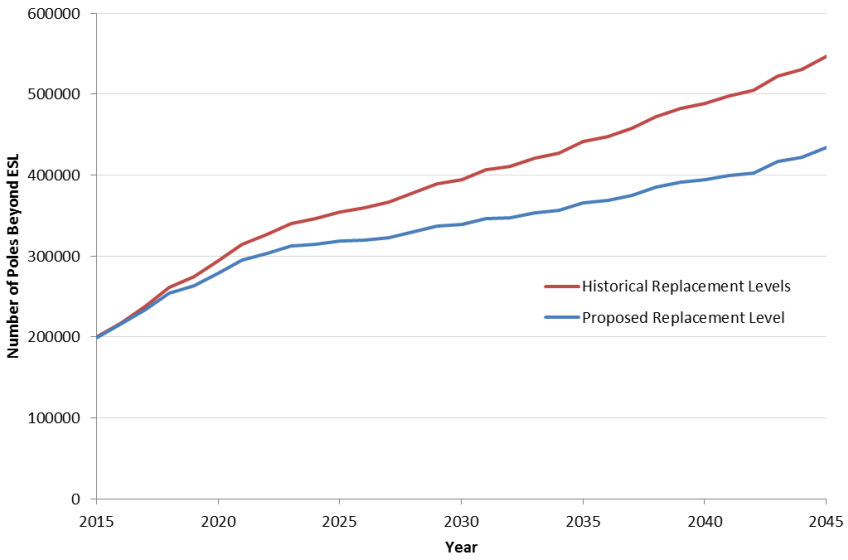
f) How many stations would be in a high risk of failure by 2020 assuming historical replacement or refurbishment rates are maintained?

3.2-PWU-7

Ref (a): Exh D1, Tab 2, Schedule 1, Pages 18-25. Distribution Asset Investment Overview, 2.2.1 Poles.

Ref (a) pages 24-25 states:

Trends and Impacts
Hydro One Distribution proactively replaced approximately 11,000 poles in 2013 under its pole replacement program. Over the next several years, an increasing number of poles are expected to reach the end of their service life each year. In order to manage the large number of replacements that will be rapidly required, Hydro One Distribution is proposing an increase in the number of replacements to approximately 15,200 poles annually. As can be seen in Figure 15, this proposed replacement rate will assist in mitigating the increased reliability and safety risk associated with ageing distribution poles.



Ref (b): EB-2012-0136, Exh B, Tab 2, Schedule 3, Pages 11-12

1.2.1 Summary

To compare the long-term impacts of the scenarios, the numbers of EOL poles remaining in-service each year are considered. These are shown in Figure 2.

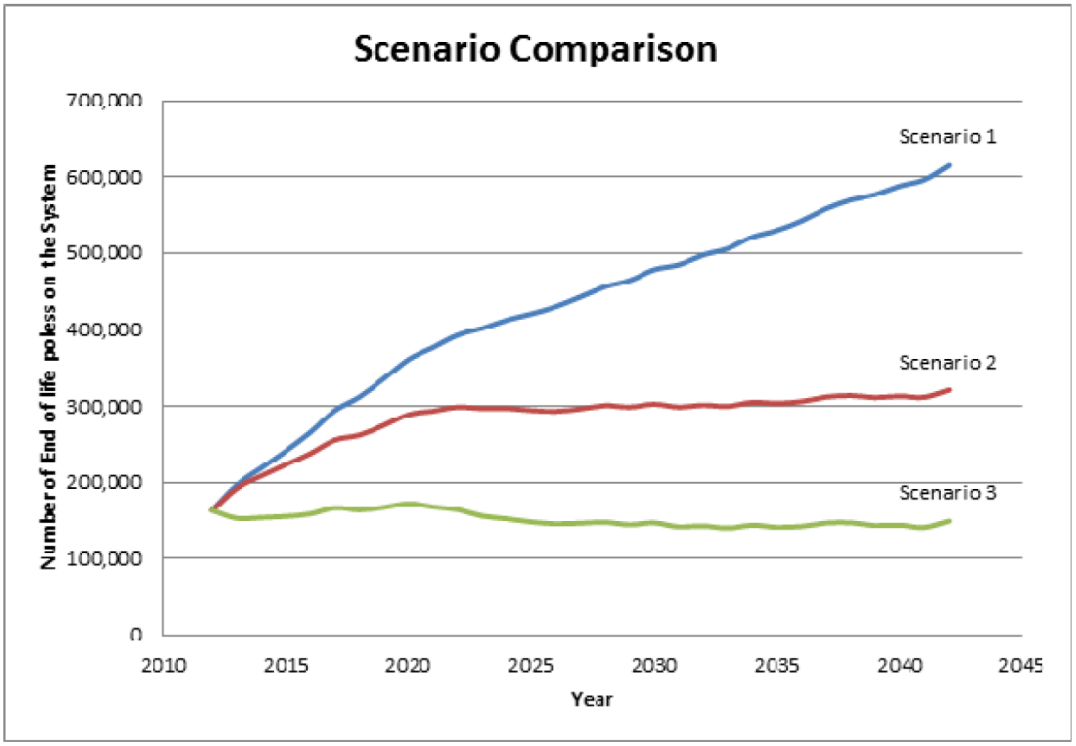


Figure 2: End-of-life wood poles existing in the distribution system over the next 30 years

Scenario 1 demonstrates what will happen if Hydro One continues to replace only 7,500 poles per year. After 10 years the number of EOL poles will be 390,000, after 20 years that number will increase to 500,000. By 2042, 30% (~620,000) of all poles remaining in the system will have exceeded their expected useful life. In Scenario 1, the number of EOL poles increases annually…

Scenario 2 shows what will happen assuming a volume of 11,000 poles in 2013 plus an incremental increase of 2,000 poles replaced annually through the Wood Pole Replacement program up to 20,000 poles annually by 2018. At the end of 10 years the volume of EOL poles will increase to 300,000. After 20 years that volume will remain the same. By 2042, about 20% (~320,000) of all poles remaining in the system will have exceeded their expected useful life…

Scenario 3 attempts to maintain the current volume of EOL poles. It assumes that 30,000 poles are replaced annually until 2023, after which the volume is reduced to 22,500 poles a year until 2026 and maintained at that rate thereafter. In this scenario, after 10 years the number of EOL poles will reach approximately 160,000 and after 20 years that number will be reduced to 140,000 poles and after 30 years the number of end of life poles will be at 150,000. Scenario 3 generally maintains the current level of EOL poles.

a) What percentage of Hydro One 's wood poles are currently in "Fair", "Poor" and "Very Poor" condition?

b) As per Ref (b), in EB-2012-0136 Hydro One proposed Scenario 2 which assumed a volume of 11,000 in 2013 plus an increase of 2,000 poles replaced up to 20,000 poles annually by 2018 and that at the end of the next 10 years the volume of EOL poles would increase to 300,000 and remain around that level. In preparing the current Application, did Hydro One consider a scenario in which it would be able to achieve and maintain a relatively stable level of End of Life (EOL) poles subsequent to an initial period of ramp-up in pole replacement activity?

c) How many poles a year would Hydro One need to replace over the test period 2015-2019 in order to maintain the current level of poles beyond the Expected Service Life (ESL)?

d) Given that Hydro One has approximately 1.7 million wood poles, and that the average expected EOL is less than 100 years, please explain how any replacement strategy that does not replace, at a minimum, more than 17,000 poles per year can be considered to be sustainable?

3.2-PWU-8

Ref (a): Exh D1, Tab 3, Schedule 2, Page 29, Lines 1-2.

Ref (a) states:

In addition to concerns with demographics, Hydro One Distribution continues to address a subset of red pine poles that are demonstrating premature deterioration.

a) How many defective red pine poles have been replaced each year since the problem of defective red pine poles was identified?

b) How many defective red pine poles does Hydro One expect to replace each year of the 2015-2019 test period?

3.2-PWU-9

Ref (a): Exh D1, Tab 2, Schedule 1, pages 1-9. Distribution Asset Investment Overview, 2.1.1 Transformers.

a) What percentage of station transformers are currently in “Poor” or “Very Poor” condition?

3.2-PWU-10

Ref (a): Exh D1, Tab 2, Schedule 1, Pages 18-25. Distribution Asset Investment Overview

Ref (b): EB-2012-0136, Exhibit I, Tab 2, Schedule 6.13 PWU 14

In its response, Hydro One provided the following:

	Asset Class	Stations	Transformers	Poles
(1)	Number of Units 2012	1002	1212	1,700,000
(2)	Current Replace Rate	4	6	7,200
(3)	Proposed Replace Rate	32	36	11,000
(4)	% ESL 2012	24%	19%	10%
(5)	# ESL 2012	242	226	170,000
(6)	Ave # per year Reaching ESL 2013-2021	24	30	30,500
(7)	% ESL 2021 using (2)	42%	36%	22%
	# ESL 2021 using (2)	421	439	380,000
	% ESL 2021 using (3)	17%	14%	20%
(8)	# ESL 2021 using (3)	169	169	346,000
(9)	Ave # per year Reaching ESL 2022-2031	25	34	22,400
(10)	Backlog # ESL Reduced over 2022-2031 using (2)	Increase of 178	Increase of 193	Increase of 152,000
(11)	Backlog # ESL Reduced over 2022-2031 using (3)	Reduction of 74	Reduction of 77	Increase of 114,000
(12)	% ESL 2031 using (2)	63%	59%	31%
(13)	# ESL 2031 using (2)	628	716	532,000
(14)	% ESL 2031 using (3)	10%	12%	27%
(15)	# ESL 2031 using (3)	96	146	460,000

Notes:

(1) A constant replacement rate was assumed to complete the above table. However, this information is for illustrative purposes only and is not intended to represent future proposed levels; future replacement rates will be determined through future applications.

(2) To simplify the analysis in the table above, it was assumed the oldest station, transformer, or pole would be replaced first. However this is for illustrative purposes only, actual replacement candidates are selected based on a combination of age, condition, etc.

(3) The analysis in the above table utilized Expected Service Life (ESL) for the assets. For distribution stations and transformers the ESL assumed was 50 years, and an ESL of 62 years for distribution poles. This analysis for distribution poles replacements does not include poles that were not treated to CSA standard.

a) Please update the table below in similar fashion as the table above.

	Asset Class	Stations	Transformers	Poles
(1)	**Number of Units 2014**			
(2)	**Current ReplaceRate**			
(3)	**Proposed Replace Rate**			
(4)	**% ESL 2014**			
(5)	**# ESL 2014**			
(6)	**Ave # per year Reaching ESL 2015-2020**			
(7)	**% ESL 2020 using (2)**			
	# ESL 2020 using (2)			
(8)	**% ESL 2020 using (3)**			
	# ESL 2020 using (3)			
(9)	**Ave # per year Reaching ESL 2021-2030**			
(10)	**Backlog # ESL Reduced over 2021-2030 using (2)**			
(11)	**Backlog # ESL Reduced over 2021-2030 using (3)**			
(12)	**% ESL 2030 using (2)**			
(13)	**# ESL 2030 using (2)**			
(14)	**% ESL 2030 using (3)**			
(15)	**# ESL 2030 using (3)**			

Issue 3.3
Has Hydro One proposed sufficient, sustainable productivity improvements for the 2015-2019 period, and have those proposals been adequately supported, for example, by benchmarking?

3.3-PWU-11

Ref (a): Exh A, Tab 19, Schedule 1, Table 1: Impact to Revenue Requirement Inclusive and Exclusive of Productivity Savings

Table 1:

Impact to Revenue Requirement Inclusive and Exclusive of Productivity Savings

	2013 Actual	2014 Bridge	2015 Test	2016 Test	2017 Test	2018 Test	2019 Test
OM&A per application	610,622,850	581,316,339	564,304,626	610,181,582	613,969,206	603,863,604	600,001,194
YoY growth		-4.8%	-2.9%	8.1%	0.6%	-1.6%	-0.6%
Add: Productivity Savings	50,378,620	69,418,195	95,332,361	102,698,023	106,293,228	106,581,261	106,632,090
OM&A without Productivity	661,001,470	650,734,534	659,636,986	712,879,605	720,262,434	710,444,865	706,633,284
YoY growth		-1.6%	1.4%	8.1%	1.0%	-1.4%	-0.5%

Ref (b): Exh A, Tab 19, Schedule 1, Table 2: Total Annual Savings – Distribution ($Million)

Table 2:

Total Annual Savings - Distribution ($ Million)

Description	Historical				Bridge Year	Test Years					Cumulative 2014 - 2019
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
Back Office	1.5	4.1	6.5	18.0	23.3	26.7	26.7	26.7	26.7	26.7	156.9
Business Systems	10.8	13.2	18.6	29.9	30.6	30.8	31.0	31.1	31.3	31.5	186.3
Business Transformations	0.0	0.0	0.0	0.4	13.6	30.9	33.9	34.4	34.7	34.9	182.5
Centralized Operations	0.0	0.0	0.6	5.0	5.0	5.3	5.4	5.5	5.6	5.7	32.6
Leveraging Technology	0.0	0.0	1.9	3.4	5.7	8.1	9.3	9.5	8.7	9.3	50.5
Miscellaneous Admin	0.0	0.0	5.3	5.1	5.2	5.3	5.5	5.6	5.7	5.8	33.0
Process Improvement	0.0	0.0	0.1	0.2	0.6	2.4	2.4	2.4	2.4	2.4	12.7
Staff Flexibility	0.0	0.0	2.8	5.0	5.1	7.0	10.2	13.0	13.8	12.8	62.0
Telephony	0.0	0.0	2.1	1.0	1.5	1.9	2.1	2.2	2.3	2.3	12.3
Total	**12.3**	**17.3**	**37.9**	**68.0**	**90.7**	**118.4**	**126.5**	**130.3**	**131.3**	**131.5**	**728.8**

a) Please confirm if the productivity savings in Table 1 are the same as the OM&A component of total annual savings provided in Table 2.