

September 24, 2012

Chris G. Paliare
Ian J. Roland
Ken Rosenberg
Linda R. Rothstein
Richard P. Stephenson
Nick Coleman
Margaret L. Waddell
Donald K. Eady
Gordon D. Capern
Lily I. Harmer
Andrew Lokan
John Monger
Odette Soriano
Andrew C. Lewis
Megan E. Shortreed
Massimo Starnino
Karen Jones
Robert A. Centa
Nini Jones
Jeffrey Larry
Kristian Borg-Olivier
Emily Lawrence
Denise Sayer
Danny Kastner
Tina H. Lie
Jean-Claude Killey
Jodi Martin
Michael Fenrick
Nasha Nijhawan
Jessica Latimer
Debra Newell
Lindsay Scott
Alysha Shore
Gregory Ko

VIA RESS FILING AND COURIER

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

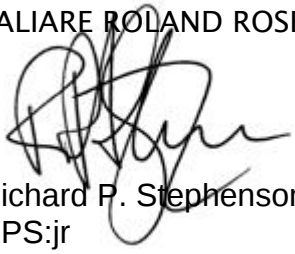
Dear Ms. Walli

**Re: Hydro One Distribution Rates – Interrogatories
Ontario Energy Board File No. EB-2012-0136**

Please find enclosed the Interrogatories of Power Workers' Union in connection with the above-noted proceedings.

Yours very truly,

PALIARE ROLAND ROSENBERG ROTHSTEIN LLP


Richard P. Stephenson
RPS:jr
encl.

Via Email:

cc: J. Kwik
J. Sprackett
All Participants

HONORARY COUNSEL
Ian G. Scott, Q.C., O.C.
(1934 - 2006)

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

AND IN THE MATTER OF a review of an application filed by
Hydro One Networks Inc. for an order or orders approving just
and reasonable rates and other charges for electricity
distribution effective January 1, 2013.

POWER WORKERS' UNION INTERROGATORIES

IRM METHODOLOGY

- 1) Has Hydro One appropriately applied the ICM mechanism as specified by the Board?**

1-PWU-1

Ref (1): Exhibit B/Tab 1/Schedule 2/Page 1/Lines 6-9 (Calculation of Incremental Capital Module Revenue Requirement).

In calculating the revenue requirement for the proposed ICM introduced in Exhibit B, Tab 1, Schedule 1, the methodology applied is generally consistent with Board requirements as outline in Chapter 3 of “the Filing Requirements for Transmission and Distribution Applications”, dated June 28, 2012.

Ref (2): Ontario Energy Board Filing Requirements for Electricity Transmission and Distribution Applications. Last Revised on June 28, 2012.¹ Chapter 3, Pages 9-10.

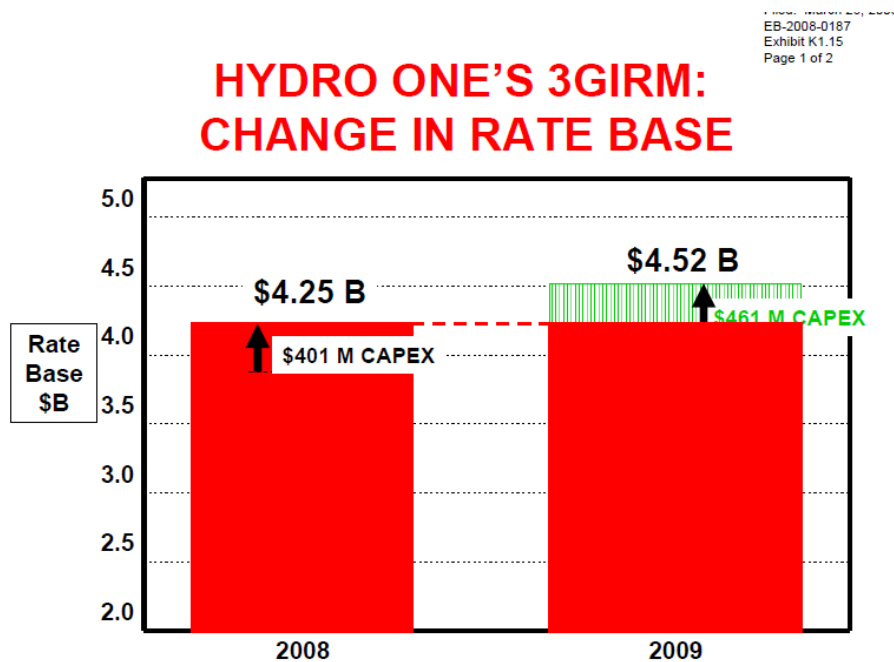
¹http://www.ontarioenergyboard.ca/OEB/_Documents/Regulatory/Filing_Requirements_Tx_Dx_Applications_20120628.pdf

2.2.5 ICM Filing Guidelines

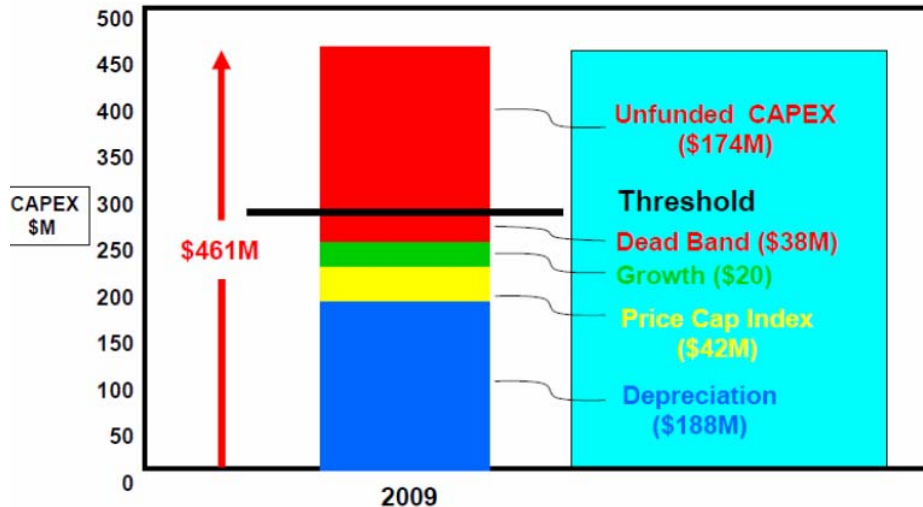
The Board requires that a distributor requesting relief for incremental capital during the IRM3 plan term must include comprehensive evidence to support the claimed need, which should include the following:

1. An analysis demonstrating that the materiality threshold test has been met ...
2. Evidence that the incremental revenue requested will not be recovered through other means (e.g., it is not, in full or in part, included in base rates or being funded by the expansion of service to include new customers and other load growth);

Ref (3): EB-2008-0187/Exhibit K1.15/Page 1



HYDRO ONE'S 3GIRM: CALCULATION OF THRESHOLD



- a) Please illustrate how Hydro One's ICM application meets the OEB's ICM materiality threshold and how the incremental revenue requested will not be recovered through other means using the approach used in EB-2008-0187, Exhibit K1.15. Please provide explanation.

2-PWU-2

Ref (1): Exhibit B/Tab 1/Schedule 2/Page 1/Lines 6-9 (Calculation of Incremental Capital Module Revenue Requirement).

In calculating the revenue requirement for the proposed ICM introduced in Exhibit B, Tab 1, Schedule 1, the methodology applied is generally consistent with Board requirements as outline in Chapter 3 of "the Filing Requirements for Transmission and Distribution Applications", dated June 28, 2012.

Ref (2): Ontario Energy Board Filing Requirements For Electricity Transmission and Distribution Applications. Last Revised on June 28, 2012.² Chapter 3, Pages 9-10.

2.2.5 ICM Filing Guidelines

The Board requires that a distributor requesting relief for incremental capital during the IRM3 plan term must include comprehensive evidence to support the claimed need, which should include the following:

...

- **A description of the actions the distributor will take in the event that the Board does not approve the application.**

...

Ref (3): Exhibit B/Tab 1/Schedule 1/Page 6/Lines 6-24 (Proposed Incremental Capital Module)

It is critical that Hydro One recover Typical, Escalated Issue and Non-typical capital spending during the period of an IRM. Hydro One is not in a position, due to credit rating issues, to invest in rate base for which there is no cost recovery. Any negative impact to Hydro One's credit rating would result in borrowing challenges and increased borrowing costs for our customers. In order to avoid any negative credit rating impacts, Hydro One must maintain its earnings metrics including rate of return. Adding to this pressure, Hydro One was recently downgraded by Moody's by one notch. Also, Standard and Poors has revised Hydro One's outlook from stable to negative. ...

An unintended outcome of not being in a position to invest in rate base for which there is no return is lower reliability as Hydro One would have less ability to replace or refurbish assets prior to breakdown. A common industry term for this is the "harvesting" of assets. Another unintended outcome is not replacing or refurbishing assets when it is economically beneficial to do so. Planning for replacement and refurbishment and executing the plan is less costly than simply replacing or refurbishing assets when they break. ...The harvesting of assets would certainly result in increased contract and employee labour costs as Hydro One would be unable to levelize work based on the most efficient use of resources.

Ref (4): Exhibit B/Tab 1/Schedule 1/ Page 2/Lines 14-24 (Proposed Incremental Capital Module)

²http://www.ontarioenergyboard.ca/OEB/_Documents/Regulatory/Filing_Requirements_Tx_Dx_Applications_20120628.pdf

Hydro One has defined three categories of capital investment that make up the \$644 million in required in-service additions: “Typical” capital spending; “Escalated Issue” capital spending; and “Non-typical” capital spending.

The first category is Typical capital spending which includes historically approved levels of sustainment, development and shared services and other spending. Sustainment spending includes categories such as wood pole replacements, transformer replacements, investments in distributing and regulating stations, repairing storm damage and the replacement of meters. Development spending includes categories such as new load connections, and upgrades and system capability reinforcement. Shared services and other spending includes information technology, fleet, and work and office equipment. ...

Ref (5): Exhibit B/Tab 3/Schedule 1/Page 5/Lines 7-10 (Non-Typical Capital – Customer Information System)

Table 2

CIS Capital 2011– 2013 (\$ Millions)

	2011	2012	2013	Total In-service 2013
Minor Fixed Assets	10.1	0		10.1
Development Project	41.5	85.7	18.1	145.3
Total Capital Cost	51.6	85.7	18.1	155.4

- a) Please provide a detailed description of the consequences of the actions that Hydro One will take if the proposed ICM is not approved.
- b) Please provide a detailed description of the consequences of the actions that Hydro One will take if the Board allows Hydro One to recover all incremental capital costs except for:
 - i. The planned 2013 Development and Shared Services work under the typical category; or,

- ii. The proposed CIS capital investment under the Non-Typical work category.

2-PWU-3

Ref (1): Exhibit B/Tab 2/Schedule 2/Page 4/Lines 18-20 (Escalated Issue Capital – Distribution and Regulating Stations)

The Station Refurbishment Program addresses assets that are beyond their expected service life and exhibit conditions or design deficiencies that result in safety and customer supply reliability risks. ...

Ref (2): Exhibit B/Tab 2/Schedule 3/Page 10/Lines 6-8 (Escalated Issue Capital – Wood Pole Replacement Program)

Distribution wood poles have an expected useful life of 62 years. While the actual age of failure may be younger or older for individual poles, for analysis purposes, any poles in the distribution system that have reached this age are considered to require replacement.

Ref (3): Exhibit B/Tab 2/Schedule 2/Page 1/Lines 14-15 (Escalated Issue Capital – Distribution and Regulating Stations)

Although asset age is not the only indicator, it does provide a useful measure for determining capital and OM&A investment needs.

Ref (4): EB-2010-0002/Exhibit D1/Tab 2/Schedule 1/Page 9/Lines 16-24 (Sustainment Planning and Asset Investment Criteria)

Assets are declared EOL in the context of Hydro One's Capital Sustainment programs when the risk of allowing an asset to remain in service in its present condition/situation exceeds acceptable risks associated with Hydro One's business values. EOL 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. Identifying the appropriate indicators to project an asset's EOL is an important factor in Sustainment planning. Some assets have very specific and agreed to EOL markers, perhaps based on regulations or industry-accepted standards. Others require a number of inputs to identify the risks that prompt an EOL determination.

Ref (5): EB-2010-0002/Exhibit D1/Tab 2/Schedule 1/Page 11/Lines 1-7
(Sustainment Planning and Asset Investment Criteria)

Age can be used as a probabilistic EOL indicator for assets with large installed bases where statistically significant conclusions can be drawn for expected age prior to failure. For assets with smaller installed bases, typically station power equipment, asset age provides a relative indication of expected remaining life that can be used to complement other factors in determining EOL. While Hydro One does not program replacements based on age, there are generally accepted expectations for the useful service life of many components of the power system. ...

Ref (6): Exhibit B/Tab 2/Schedule 3/Page 12 Lines 6-7 (Escalated Issue Capital – Wood Pole Replacement Program)

At the end of 10 years the volume of EOL poles will increase to 300,000.

- a) What is Hydro One's definition of "expected service life"?
- b) Is the definition Hydro One provided in Reference 4 for EOL the definition that Hydro One applies to EOL today?
- c) Is "expected service life" the same as EOL? If not, what is Hydro One's definition of EOL?
- d) Please confirm that EOL poles are poles that are beyond the expected service life for poles of 62 years [see Reference 6].
- e) Please describe how Hydro One determines the expected service life and/or EOL for its various types of distribution assets.
- f) Can Hydro One confirm that EOL along with other factors is a good analytical indicator for the need to replace assets?
- g) Does Hydro One have targets and/or maximum limits for % EOL of its various assets? If not, please explain why not. If yes, please provide:
 - i. Explanation on how the EOL limits/targets are derived;
 - ii. The limits and/or targets for distribution stations, transformers, Mobile Unit Substations ("MUS"), and wood poles; and,

- iii. If the %EOL for each of these categories of assets are not currently at the EOL limit/target, when the limits/targets are expected to be attained with the proposed replacement rates.
- h) Does Reference 5 apply equally to distribution assets as it does to transmission assets?

2-PWU-4

Ref (1): Exhibit B/Tab 2/Schedule 2/Page 6/Lines 15-18; Page 7/Lines 1-2
(Escalated Issue Capital – Distribution and Regulating Stations)

Figure 3 shows a 10 year planning outlook based on the existing replacement rate (4 stations per year, 0.4% of the fleet) and the proposed replacement rate of 32 stations per year respectively. At the current replacement rate, by 2023, more than half of Hydro One's distribution stations will be beyond their expected service life; double the number today. At the proposed investment level, the number of stations beyond their expected service life will remain generally constant over the next 10 years.

- a) Assuming an EOL target of 0%, and assuming a 10 year horizon to get there, what would be the additional cost if another 20 stations (i.e. 10% of the backlog) are replaced per year (i.e. 52 stations per year)?
- b) What would be the additional annual revenue requirements associated with (a)?
- c) What would be the additional incremental capital cost associated with (a) for 2013?

2-PWU-5

Ref (1): Exhibit B/Tab 2/Schedule 2/Page 20/Lines 9-15 (Escalated Issue Capital – Distribution and Regulating Stations)

Figure 12 illustrates a 10-year scenario of transformer fleet demographics based on historic replacement rates of 6 transformers per year and a 10-year scenario based on the proposed 2013 replacement rate of 36 transformers each year. At the historic replacement rate, almost half of the distribution transformers will be beyond their expected service life in 10 years; more than double the amount of transformers today. As illustrated in Figure 12, moving to the proposed 2013 replacement rate for 10

years will essentially maintain the proportion of transformers beyond 50 years of age.

- a) Assuming an EOL target of 0%, and assuming a 10 year horizon to get there, what would be the additional cost if another 20 transformers (i.e. 10% of the backlog) are replaced per year (i.e. 56 transformers per year)?
- b) What would be the additional annual revenue requirements associated with (a)?
- c) What would be the additional incremental capital cost associated with (a) for 2013?

2-PWU-6

Ref (1): Exhibit B/Tab 2/Schedule 3/Page 12/Line 27; Page13/Line 10
(Escalated Issue Capital – Wood Pole Replacement Program)

From the scenarios illustrated above, it is evident that if replacement rates are not increased in the near future, annual volumes of EOL poles will accumulate to an unmanageable amount. However, if an appropriate replacement plan is implemented the volume of these poles existing in the system can at least be maintained at a generally constant level.

For 2013, Hydro One is proposing a transitional increase in its spending to \$81.8M to increase the replacement rate from 7,200 per year to about 11,000 as per the first year of Scenario 2. Hydro One is not pursuing a larger increase in 2013 as the current resources could not manage a larger change in one year. Instead, transitional steps will be taken to begin to address the increasing accumulation of poles reaching their EOL. Hydro One will seek approval for increased pole replacement levels in future applications.

- a) Please describe the current resourcing circumstances that do not allow Hydro One to manage a larger change in pole replacement in one year (i.e. 2013).
- b) Please describe the transitional steps that Hydro One will be taking to begin to address the increasing accumulation of poles reaching their EOL.
- c) Please describe how Hydro One will provide resourcing to accommodate the transitional steps.

2-PWU-7

Ref (1): Exhibit B/Tab 1/Schedule 1/Page 6/Lines 16-24 (Proposed Incremental Capital Module)

An unintended outcome of not being in a position to invest in rate base for which there is no return is lower reliability as Hydro One would have less ability to replace or refurbish assets prior to breakdown. A common industry term for this is the “harvesting” of assets. Another unintended outcome is not replacing or refurbishing assets when it is economically beneficial to do so. Planning for replacement and refurbishment and executing the plan is less costly than simply replacing or refurbishing assets when they break. The harvesting of assets would certainly result in increased contract and employee labour costs as Hydro One would be unable to levelize work based on the most efficient use of resources.

- a) Please describe how HO determines when it is economically beneficial to replace or refurbish an asset.
- b) Does Hydro One see any net benefit opportunities to adjusting maintenance work such that more distribution asset categories might be run to fail?

2-PWU-8

Ref (1): Exhibit B/Tab 2/Schedule 2/Page 1/Lines 14-23 and Lines 25-28; Page 2/Lines 1-2

Although asset age is not the only indicator, it does provide a useful measure for determining capital and OM&A investment needs. Of Hydro One’s 1,002 distribution and regulating stations, 25% are beyond their expected service life of 50 years, with an additional 25% between 40 and 50 years old. This aged plant requires significantly increased capital re-investment on an ongoing basis to ensure that the existing risk profile does not deteriorate. If the current capital reinvestment for distribution stations is not significantly increased, the volume of station assets that are beyond their expected service life will become unmanageable over a period of time. The result will be a degrading level of performance to customers, increasing safety risks to the public and employees, and escalating OM&A costs.

...

Hydro One has continuously learned from available condition assessment information. Over the past several years, success in

maintaining the reliability of the station fleet has been achieved through a greater dependency on maintenance of distribution station assets. This is not viewed to be sustainable or prudent from a long-term perspective, as an increasing number of assets are beyond a point which makes them technically or economically maintainable compared with the alternative of replacement.

- a) What would have been the percentage of distribution stations beyond their expected service life if the assets had been replaced when maximum economic benefit is indicated based on Asset Life Cycle cost?
- b) What will be the impact of the proposed replacement rate on reliability performance, environment, and public and worker safety? Will the risk remain at the current levels, increase or decline?

2-PWU-9

Ref (1): Exhibit B/Tab 2/Schedule 3/Page 4/Lines 5-11(Escalated Issue Capital – Wood Pole Replacement Program)

Replacing poles on a planned basis is recognized as a good utility practice and is less costly than "emergency" or reactive type replacements. In addition to the increased labour costs (i.e. overtime premiums), reactive replacements result in longer outage durations to customers and increased safety risks.

On average, a planned outage that replaces a pole is only 2 hours while an unplanned outage that involves replacing poles lasts 9 hours.

- a) Is the impact of reactive replacements of poles compared to planned replacement of poles equally applicable to the replacements of station and transformers? Please provide explanation in your response.

2-PWU-10

Ref (1): Exhibit B/Tab 2/Schedule 2/Page 16/Lines 11-13 (Escalated Issue Capital – Distribution and Regulating Stations)

Hydro One's proposed step change will set in motion a volume of work that is required to prevent the existing risk levels from deteriorating over the next 10 year period.

- a) Is the “next 10 year period” referred to in the reference the period 2013 – 2022?
- b) How does Hydro One’s step change prevent deterioration of risk levels for stations beyond the next 10 years (i.e. 2023-2032)?

2-PWU-11

Ref (1): Exhibit B/Tab 2/Schedule 2/Page 20/Lines 9-15 (Escalated Issue Capital – Distribution and Regulating Stations)

Figure 12 illustrates a 10-year scenario of transformer fleet demographics based on historic replacement rates of 6 transformers per year and a 10-year scenario based on the proposed 2013 replacement rate of 36 transformers each year. At the historic replacement rate, almost half of the distribution transformers will be beyond their expected service life in 10 years; more than double the amount of transformers today. As illustrated in Figure 12, moving to the proposed 2013 replacement rate for 10 years will essentially maintain the proportion of transformers beyond 50 years of age.

- a) Is the “10 years” referred to in the reference the period 2013 – 2022?
- b) What is the impact of the proposed 2013 replacement rate on the proportion of transformers beyond 50 years of age over the next 10 year period (i.e. 2023-2032)?

2-PWU-12

Ref (1): Exhibit B/Tab 2/Schedule 3/Page 12/Lines 4-13 (Escalated Issue Capital – Wood Pole Replacement Program)

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 2 is similar to Scenario 1 during the first eight years. However, due to its ramp-up in replacement values it is able to maintain a relatively stable level of EOL poles existing on the system beginning in 2021. However, throughout this period the number of EOL poles on the

system would be over 300,000 poles, more than double the current amount.

- a) Is the “10 years” referred to in the reference the years 2013 – 2022?
- b) How does Hydro One's proposed wood pole replacement rate prevent deterioration of risk levels for wood poles beyond the next 10 years (i.e. 2023-2032)?

2-PWU-13

Ref (1): Exhibit B/Tab 2/Schedule 2/Page 22/Lines 4-10 (Escalated Issue Capital – Distribution and Regulating Stations)

Figure 13 shows an updated fleet-wide condition assessment of the in-service distribution transformers. According to the currently available information, 397 in-service transformers, or one third for the population of 1,212 transformers, are in a deteriorated condition that identifies them for replacement.

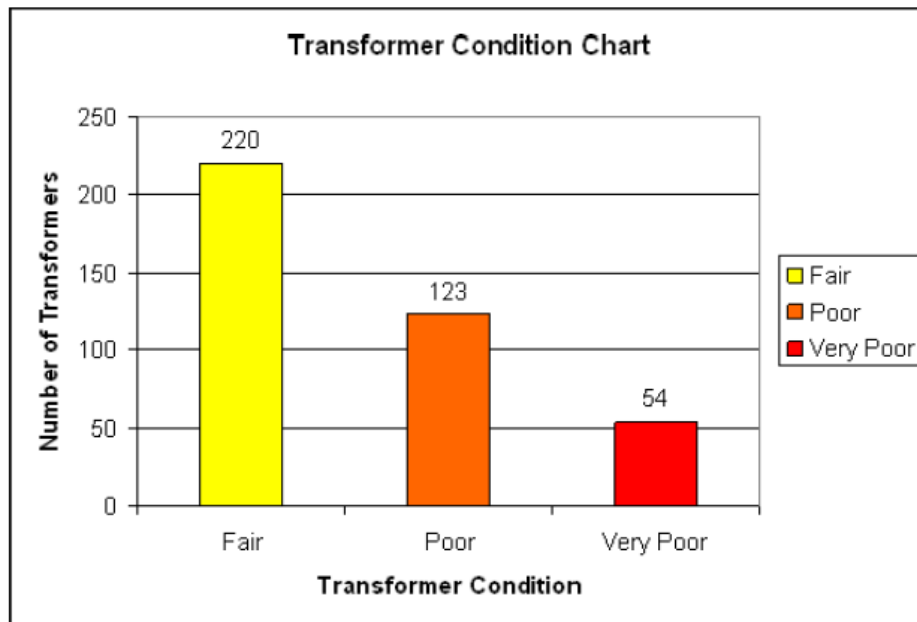


Figure 13 - Transformer Fleet Condition Assessment

- a) What will be the impact of the proposed transformer replacement rate of 36 replacements per year on the statistics illustrated in Figure 13 (i.e. number of

transformers in Fair, Poor and Very Poor condition in each year from 2013 through 2023)? Please provide the statistics in number of transformers as well as % of total transformer numbers.

- b) Please provide the information illustrated in Figure 13, or similar information if the same information is not available, for Stations and for Wood Poles.
- c) Please provide the information requested in (a) or similar information if the same information is not available, for Stations and for Wood Poles assuming the proposed replacement rates for Stations and Wood Poles.

2-PWU-14

Ref (1): Exhibit B/Tab 2/Schedule 2/Page 3/Lines 15-21; Page 4/Lines 1-2
(Escalated Issue Capital – Distribution and Regulating Stations)

The expenditures are required for increased asset replacement to manage demographic pressures and the asset condition of the aged station infrastructure as Hydro One approaches the “bow wave” of required re-investment work that can be seen in the age profiles. Increased capital reinvestment starting in 2013 will maintain the current risk levels, and allow the stabilization of OM&A expenditures over a 10-year time period that would otherwise have to increase as the station infrastructure ages.

Ref (2): Exhibit B/Tab 2/Schedule 3/Page 1/Lines 21-28 (Escalated Issue Capital – Wood Pole Replacement Program)

Hydro One has been mitigating the risk of failure by selectively targeting replacement of EOL poles based on improved asset condition information. However, the demographics of the pole population require a change in approach. Delaying the required increase in replacement volumes would push the population of wood poles into an unmanageable state of deterioration. By investing in the aging and deteriorating wood pole population today, risks associated with system reliability, safety, future costs and future work resourcing can be mitigated to ensure the integrity of the distribution system and the reliability of supply.

- a) Please fill out the following table. Please provide references for data sources or provide explanation on derivation of information.

	Asset Class	Stations	Transformers	Poles
(1)	<i>Number of Units 2012</i>			
(2)	<i>Current Replace Rate</i>			
(3)	<i>Proposed Replace Rate</i>			
(4)	<i>% EOL 2012</i>			
(5)	<i># EOL 2012</i>			
(6)	<i>Ave # per year Reaching EOL 2013-2021</i>			
(7)	<i>% EOL 2021 using (2)</i>			
(8)	<i># EOL 2021 using (3)</i>			
(9)	<i>Ave # per year Reaching EOL 2022-2031</i>			
(10)	<i>Backlog # EOL Reduced over 2022-2031 using (2)</i>			
(11)	<i>Backlog # EOL Reduced over 2022-2031 using (3)</i>			
(12)	<i>% EOL 2031 using (2)</i>			
(13)	<i># EOL 2031 using (2)</i>			
(14)	<i>% EOL 2031 using (3)</i>			
(15)	<i># EOL 2031 using (3)</i>			

2-PWU-15

Ref (1): Exhibit B/Tab 2/Schedule 2/Page 1/Lines 11-18; Page 1/Lines 15-21
(Escalated Issue Capital – Distribution and Regulating Stations)

... Of Hydro One's 1,002 distribution and regulating stations, 25% are beyond their expected service life of 50 years, with an additional 25% between 40 and 50 years old. This aged plant requires significantly increased capital re-investment on an ongoing basis to ensure that the existing risk profile does not deteriorate. If the current capital reinvestment for distribution stations is not significantly increased, the volume of station assets that are beyond their expected service life will become unmanageable over a period of time. ...

Ref (2): Exhibit B/Tab 2/Schedule 3/Page 1/Lines 23-28 (Escalated Issue Capital – Wood Pole Replacement Program)

... Delaying the required increase in replacement volumes would push the population of wood poles into an unmanageable state of deterioration. By investing in the aging and deteriorating wood pole population today, risks associated with system reliability, safety, future costs and future work resourcing can be mitigated to ensure the integrity of the distribution system and the reliability of supply.

- a) Are there currently distribution assets other than the stations, transformers and wood poles that have EOL backlogs that need to be addressed through increased replacement rates? If yes, please describe the circumstances of those assets.
- b) If the response to (a) is yes, is Hydro One putting on hold any of the required increases in replacement rates for those assets until the next cost of service application? Please provide explanation in the response.
- c) If the response to (b) is yes, please describe the impact on service reliability performance, environment, and safety of the public and workers of doing so.