



October 15, 2014

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

Re: Hydro One Networks Inc. 2015-2019 Distribution Rate Application
AMPCO's Final Submissions
Board File No. EB-2013-0416

Dear Ms. Walli:

Attached please find AMPCO's final submissions in the above proceeding.

Please do not hesitate to contact me if you have any questions or require further information.

Sincerely yours,

A handwritten signature in blue ink, appearing to read "Adam White", with a long horizontal flourish extending to the right.

Adam White
President
Association of Major Power Consumers in Ontario

Copy to: Hydro One Networks Inc.
Intervenors

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.

Hydro One applied through a Custom Incentive Regulation (IR) application for a full review of its distribution rates over each of the five years. Hydro One is seeking approval for changes to the rates that Hydro One charges for electricity distribution, to be effective January 1, 2015 and each year thereafter to December 31, 2019.

Hydro One seeks approval for revenue requirements for the 5-year period 2015 to 2019 as follows:

	2011 Board Approved	2014	2015	2016	2017	2018	2019
Revenue Requirement ¹	\$1,148.9	1,426.3 ²	\$1,415	\$1,523	\$1,578	\$1,615	\$1,660

Hydro One's investment plan is to maintain fourth quartile reliability service levels through the test years, while keeping total electricity bill impacts for the average customer below the forecasted 2.0% annual increase in consumer's price index.

Hydro One indicates the main contributions to revenue requirement are:

- Rate base growth due to capital additions during IRM period and test years
- Increases in OM&A largely needed to address a backlog in vegetation management, increased PCB testing, increased meter verifications, smart grid investments and escalated replacement parts, material and labour rates.
- Increase in Return on Equity

1.0 CUSTOM APPLICATION

Hydro One has characterized its application as a 5-year Custom Cost of Service application that Hydro One considers to be most appropriate given its proposed significant multi-year investments.³

Hydro One submits its plan promotes the four outcomes of the RRFE⁴ as follows:

¹ E1-1-1 Page 1 May 30, 2014

² J1.2

³ A-4-1- Page 1

⁴ RRFE Page 2

- **Customer Focus:** services are provided in a manner that responds to identified customer preferences
- **Operational Effectiveness:** continuous improvement in productivity and cost performance; utilities deliver on system reliability and quality objectives
- **Public Policy Responsiveness:** utilities deliver on obligations mandated by government;
- **Financial Performance:** financial viability is maintained; and savings from operational effectiveness are sustainable.

In order to facilitate achievement of these four outcomes the Board developed three main policies under the RRFE: rate setting, planning and measuring performance. AMPCO's submissions regarding Hydro One's proposed five year application address Hydro One's adherence to these three Board policies.

Rate Setting

Under the RRFE, the Board identified three alternative rate-setting methods for distributors: 4th Generation Incentive Rate-setting (IR), Annual IR Index and Custom IR. The three rate setting methods reflect in part the different capital needs of each distributor with 4th Generation IR suitable for most distributors. Each distributor can select the method that best meets its needs and circumstance. Regardless of the rate method, the Board indicates that each rate method needs to be supported by:

- principles of good asset management;
- coordinated, longer-term optimized planning;
- a common set of performance expectations; and
- benchmarking.

The Board determined that Custom IR would be suitable for those distributors with significantly large multi-year or highly variable capital requirements with relatively certain timing and level of associated expenditures.⁵ AMPCO agrees Hydro One meets the requirement of large multi-year capital investments and AMPCO accepts that Hydro One's approach to rate setting needs to accommodate its circumstances. However, in keeping with the factors listed above there are other related considerations such as Hydro One's planning of work, pacing of work, cost-effectiveness, customer affordability and value for money that need to be adequately assessed by the Board in order for it to approve Hydro One's proposed rate-setting method based on pre-approval of a multi-year plan that allows a 5-year period between cost of service reviews.

The RRFE identifies the key elements of setting rates under the three methods that include the following for a Custom IR:⁶

- custom index;
- annual adjustment mechanism;
- role of benchmarking ; and

⁵ RRFE Page 14

⁶ RRFE Page 13, Table 1

- sharing of benefits.⁷

AMPCO has reviewed the Board's expectations and policies under the RRFE and submits there are several areas related to the above elements where Hydro One's application does not reflect the objectives and approaches described in the RRFE.

Custom Index

Under 4th Generation IR and Annual IR Index, a Price Cap Index is identified as a key element of the rate setting method consistent with 3rd Generation IR. Under Custom IR, a Custom Index is identified as a key element of the rate setting method signalling that distributors should develop an Index that reflects their unique circumstances. Hydro One did not propose a Custom Index. Instead Hydro One proposes a 5-year Custom Cost of Service application with an annual proposed rate of return and cost savings embedded in its investment plans over the test period.

Annual Adjustment Mechanism & the Role of Benchmarking

All three rate setting methods include a productivity factor element. The Board's RRFE indicates that for Custom IR the Board expects the proposal to include a distributor-specific rate trend for the term informed by: (1) the distributor's forecasts (revenues and costs, inflation, productivity); (2) the Board's inflation and productivity analyses; and (3) benchmarking to assess the reasonableness of the distributor's forecasts, leaving it flexible for the distributor to develop the specific rate trend. The RRFE states that under Custom IR "Expected inflation and productivity gains will be built into the rate adjustment over the term."⁸

Under Hydro One's application, a rate index is not proposed, the plan does not incorporate the Board's productivity analysis and there is no benchmarking to test reasonableness.

Sharing of Benefits

Under Custom IR, the sharing of benefits is to be determined on a case by case basis.⁹ In establishing the rate method, the Board signals that the expected benefits from greater efficiency need to be appropriately shared throughout the rate setting term between the distributor and its customers, and the expected benefits need to be taken into account in establishing the rate adjustment mechanism to each rate method through the X-Factor.¹⁰ It is the Board's expectation that each rate setting method would include an X-Factor. Hydro One's application does not include an X-Factor, productivity factor or stretch factor.

Productivity

As noted above, Hydro One's application does not include the common features of incentive rate setting

⁷ RRFE Page 13 Table 1

⁸ RRFE Page 20

⁹ RRFE Page 13 Table 1

¹⁰ RRFE Page 12

i.e. an annual adjustment mechanism, a productivity factor and productivity benchmarking. Instead Hydro One characterizes the cost savings that are built into the investment plans as productivity. Hydro One indicates its proposed work program expenditures for the test years reflect forecasted efficiencies resulting from numerous productivity initiatives detailed at A-19-1.¹¹

Hydro One submits its plan incorporates productivity efforts to promote sustainable efficiencies that benefit customers with total cumulative savings of \$728.8M over the 2014 to 2019 period related to back office, business systems, business transformations, centralized operations, leveraging technology, administration, process improvement, staff flexibility and telephony.¹² For the 2015 to 2019 period the cumulative savings are \$638 M. Specifically, Hydro One indicates that OM&A expenditures over the test period demonstrate more productivity and if not for these initiatives Hydro One would require an increased revenue requirement.¹³

During the hearing, Hydro One confirmed that the \$728.8 M includes savings generated prior to 2015 and the incremental savings over the test period are \$184.5 M.¹⁴ There is a significant difference between embedded cost savings (savings that are already in place) and incremental planned cost savings to be achieved during the test period. The majority of the forecasted savings are the result of activities undertaken in prior years. AMPCO submits Hydro One's annual savings built into the underlying cost forecast should be characterized as the incremental savings which reflect a declining trend. Hydro One does not expect to achieve additional efficiencies over the 5-year term. However, it has indicated that if additional gains were realized, Hydro they would be invested back into work programs. AMPCO supports CME's submissions that Hydro One should not be permitted to "re-invest savings and that all efficiencies should result in earnings sharing rather than an acceleration of capital spending."¹⁵

AMPCO has reviewed the detailed submissions of Board Staff and supports its analysis regarding the shortcomings of Hydro One. In particular AMPCO agrees with the following points raised by Board Staff:

- Cost of Service forecasts should include planned savings. However, a Custom IR rate setting index should, in addition, include benchmark productivity and efficiency gains based on external benchmarks.
- Hydro One's application lacks external productivity and efficiency components comparable to an X-Factor. Hydro One's application does not include a benchmark it expects to achieve.
- Hydro One confuses the concept of cost efficiency with productivity by characterizing forecasted cost savings as productivity. Productivity is more than just cost savings.
- Incentive based rates are intended to provide companies with strong incentives to continually seek efficiencies by imposing additional productivity and efficiency expectations where the benefits are

¹¹ A-3-1 Page 11

¹² A-10-1

¹³ A-19-1 Page 2

¹⁴ Transcript Vol 4 Page 14

¹⁵ CME submission Page 9

shared with customers. Under a Cost of Service rate of return setting, incentives are weak.

- Under Hydro One's proposed Custom application, Hydro One may not be as driven to seek and achieve continuous improvement in the absence of strong incentives.

In considering the above, AMPCO submits Hydro One's application has major shortcomings with respect to meeting the Board's RRFE. On this basis, AMPCO submits Hydro One's 5-year Custom Cost of Service application should be rejected by the Board. The Board's expectations under the RRFE do not contemplate a Custom IR that is designed on the basis of Cost of Service with no rate index included.

AMPCO submits Hydro One's circumstances better reflect a 4th Generation IR rate-setting method based on a 5-year term where rates are set on a single forward test year cost of service basis, in this case 2015, followed by four years where the rates over the period 2016 to 2019 are indexed by the 4th generation price cap index formula. Each year distributors are assigned to one of five stretch factor groups based on their efficiency determined through PEG's total cost benchmarking model. In 2014 Hydro One's stretch factor value was 0.6%. In 2015, the value remains at 0.6%. A stretch factor of 0.6% means that Hydro One is among the least efficient LDCs in the Province. AMPCO submits a distributor's ability to access a Custom IR option should be linked directly to its benchmarking results including its benchmarked performance rating as this speaks to the efficiency of the distributor. AMPCO submits that a Cost of Service year followed by four years of 4th Generation IR would provide Hydro One with the right incentives for continuous improvement compared to its proposal.

Planning

Under the RRFE, distributors are required to file 5-year capital plans to support their rate applications. Hydro One has appropriately filed a five year capital plan. In addition, the Board expects that planning will be integrated in order to pace and prioritize capital expenditures, including smart grid investments.

An objective of the development of a renewed regulatory framework is to ensure distributors are encouraged to manage the prioritization and pace of investments having regard for the total bill impact on customers. The key considerations regarding pacing and prioritization of capital investment are the protection of consumer interests (with respect to prices and the adequacy, reliability and quality of electricity service) and the promotion of economic efficiency and cost effectiveness.¹⁶

AMPCO has concerns regarding Hydro One's proposed pacing and prioritization of its 5-year capital. AMPCO's detailed submissions on Hydro One's capital plan and proposed reductions are included under Section 3.0. If the Board accepts AMPCO's proposed investment reductions for the test period, AMPCO submits Hydro One's investment plan fits with 4th Generation IR where some incremental investment needs during the plan term are anticipated, noting that Hydro One's level of spending in 2014 and 2015 already reflects increased spending levels over historical years.

In AMPCO's view Hydro One has not provided sufficient evidence to support the requested costs, based on the missing RRFE elements in Hydro One's application and the productivity issues discussed under

¹⁶ RRFE Page 4

section 3.0 related to several of Hydro One's programs, AMPCO submits Hydro One is not a candidate for pre-approval of a 5-year plan and a 5-year regulatory holiday from the Board.

Board Directions from Previous Proceedings

Hydro One indicates its application addresses all outstanding Board directives.¹⁷ At Exhibit A-18-1 Hydro One provided a list of relevant Board directions from previous proceedings including prior settlement agreements. AMPCO submits the following direction from a previous proceeding was missing: "In that custom cost of service application for 2015-2019, Hydro One will present its proposal to the Board on how best to report upon the progress and results of its smart grid program as part of the custom cost of service rate application annual reporting."¹⁸ AMPCO submits this should be addressed by Hydro One and included under any annual reporting mechanism approved by the Board in this application.

Rate Smoothing Mechanism

Hydro One is proposing a rate smoothing methodology to minimize the initial rate impact to customers resulting from rebasing after a three year IRM term as shown in the table below.

Ref: J3.3	2013	2014	2015	2016	2017	2018	2019	Total Rate Increase
UnSmoothed Rates Rev Reqmt \$M			1385.8	1471.2	1521.0	1564.6	1611.5	7554
<i>Unsmoothed Rate Increase</i>	1.4%	2.6%	10.5%	7.3%	2.9%	2.1%	2.6%	25.4%
Smoothed Rates Rev Reqmt \$ M			1333.6	1402.5	1498.6	1605.7	1713.6	7554
<i>Smoothed Rate Increase</i>			6.3%	6.3%	6.3%	6.3%	6.3%	31.5%

Under the smoothed rate increase (6.3% annually) the total rate increase over the term is 31.5%. Under the unsmoothed approach, the total rate increase over the term is 25.4%, 6.1% less.

If the Board approves Hydro One's 5-year Custom Cost of Service application, AMPCO does not support Hydro One's proposed rate smoothing methodology. AMPCO submits that rates should not be smoothed in order to mask the increase in 2015. AMPCO submits the true impact of Hydro One's 2015 rate increase should be implemented so that the true cost of delivering electricity to Hydro One's

¹⁷ A-3-1 Page 3

¹⁸ EB-2013-0141 Page 4

customers is realized by customers when the rate increases occur. An unsmoothed rate increase is less costly for customers over the rate period as borrowing costs of \$20.7M are avoided.¹⁹

Rate Payer Protection

If the Board were to approve Hydro One's Custom 5-year application, AMPCO submits an Earnings Sharing Mechanism is a necessary ratepayer protection mechanism that should be established by the Board.

The earnings sharing mechanism should allow for 50/50 sharing with Hydro One's customers of in the event that Hydro One's ROE exceeds the ROE established by the Board in any year of the plan. Under this proposal a new Earnings Sharing deferral account would be required for clearance at the annual rate adjustment as applicable.

AMPCO submits there is risk to customers of forecasting over the long term. To protect against this risk AMPCO submits a Capital Variance Account should be established to capture the revenue requirement associated with the cumulative difference between actual and forecasted capital additions (net of capital contributions) for 2015-2019, should in-service capital additions be lower than, or the pacing of capital additions be slower than, forecast over the 2015-2019 period. Any amount would be refunded to Hydro One customers at the time of its next rebasing.

2.0 OUTCOMES AND INCENTIVES

Annual Outcome Measurement Reporting

The RRFE emphasizes the need for utilities to demonstrate results, rather than activities that are measurable and align with customer preferences, enhance productivity, promote innovation and provide value for money for its customers.

In response to the RRFE, Hydro One proposes eight outcome measures with targets that will track the Company's performance in delivering results (outcomes) and meeting its five year plan as described in this application. Hydro One believes the forecast targets are achievable assuming normal levels of weather-related contingencies, significant events and customer driven requests.²⁰

Hydro One is proposing eight areas of focus for assessing performance on specific areas of spending included in the 5-year plan. The outcome metrics are targeted to areas where Hydro One is proposing to increase investment in capital or OM&A expenditures over the 5-year test period.

- Vegetation Management;
- Pole Replacement;
- PCB Line Equipment;
- Substation Refurbishments;

¹⁹ Issue 1.4 VECC IR#26

²⁰ A-4-4 Page 2

- Distribution Line Equipment Refurbishments;
- Customer Experience;
- Handling of Unplanned Outages; and
- Estimated Bills.

AMPCO acknowledges that the use of outcome metrics is a new area for Hydro One and that establishing these new metrics has been a challenge to which Hydro One appropriately sought input from stakeholders in developing its outcome metrics. However, upon review of the proposed investment levels over the 2015-2019 period, AMPCO proposes revisions to three of Hydro One's outcome measures for the Board's consideration. AMPCO proposes that the metric and targets for Vegetation Management and Pole Replacement be based on a \$/unit metric. Further details on this proposal are provided under section 3.0. In AMPCO's view, the current metric and targets for these two metrics do not enhance productivity, promote innovation or provide value for money.

With respect to PCB Line Equipment (Sustaining Capital), Hydro One proposed this as an area to be measured via an outcome metric because of the public safety issues pertaining to the equipment. Hydro One is required by Federal regulation to undertake this work. Hydro One proposes the number of pole top transformers with PCB oil to be replaced as the measure, and Hydro One forecasts replacement targets of 400 in 2015 to 1,000 in 2016 and 2,200 for the years 2017 to 2019. In AMPCO's view, Hydro One's proposed measure and targets related to this work do not promote the expectations of the Board's RRFE continuous improvement and cost effectiveness. AMPCO submits that \$/pole top transformer with PCB oil replaced would be a more appropriate measure and AMPCO believes Hydro One has the data to develop this measure.

Similar to the reasons above, AMPCO submits the measure for Substation Refurbishments could be revised to reflect unit costs instead of number of substations refurbished. AMPCO submits \$/transformer refurbished or \$/transformer replaced is a more appropriate metric as Hydro One has ramped up its transformer work in substations over the 5-year period and of the 194 substation refurbishments, 126 have planned transformer replacements.

With respect to Customer Experience (OM&A), Hydro One proposes to spend \$21 M on Customer Experience during the 5-year plan period compared to \$6 M during the preceding 5-year period to achieve an 85% customer satisfaction level in 2019. In 2014, overall customer satisfaction was 80%. For the 2009 to 2013 period, the average satisfaction level was 80%. AMPCO does not support an additional \$15 M over the period to improve the customer experience in order to strive to achieve 85%, a percentage that can be greatly impacted by many factors including storm events. AMPCO submits maintaining an overall customer satisfaction level of 80% is appropriate and reasonable for the 2015-2019 period. On this basis, AMPCO submits that the spending level of \$6M over the test period should be maintained resulting in a reduction of \$15 M in OM&A over the test period.

In general, AMPCO notes there is a theme in Hydro One's application that is reflected in the outcome measures where Hydro One is asking for significant increases in spending over the test period with no promises of improvements to reliability. AMPCO submits this is a difficult proposition for customers to accept as the perception is Hydro One is not being held accountable for any improvements and

customers are expected to pay significantly more for nothing in return. Under AMPCO's proposed revisions to the outcome metrics, this proposition is avoided.

In addition, AMPCO submits its proposal aligns with Hydro One's 5-year vision is to achieve top-quartile unit costs against comparable utilities.²¹

Reporting on Metrics

Hydro One indicates it will track and report actual performance for each outcome measure annually to the Board.

In response to undertaking J4.8, Hydro One indicates it proposes to submit at the time of the annual RRR filing a Distribution Business Plan Memo approved by the Hydro One Board in November of the prior year for the current year. The Business Plan Memo is based on a detailed bottom up planning process across the organization. For example, on April 2015, the Hydro One Board's November 2014 approved values for 2015 would be filed. The memo would cover the following:

- Distribution Work Program Details on OM&A and Capital expenditures;
- Distribution In Service Additions >\$1M;
- Forecasted Outcome Measures with revised targets as required; and
- Forecasted Distribution Business Measures in the Hydro One Corporate Scorecard.

In addition to the memo, Hydro One indicates the following set of reports to be filed by Hydro One will provide a complete and accurate account of the successful implementation of the Hydro One Distribution System Plan:²²

- Outcome Measures Scorecard – See response to TCJ1.16; 17 (Proposed by Board Staff)
- OEB Scorecard for Hydro One – See response to J4.5
- An annual Productivity / Cost Efficiencies accomplishment file; and
- Annual RRR Filing Reports.

AMPCO supports the above reporting mechanisms proposed by Hydro One/Board Staff. As noted above, AMPCO submits that annual reporting on the progress and results of its smart grid program needs to be incorporated.

3.0 PROGRAM AND PROJECT EXPENDITURES

Hydro One's 5-year Custom IR application includes the following Capital & OM&A expenditures over the test period:

²¹ A-6-1 Page 4 Table 1

²² J5.7

	2011 Board Approved	2015	2016	2017	2018	2019	Total 2015-2019
Capital \$M²³	\$575.1	\$564.3	\$610.2	\$614.0	\$603.9	\$600.0	\$2,992.4
OM&A \$M²⁴	\$535.0	\$648.9	\$654.7	\$661.4	\$655.1	\$661.9	\$3,282.0
	\$1,110.1	\$1,213.2	\$1,264.9	\$1,275.4	\$1,259.0	\$1,261.9	\$6,274.4
Variance		9.3%	4.26%	0.8%	-1.2%	0.2%	

Hydro One's investment plan is increasing 9.3% in 2015 over 2011 Board Approved (+\$103.1 M) and 2019 spending is 4% higher than 2015.

5-Year Capital & OM&A Investment Plan Process

In developing its ongoing 5-year investment plan, Hydro One undertakes an annual business planning process that consists of 5 stages. Business planning considers key planning inputs such as Hydro One's corporate strategic business values and Key Performance Indicators²⁵, as well as economic outlook and forecast assumptions in order to develop investment proposals. External/market influences as well as customer needs and operational risk factors such as condition, performance, utilization/load growth, obsolescence, criticality, safety and environment and maintenance strategies are also considered. All of this information is reviewed in the context of risk for the purpose of identifying areas that require investment to mitigate risk which feeds into the investment planning process.²⁶

The individual investments that result from the planning process and risk based prioritization process result in a list of projects and plans and work programs that are further refined through the planning process, including a detailed analysis of preferred alternatives and costs for individual projects. At the end of the process Hydro One senior management and ultimately the Board of Directors approves a list of projects and programs that form the 5-year Capital & OM&A budgets.

The above overall approach is consistent with past investment planning practices however Hydro One

²³ C1-2-1 Table 1

²⁴ D1-3-1 Table 1

²⁵ Safety, Customers, Reliability, Environment, Employees, Shareholder Value, Productivity

²⁶ A-17-1 Page 4

has a new Asset Risk Assessment that replaces the Asset Condition Assessment review used in the past. Hydro One has developed a new “Asset Analytics” Tool that it used in this application to identify and prioritize investments over the 5-year plan. In addition, Hydro One has completed an asset inventory of its key assets since its last cost of service application that links to outage and customer data which is also new. Hydro One indicates this new tool provides a common understanding of asset risk and comparability between assets of the same type and it uses information that is continually updated.²⁷ As discussed below AMPCO submits Hydro One’s evidence in this application with respect to asset risk does not smoothly transition from the common understanding of asset risk and comparability that was consistent in Hydro One’s previous Cost of Service applications EB-2007-0681 and EB-2009-0096 to this new common understanding of asset risk .

In EB-2007-0681 and EB-2009-0096 Hydro One prioritized assets according to Priority 1 (P1), Priority 2 (P2) and Priority 3 (P3). P1 assets represented the highest priority assets of high value (in terms of total sustaining program expenditures) and high risk to the business, whereas P3 assets were the lowest in priority with low program expenditures and low risk to the business. For P1 assets, detailed asset condition assessments were undertaken that documented asset description, demographics, condition criteria and condition assessment results. For P2 assets, asset condition assessments are carried out but typically not at the level of detail as P1 assets.²⁸

In EB-2009-0096, Hydro One made the point that a consistent approach has been used in developing asset condition assessment results so that the meaning of the categories is generally understood across the asset classes; i.e there was a general understanding that “very poor” or “poor” condition assets are high risk and require replacement, refurbishment or other remedial action within the next 5-years to correct significant deterioration. “Fair” condition meant assets should survive another 5-years with regular maintenance and future work will be based on subsequent risk assessments. “Good” or “very good” meant lower risk.

The new Asset Analytics Tool provides a view of risk based on demographics, condition, economics, utilization, performance and criticality/customer and a composite risk score is computed. The composite risk score allows for the identification of assets that may require remedial action and the remedial action to be taken can be determined by detailed analysis of the individual risk factors.

In AMPCO’s view the change in process means the asset risk categories from past to present are no longer consistent and readily understood, resulting in an unclear determination and comparison of the percentage of high risk assets.

At the hearing, Hydro One provided a presentation on how the Asset Analytics Tool worked which revealed that instead of an assessment of “very poor”, “poor” etc. Hydro One uses five colour codes: red, orange, yellow, green and blue. The six risk factors (condition, demographic, economics,

²⁷ A-17-3 Page 5

²⁸ D1-2-1 Page 3

performance, utilization and criticality) are colour coded on a red to blue scale with red being high risk and blue being low risk and the risk factors for a given asset are calculated relative to assets of the same type.²⁹

AMPCO attempts to reconcile the previous determination of high risk assets with the new approach as shown in the table below. AMPCO submits that the percentage of assets identified as being “high risk” from previous years compared to the percentage of high risk assets identified in the current application has changed in some cases. AMPCO submits that this understanding is important in order to compare asset information from the past with the present in order to assess whether or not Hydro One’s proposed investment plan with respect to a specific asset type is reasonable, cost effective and appropriately paced to promote affordability for customers.

Case No.	Asset	% ESL	Asset Condition Assessment (ACA) Results		
			“Poor” or “Very Poor” (High Risk)	“Fair”	“Good” or “Very Good”
EB-2007-0681 ³⁰	Transformers ³¹	19%	11%	15%	74%
	Wood Poles		5%	2%	93%
	ROW Vegetation Management		31%	39%	30%
EB-2009-0096 ³²	Transformers	19%	15%	14%	71%
	Wood Poles		5%	2%	93%
	ROW Vegetation Management		35%	33%	32%
			Asset Risk Assessment		
EB-2013-0416 ³³	Transformers	19%	24% High Risk		
	Wood Poles	11% ³⁴	4% High Risk		
	ROW Vegetation Management		Driving factor 8 year cycle		

²⁹ K4.4 Slide 6

³⁰ EB-2007-0681 D1-2-1 Page 7

³¹ EB-2009-0096 D1-2-1 Page 10

³² EB-2009-0096 D1-2-1 Page 7

³³ J5.9

³⁴ D1-3-2 Page 28

Hydro One uses three investment funding levels: vulnerable, intermediate and asset optimal that reflect relative funding levels and risk.³⁵ Hydro One confirms that these three investment levels have the same meaning as the investment levels used in the past, i.e. minimum, level 1 and level 2.³⁶ In the Board's Decision in EB-2009-0096, the Board reduced capital expenditures in 2010 and 2011 to \$500 M per year in order to contain spending given the significant expenditures associated with the Green Energy Plan. The Board noted the level was still above the Minimum Level and represented a significant increase over historical levels. During the hearing, Hydro One indicated that overall, the proposed level of spending in the current application reflected an Intermediate Level. AMPCO notes Hydro One continues to have significant Green Energy Plan expenditures related to smart grid and distributed generation.

AMPCO's submissions on Hydro One's specific Capital & OM&A program and project expenditures are provided below.

Hydro One acknowledged at the hearing that the new tool is new ground for Hydro One and new ground in the industry and there is judgment required of planners as they put inputs into the model³⁷ and judgement around the response to outputs from the model.³⁸ And there is judgement in determining the percentage of assets that are high risk. Hydro One's hope is that they get some validation over experience and some validation within the industry over the next number of years, and Hydro One plans to learn as they get better using the tool and continuously improve.³⁹ Hydro One did not have a third party review its asset risk assessment process nor did it have a third party review its proposed investment plans. AMPCO submits Hydro One could have benefited from a third party review and it would have assisted the Board in assessing the reasonableness of Hydro One's proposed asset management and level of spending. AMPCO submits its proposal to have Hydro One's rate setting based on 4th Generation IR over the 5-year 2015-2019 term, with rebasing in 2015, allows Hydro One the opportunity to further refine its use of the model prior to its next cost of service proceeding.

3.1 Capital

Hydro One's application includes large proposed capital investments in the test period from 2015 to 2019 and it is those facilities coming into service which have the largest impact on the revenue requirement in the test period.⁴⁰ The amount of incremental revenue requirement attributable to rate base growth is shown in the table below.⁴¹

³⁵ A-17-4 Page 6

³⁶ Transcript Vol 5 Page

³⁷ Transcript Vol 4 Page 26

³⁸ Transcript Vol 4 Page 29

³⁹ Transcript Vol 4 Page 134

⁴⁰ Transcript Vol 8 AIC Page 8

⁴¹ Undertaking J2.1

	2011-2015	2015-2016	2016-2017	2017-2018	2018-2019
Rate Base Growth	94%	45%	80%	111%	89%

The significant increase in capital spending is primarily due to sustaining capital related to the stations and line categories. Stations sustaining capital includes costs for station refurbishments, transformer spares and replacements and mobile unit substations. Lines sustaining capital includes asset replacements (pole replacements, lines PCB equipment replacements and line projects). AMPCO submissions below on Hydro One's capital plan are focussed on the stations and lines categories of sustaining capital.

3.1.1 Stations Sustaining Capital

Stations Sustaining Capital expenditures fund the work required to replace or refurbish distribution stations or individual pieces of equipment within distribution stations. The table below provides Hydro One's proposed expenditures in four areas related to Stations Sustaining Capital.⁴² AMPCO's submissions are focussed on Transformer Spares and Replacements and Station Refurbishments.

1
2
3

Table 2
Stations Sustaining Capital
(\$ Millions)

Description	Historical Years				Bridge Year	Test Years				
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Transformer Spares and Replacements	3.9	8.7	18.1	18.4	14.6	18.0	18.4	17.9	21.2	21.6
Mobile Unit Substations	1.0	3.4	1.7	1.8	3.7	4.6	3.6	3.7	3.6	3.7
Other Station Component Replacements & Demand	6.1	6.7	6.9	9.9	6.2	6.7	6.8	6.9	7.1	6.6
Station Refurbishments	2.7	2.3	6.0	26.3	26.1	34.6	39.0	40.0	44.5	45.2
Total	13.8	21.2	32.7	56.5	50.6	63.9	67.8	68.5	76.4	77.2

4

Hydro One indicates an increase in stations capital is required to address the number of station transformers and other station components that are either approaching or beyond their expected service life. These expenditures will maintain reliability to customers but are not at a level that will reduce Sustaining OM&A over the test period.⁴³

Transformer Spares and Replacements

Hydro One has 1,214 station transformers in service. Hydro One indicates that approximately 19% (230)

⁴² D1-3-2 Page 8 Table 2

⁴³ D1-3-1 Page 5

of its transformer population is beyond expected service life. AMPCO notes that the percentage of transformers beyond 50 years has remained at 19% since 2007 (as per EB-2012-0136⁴⁴, EB-2009-0096 and EB-2007-0681) which AMPCO interprets as meaning Hydro One's historical work program has maintained the percentage of its transformer population beyond expected service life at 19% each year.

In EB-2009-0096 Hydro One indicated that 15% of its transformers (182) were considered high risk.⁴⁵ In EB-2012-0136, Hydro One identified 177 (14.5%) as high risk.⁴⁶ In the current application, Hydro One has determined, based on additional testing begun in 2013 that 24% (291) of station transformers are at high risk, approximately 10% higher than previously assessed in 2012.⁴⁷ 6% of the 24% (18) transformers have both the tap changer and main tank issues identified as contributing factors to a high risk condition.

Hydro One indicates it plans to replace 30 transformers over the test period (2.5% of transformers), six per year in order to maintain the percentage of its transformer population beyond expected service life at 19%. These transformer replacements are limited to cases where no other assets at the station require replacement.

AMPCO notes the proposed level of replacement is consistent with the 2013 proposal to replace six transformers.⁴⁸ AMPCO takes no issue with the level of replacement of 30 transformers over the test period.

Hydro One proposes to spend \$97 M over the test period⁴⁹ on Transformer Spares and Replacements (compared to \$63.7 M for the previous 5-year period). The \$97 M includes spending on the 30 planned transformer replacements discussed above as well as spending on transformer spares.

Transformer Spares

In addition to the 1,214 in-service station transformers, Hydro One also maintains an inventory of strategic spare transformers. Strategic spare transformers are required to be used as replacements for failed units or to aid in the avoidance of a major failure. Hydro One's proposed capital program includes the purchase of 142 transformer spares over the test period. Hydro One has based the quantity on the average number of major transformer failures combined with the number of major failures on

⁴⁴ EB-2012-0136 B-2-2 Page 19

⁴⁵

⁴⁶ EB-2012-0136 B-2-2 Page 22

⁴⁷ D1-2-1 Page 5

⁴⁸ EB-2013-0136

⁴⁹ D2-2-3 ISD S-01

average of 15 per year.⁵⁰

Year	2015	2016	2017	2018	2019
Number of Spare Purchases	26	27	26	31	32

The average number of transformers replaced on a failure basis annually is 11 units.⁵¹ Based on this failure replacement rate, AMPCO submits the number of spare purchases proposed over the test period is excessive and should be reduced to 15, as Hydro One has not provided evidence or a rationale for the increase. This would take the proposed number of spare purchases from 142 to 75 over the test period.

From the evidence, it is not clear to AMPCO how much of the \$97 M is attributable to spending on transformer spares. AMPCO asks that Hydro One please confirm in its reply submission the amount that corresponds to this proposed reduction in the purchase of transformer spares.

Station Refurbishments

Hydro One also proposes to spend an additional \$203.3 M over the test period on 194 station refurbishments (average 39 per year) compared to 5 per year.

Hydro One indicates the number of major transformer failures combined with number of major failures avoided from 2002 to 2013 has been trending higher. AMPCO submits when the number of major failures avoided by proactively removing transformers from service data is excluded from the analysis, the number of major failures is actually trending lower since 2009.⁵²

⁵⁰ D2-2-3 ISD S-01

⁵¹ AMPCO#26

⁵² D1-2-1 Page 6 Figure 4

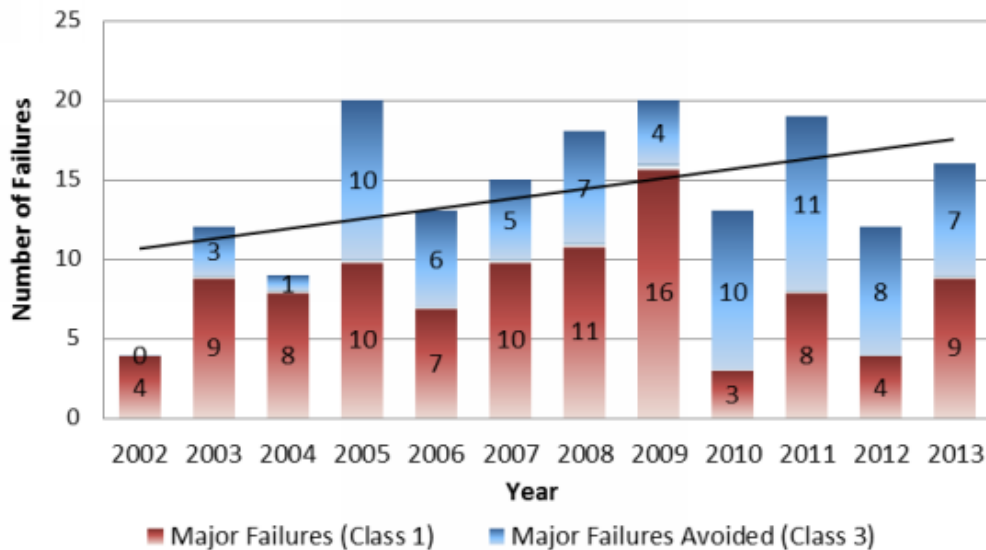


Figure 4: Failures of Station Transformers

AMPCO submits the failure data in this application differs from the failure data provided in EB-2009-0096. In EB-2009-0096 Hydro One explained that it has continued to focus on maintenance and diagnostic activities regarding transformers and has demonstrated that investments are well directed based on the reduction in transformer failures over the 2004 to 2008 period from 37 in 2004 to 21 in 2008. AMPCO notes the number of major avoided failures has not been identified as being included in this failure data. Hydro One further indicates in EB-2009-0096 that its OM& A and Capital programs provide appropriate funds to effectively manage the life cycle of these assets and will address those identified to be at high risk over the next 5-years to 2013.⁵³ AMPCO submits the asset management strategy for transformers has shifted significantly since EB-2009-0096 and the failure data is not consistent. AMPCO submits that Hydro One's rationale for increased expenditures in the test period is based in part on the failure rate trend which AMPCO submits shows a decline and does not justify the significant ramp up in expenditures.

Station Refurbishments

Hydro One maintains 1,004 distribution and regulating station facilities with an average expected service life of 50 years (station transformers are a proxy for station age).⁵⁴

Hydro One is proposing to spend \$203 M during the 5-year plan compared to \$63.4M in the preceding 5-years, a significant increase of \$140M or 3 times historical spending levels.⁵⁵ The proposed spending

⁵³ EB-2009-0096 D1-2-1 Pages 10-11

⁵⁴ I-3.02-3-PWU#6

⁵⁵ A-4-4 Page 10

increases on average 7% annually over the five year period from \$34.6 M in 2015 to \$45.2 M in 2019. A total of 194 station refurbishments (19% of 1,004 distribution stations) are planned over the five year period (average 39 per year) compared to the historical replacement rate of 5 stations per year (2010-2013). Hydro One proposes to upgrade or replace assets located within these 194 stations over the test period. The following table shows the rate of distribution stations that underwent major capital upgrades in 2010 to 2013 and are planned for 2014.

Year	2010	2011	2012	2013 ⁵⁶	2014
# of Station Upgrades	2	2	3	14	32
% of Population	0.2%	0.2%	0.3%	1.4%	3.2%

Each station refurbishment varies in size and scope and includes electrical and non-electrical assets. The average capital investment is below \$1M for each station.⁵⁷ Of the 194 stations, 126 have planned transformer replacements.⁵⁸

Substation Refurbishment	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total 2015-2019
Capital \$M ⁵⁹		2.7	2.3	6.0	26.3	26.1	34.6	39.0	40.0	44.5	45.2	203.3
# stations refurbished		2	2	3	13 ⁶⁰	32	36 (3%)	38	38	41	41 ⁶¹	194
Proposed Outcome Metric (Excluding Force Majeure Events & Excluding Planned)												
# interruptions	153	190	159	144	129	155	155	155	155	155	155	
5-year Average	155						155					

Hydro One has proposed “number of substation interruptions” over the five year period as an outcome metric with the goal to reduce the number of substation outages over the 5-year plan. Hydro One is proposing a significant increase in spend with no improvement to reliability. Reliability is to be maintained. As shown in the table below AMPCO notes the annual number of interruptions target for the 2015-2019 period is 155 which is the same as the average number of outages over the previous 5-year period.

Hydro One indicates the spending is needed to manage the risk of failure associated with the condition of this asset. The strategy is to address stations at high risk of failure as determined by asset risk assessment and prioritized based on impact of failure.⁶²

⁵⁶ I-3.02-3-PWU#6

⁵⁷ D2-2-3 S-07

⁵⁸ J5.4

⁵⁹ D1-3-2 Page 8

⁶⁰ I-3.03-1-Staff#61

⁶¹ D2-2-3 S-07

⁶² D1-3-2 Page 19

In justifying its increase in expenditures in this application at an Asset Optimal Level⁶³, Hydro One is relying in part on its expectation that the probability of failure trend is expected to increase over the next five years. AMPCO submits that the evidence in this application and EB-2009-0096 shows that historical failure rates are trending lower over the 2004 to 2008 period and the 2009 to 2013 period (excluding failures avoided). AMPCO further notes, as shown in the above table, that the number of interruptions has been declining steadily from 190 in 2010 to 129 in 2013. In addition, AMPCO notes that of the 10% of SAIDI and 14% of SAIFI that is attributable to defective equipment over the period 2010 to 2013, a small percentage is attributable to transformer failures.⁶⁴ For reliability risk, the main considerations are the impact to overall SAIDI and SAIFI performance values.⁶⁵

During the oral hearing Hydro One confirmed that station refurbishment has been a lower priority in the past. AMPCO submits that given the failure trend, the pace of work proposed is excessive. AMPCO submits it is more appropriate for spending on station refurbishment to be maintained at the 2014 level. At this pace of replacement, if the Board were to approve Hydro One's 5-year Custom Cost of Service application, the total over the 5-year period would be \$131 M, a reduction of \$72.3 M.

If the Board determines that Hydro One's 5-year term should be 2015 Cost of Service and 2016 to 2019 4th Generation IR, AMPCO submits the 2015 spend should be set at \$26.1 M, a reduction of \$8.5 M.

3.1.2 Lines Sustaining Capital

Pole Replacement

Hydro One has approximately 1,600,000 poles and the majority are wood poles (1,550,000).⁶⁶ Each year approximately 20,000 poles are installed including end of life replacements and new installations. Hydro One proposes to ramp up its end of life replacement quantities by 4,500 per year over the 2015 to 2019 period. The replacement ramp-up is largely based on detailed poles age information obtained as part of an asset inventory completed in 2011.⁶⁷

⁶³ A-17-4 Page 9

⁶⁴ JTC5.4 & JTC5.5

⁶⁵ J5.12

⁶⁶ D1-2-1 Page 19

⁶⁷ A-4-2 Pages 7-8

Pole Replacement⁶⁸	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Capital \$M⁶⁹		53.6	54.7	55.5	73.9	82.5	88.7	95.1	105.0	115.2	125.8
# poles replaced⁷⁰	7,485	7,518	7,282	7,452	10,720	11,000	11,600	12,200	13,200	14,200	15,200
Unit Price \$/pole		7,130 6,023	7,520 6,264 ⁷¹	7,445	6,894	7,503	7,646	7,799	7,955	8,114	8,276
5-year Average		\$7,298					\$7,958				
# of interruptions (excluding force majeure)⁷²	469	508	501	590	598	219 ⁷³	533	533	533	533	533
5-year Average		533					533				

Based on an analysis of wood pole failures, the expected service life of a wood pole is 62 years. Current demographics indicate 180,000 or approximately 11% of Hydro One's wood poles are beyond their expected service lives. Hydro One is proposing increased spending over the test period to mitigate the risk of poles reaching their expected service life over the period. Hydro One indicates that while not all poles require immediate replacement, they are at a higher risk of failure in the short term and are prioritized in the pole replacement program.

In AMPCO's view, Hydro One's strategy for pole replacement appears to be centered on age. AMPCO submits end of life does not automatically imply replacement is needed and age should not be relied on as a proxy for condition. Hydro One indicates that 4% of its poles (64,000) are considered high risk. This is down from 5% of poles identified as high risk in EB-2009-0096 and EB-2012-0136.

Hydro One forecasts to spend \$530M on pole replacements over the 2015-2019 period, a significant increase (64%) over the \$323M spent during the previous 5-year period. The number of poles to be replaced over the test period is 66,400, compared to 43,972 replaced in the previous 5-year period. Despite the proposed increase in spending, Hydro One does not anticipate a reduction in the number of interruptions. As shown in the table above, the annual number of interruptions of 533 per year for the period 2015 to 2019 is consistent with the average for the period 2009 to 2013.

AMPCO prepared a chart to show the increasing trend of unit costs for pole replacement for the years 2009 to 2019.⁷⁴ Unit costs per pole range from \$6,693 in 2009 to \$8,276 in 2019. In 2013, the unit cost per pole replacement is slightly above the 2009 rate at \$6,894. Hydro One indicates that the cost achieved in 2013 is not expected to be repeated routinely in future years due to numerous factors. The

⁶⁸ Hydro One May 12, 2014 Presentation Slide 10

⁶⁹ D1-3-2 Page 8

⁷⁰ A4-4-4 Page 8

⁷¹ EB-2009-0096 VECC IR#82 H-7-82

⁷² I-2.02-14-AMPCO 12

⁷³ 2.03 VECC 36 as of May 31, 2014

⁷⁴ K5.1 Page

number of poles replaced was 3% below the 11,000 target but the actual spend was \$15.2 M below budget due to easier installations caused by less snow, and work bundling with less sporadic replacements and easier accessibility.

Hydro One proposes number of poles replaced per year as an outcome metric and indicates that the unit price is expected to increase over the plan due to the replacements of poles with more complex framing and poles in difficult to access locations which could impact overall costs.⁷⁵ The increase in proposed spending over the test period compared to the previous 5-years is 64% for a 51% increase in the number of poles replaced, results in an increase in unit costs that is in part due to material costs and increased labour costs. Hydro One has not undertaken a benchmarking study related to pole replacement.

AMPCO has several concerns regarding Hydro One's pole replacement program. In AMPCO's view Hydro One's evidence does not support a ramp up over the test period at the level proposed from 11,000 poles replaced in 2014 to 15,200 poles replaced in 2019. It appears to AMPCO that age is being used as the dominant factor in setting replacement rates as the proportion of high risk assets has actually decreased. AMPCO submits age should not be used as an indicator of replacement or a proxy for asset condition. AMPCO submits Hydro One's 2013 and 2014 proposed accomplishment level of 11,000 poles replaced is a more appropriate pace and still well above the historical average replacement rate of 7,434 per year over the 2009 to 2012 period. At an annual rate of 11,000, a total of 55,000 poles would be replaced over the test period, an average increase of 2,200 poles replaced per year. AMPCO notes this level of replacement does not include the additional 13,000 poles replaced in other programs which takes the annual replacement rate under this scenario to 24,000 per year or 120,000 over the test period.

With respect to the proposed outcome metric, in AMPCO's view, number of poles replaced is not the best outcome metric. AMPCO submits a unit rate target that addresses Hydro One's declining productivity regarding pole replacement would be a more appropriate metric. AMPCO submits that the unit rate for 2015 should be set at the average unit cost over the 2010-2014 period or \$7,298/pole.⁷⁶ In AMPCO's view this approach addresses the issue of more complex pole replacement as there is no evidence that for the years 2010-2012, only easy installations took place. This approach also incents Hydro One to look at ways to do things better to be more cost-effective. In addition, a unit cost metric supports Hydro One's 5-year vision to achieve top-quartile unit costs against comparable utilities.⁷⁷

AMPCO's approach to replace 11,000 poles per year over the test year period based on historical unit costs escalated annually for inflation, results in a decrease in capital expenditures of approximately \$112 M from \$530 M to \$418 M.

⁷⁵ J1.1

⁷⁶ See Appendix A

⁷⁷ A-6-1 Page 4 Table 1

Overall, AMPCO finds the organization and quality of the Hydro One evidence with respect to management of the pole population difficult to work with. The pole replacement program is only one of several programs that result in ongoing refreshment of the pole population. Trouble calls, service upgrades, road relocations, joint use and line rebuilds also cause replacement of thousands of poles (additional 13,000 annually). AMPCO submits that a better asset management approach to the pole population would include consideration of the totality of pole replacement activity and, in future, Hydro One's evidence should include a more holistic approach.

Preventive Maintenance

Hydro One indicates decay, rot, insect and rodent damage, mechanical impact and other factors negatively impact the condition of the pole. At the hearing, Hydro One confirmed that it does not have a pole maintenance program to treat poles in order to reduce the risk of decay and rot and extend the life of the pole. AMPCO notes other utilities undertake this type of preventive maintenance program. AMPCO submits Hydro One should review its own history with this practice, as well as current good utility practice in Canada, in advance of its next application.

3.2 Proposed OM&A Expenditures

Hydro One has proposed increases in OM&A that are attributable to incremental revenue requirement as follows:⁷⁸

	2011-2015	2015-2016	2016-2017	2017-2018	2018-2019
OM&A	18%	43%	7%	-27%	-9%

As shown in the Table below, total OM&A expenditures increase to a peak level of \$614.0 million in 2017, and then decrease from 2018 to \$600.0 million in 2019.

The increase in OM&A expenditures reflects in part a substantial increase in sustainment expenditures (Sustaining OM&A) primarily driven by a growth in the lines and vegetation management categories. The sustaining OM&A expenditures over the 2015-2019 period account for approximately 60% of OM&A.⁷⁹

\$ M	2010	2011	2012	2013	2014 Bridge	2015	2016	2017	2018	2019	Total 2015- 2019
OM&A	550.9	554.4	553.4	610.6	581.3	564.3	610.2	614.0	603.9	600.0	2,992.4
Sustaining OM&A⁸⁰	305.9	317.1	307.9	335.7	320.4	329.5	374.4	380.1	363.2	358.1	1,805.3

The increase in the line category of expenditures is primarily driven by an increase in PCB inspection and

⁷⁸ J2.1

⁷⁹ \$1805.3/\$2992.4=60%

⁸⁰ C1-2-2 Page

testing of oil-filled equipment required by Environment Canada regulations. AMPCO takes no issue with this level of proposed spending. AMPCO's submission is focussed on vegetation management.

Vegetation Management

Hydro One forecasts expenditures in its Vegetation Management Program of \$814 million for the test years 2015 to 2019 to meet the outcome targets (discussed below) which is a 22% increase over the 2010 to 2014 spend of \$668 M.⁸¹ The two tables below show Hydro One's historical and proposed spending on vegetation management.

Vegetation Management over the 2015-2019 period accounts for approximately 45% of the Sustaining OM&A budget. Hydro One indicates the increase in vegetation management budget is required to address a backlog of vegetation management in order to manage costs and improve reliability.⁸²

Vegetation Management	2006	2007	2008	2009⁸³	2010	2011	2012	2013	2014	Total 2010-2014⁸⁴
OM&A \$M	89.1	115.0	118.2	136.1	130.2	127.3	136.4	134.9	139.1	668

Vegetation Management Test Years¹	2015	2016	2017	2018	2019	Total
OM&A \$M	142.0	177.6	180.3	161.1	152.9	814

In this application Hydro One continues to pursue an 8-year clearing cycle as it has not been able to sustain an 8 year clearing cycle since coming close in 2007 and 2008. Hydro One has approximately 102,000 km of distribution rights-of-way and approximately 23% of right-of-way kilometres are beyond the 8 year cycle. An 8-year cycle equates to 12,750 km annually.

In order to improve the life cycle costs of the vegetation management program, Hydro One proposes increases in vegetation management OM&A on average 25% annually over the 2016-2017 period to 14,250 km annually in order to return the line clearing work program to 12,750 km annually, which will sustain the 8-year cycle target. Hydro One predicts that by 2018 and 2019, the crest of the backlog wave will have been addressed and Hydro will begin to realize the cost benefits of returning feeders on cycle which is reflected in the declining spending levels for those years and will drive the overall cost of the work program down to a level that is cost efficient and sustainable for the long run.⁸⁵

⁸¹ J4.9

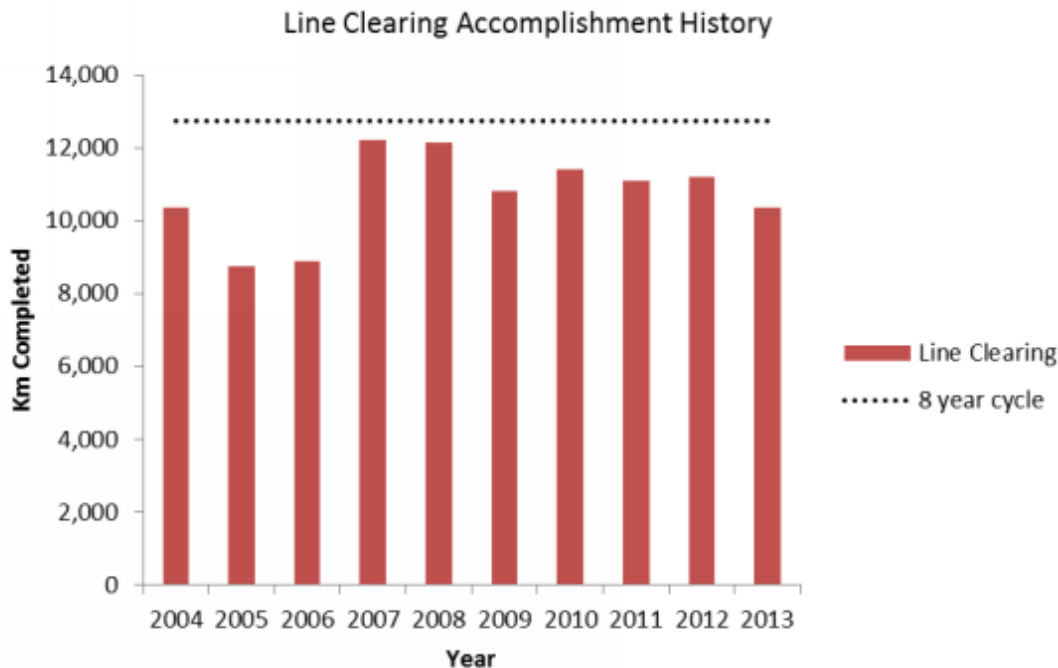
⁸² C1-2-2 Page 5

⁸³ C1-2-2 Page 3 Table 1 (2006-2009)

⁸⁴ C1-2-1 Page 4

⁸⁵ C1-2-2 Page 36

In response to undertaking J5.10, Hydro One indicates it has not achieved the level of accomplishment required to sustain an 8 year line clearing cycle to date. Hydro One's current clearing cycle is averaging 9.5-years. As shown in the table below from J5.10, the 2007 and 2008 accomplishment levels represented about an 8 year cycle. However, Hydro One's right-of-ways were still on an average cycle length of 10 years, as was documented in the Hydro One 2009 Vegetation Management Benchmarking Study provided in EB-2009-0096. The analysis of vegetation management undertaken in EB-2007-0681 (Exhibit H, Tab 1, Schedule 14) showed that a shorter cycle is more cost effective as more frequent maintenance results in a reduced workload on a per km basis and lower unit costs.



AMPCO submits that Hydro One's increasing cost issue is not founded in the proposed accomplishments, but in poor and declining productivity over time. The EB-2009-0096 Vegetation Management Benchmarking Study revealed poor productivity at that time as shown in the Table below from the Study.⁸⁶ In AMPCO's view, the Vegetation Management Study shows that the actual per unit cost for Hydro One to treat a tree was more than double that of other utilities.

⁸⁶ EB-2009-0096 A-15-2 Attachment 1

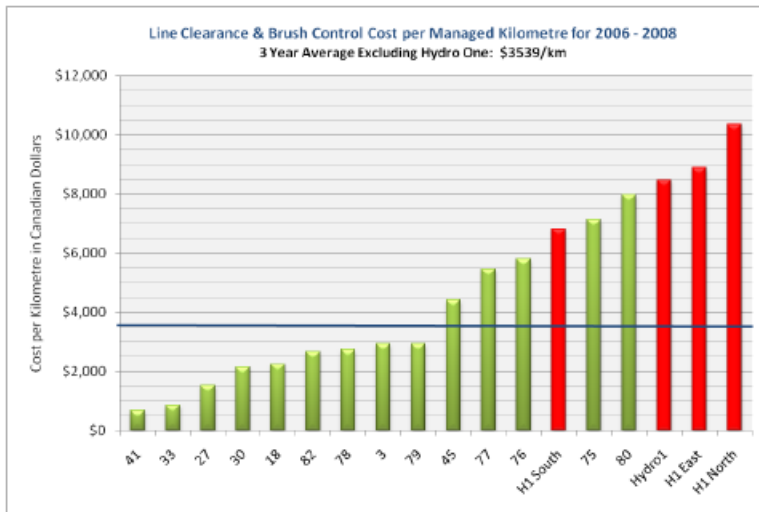


Fig. R6 Line Clearing & Brush Control Costs per Kilometre for 2006-2008

As shown in the charts provided in K5.1 Pages 50-52, Hydro One's has an increasing trend of poor productivity related to vegetation management, specifically related to line clearing and brush control. The highest unit costs are in 2014 and 2015. Cost efficiency related to vegetation management has been an issue in past Hydro One proceedings. AMPCO submits Hydro One's escalating and unsustainable unit costs are preventing it from getting its clearing cycle to an 8 year cycle.

In EB-2009-0096 Hydro One proposed a 14% increase in spending in 2010 and a 24% increase in 2011 compared to the 2007 and 2008 period to achieve a 7-year vegetation management cycle beginning in 2011. The proposed increase in spending and a reduction in the cycle was not approved by the Board. Intervenor was of the view that the activity (vegetation management) was not being conducted as efficiently as possible.⁸⁷ In its Decision with Reasons in EB-2009-0096 (Page 19), the Board noted "The evidence also suggests that Hydro One's efficiency level for this activity could be enhanced whatever the cycle length." AMPCO notes that Hydro One's actual unit rates in 2010 are 10% higher than 2010 budget & actual unit rates in 2011 are 13% higher than 2011 budget, which illustrates a further decline in productivity⁸⁸ moving Hydro One farther away from achieving an 8-cycle.

In this application, Hydro One indicates that unit cost increases reflect the increased tree densities and work complexities resulting from clearing overgrown rights-of-way.⁸⁹ Hydro One's Argument-in-Chief states "...this ambitious vegetation management program is projected to maintain the quality of service status quo but not at a level to reduce line-clearing unit costs over the test years. Simply put, the larger the cycle and the longer the cycle the more difficult the clearing work and the higher the unit costs."⁹⁰ ...These expenditures arise out of a concentrated effort to bring clearance of rights-of-way to a more

⁸⁷ EB-2009-0096 Decision with Reasons Page 19

⁸⁸ K5.1, Page 50

⁸⁹ Page 36

⁹⁰ AIC Page 12

efficient cycle of eight years. At the end of the period it is believed that the backlog will be coming under control.⁹¹

In AMPCO's view, if Hydro One had maintained its unit cost productivity at the 2008 levels (i.e., improved productivity only as fast as inflation) it would have been able to clear over 12,900 km, instead of the 10,700 km achieved. Since 12,750 km is the requirement for an 8 year cycle, it is clear that, if Hydro One had been improving productivity instead of allowing it to slide further, it would be well on the way to an eight year cycle by now.

In response to undertaking J3.10, Hydro One provided a copy of Utility Vegetation Management Benchmark & Industry Intelligence: 2011-2012 Distribution CN Utility Benchmark Survey Analysis Preliminary Report. This report represents the present "state of utility vegetation management" (UVM) for distribution UVM of 22 companies in North America. The Ministry of Energy engaged KPMG to assess existing benchmarking studies and to identify organizational and structural opportunities for cost savings at Hydro One and OPG.⁹² The Ontario government appointed a council to recommend ways to improve the efficiency and optimize the full value of Hydro One.

KPMG's analysis of the above report highlights that Hydro One has higher vegetation management costs than other report participants. Specifically KPMG reported that:

- Hydro One's cost per tree treated is \$86/tree in comparison to the average of \$53/tree and the next lowest cost peer company of \$73/tree
- Hydro One's cost per labour hour for distribution routine maintenance was the highest of all utilities at \$86/hr
- Hydro One's cost per pole mile is 57% higher (\$2,026 to \$1,290) when adjusted for overhead vs. underground miles which implies a cost difference of approximately \$44m based on the total overhead pole miles for Hydro One
- Hydro One's cost per customer is \$102, which is nearly 2.5 times greater than the next lowest cost peer company of \$44 and significantly higher than the median cost per customer of \$16.22
- The cost disadvantage is not likely the result of more difficult terrain or line locations
- Most utilities outsource between 74-85% of positions for which Hydro One uses internal resources for

In considering the above analysis, AMPCO submits that since the last benchmarking report was done in 2009, it is evident that Hydro One stands out as having untenable vegetation management costs that continue to escalate.

AMPCO cannot accept the argument that declining productivity derives from more difficult clearing due to the current long cycle. The roughly ten year cycle that Hydro One is working on has, for good or ill,

⁹¹ AIC Page 12

⁹² Slide 33

been the status quo for many years, as the previous chart on accomplishment history clearly shows. While this may somewhat explain lower productivity relative to other utilities, it does not explain declining productivity.

Similarly, Hydro One's assertion that higher unit clearing costs in 2015 and beyond are a consequence of having to clear more ROW that has not been touched for many years is illogical in AMPCO's view. Accepting the assumption of a current ten year cycle, one would expect that the first 10,000 km of clearing work would be on ROW that was last cleared 10 years previously, and this work should be conducted at the current level of productivity or better. With a 14,250 km program, the next 4,250 km of clearing would then be on ROW that was last cleared 9 years previous and should be slightly easier to work. In short, an expanded work program should exhibit higher and increasing productivity, not a further decline.

Proposed Outcome Metric

Hydro One has proposed an outcome metric related to vegetation management to evaluate Hydro One's performance compared to the 5-year plan. The proposed metric is number of interruptions and the target is a reduction in vegetation related outages from 6300 in 2015 to 6,000 in 2019. AMPCO notes the actual number of vegetation related outages in 2013 was 5,791 which is below the 2015-2019 target levels. Hydro One proposes to spend \$540 M over the test period on line clearing to achieve the targets compared to the \$424 M spent on line clearing over the 2010-2014 period.

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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

AMCO notes that the actual benefits of moving to an 8-year cycle have yet to be demonstrated on Hydro One's system⁹³ but it is likely that reducing the clearing cycle will have system reliability benefits over time. It is important to note that the width of the right of way and the length of the clearing cycle are co-optimized when setting each standard. Hydro One's distribution right of way width has always been established to support an 8-year cycle.

In AMPCO's view the number of interruptions is not the best outcome metric for vegetation management given that Hydro One's plan is to maintain the quality of service status quo. Variations in

⁹³ EB-2009-0096 Decision with Reasons Page 19

weather from year to year can easily obscure any underlying trend in reliability. AMPCO submits a unit cost improvement over the 5-year period related to line clearing and brush control would be a more appropriate outcome metric and a better determinant of value for money for ratepayers.

In considering the above, AMPCO submits that Hydro One's outcome metric related to its vegetation management investment should be \$/km and the line clearing target for the test period should be the average \$/km over the 2009-2013 period or \$7,336/km.⁹⁴ Hydro One needs to be further incented to improve productivity.

AMPCO does not support ramping up to 14,250 km in 2016 and 2017. Based on historical experience, Hydro One has not demonstrated it can cost effectively achieve its line clearing km targets. AMPCO does not believe increasing spending in 2016 and 2017 would represent good value for customers. Instead AMPCO submits that the km forecast for each year should be set at the 8-year cycle level of 12,750 km.

Under AMPCO's proposal, the proposed expenditures for 2015 to 2019 related to line clearing would be \$467.7 M, a reduction of \$72.3 M from \$540 M.

One of Hydro One's Strategic Objectives is related to achieving productivity improvements and cost-effectiveness and its 5-year vision is to achieve top quartile unit costs against comparable utilities.⁹⁵ AMPCO submits its proposal is consistent with Hydro One's vision.

Outsourcing

Based on KPMG analysis of the 2012 CN Utility Benchmarking report, KPMG identified the most significant difference between peer companies is the use of outsource suppliers and therefore there is an incremental opportunity to reduce forestry costs by outsourcing vegetation management.⁹⁶

Hydro One's response to this is that because of its collective agreements in place, Hydro One is unable to consider outsourcing vegetation management.⁹⁷ AMPCO notes the cost of outsourcing is estimated to be \$62 M. AMPCO acknowledges there are challenges related to outsourcing vegetation management but the potential benefits warrants further investigation. AMPCO submits that Hydro One should explore the option of outsourcing its vegetation management program or other strategic resource mix options as part of its next Cost of Service rate application.

⁹⁴ See Appendix A

⁹⁵ A-6-1 Page 4 Table 1

⁹⁶ Slide 33

⁹⁷ Transcript Vol

Customer Preferences

Hydro One indicates its investment plan has been informed by well researched customer preferences and that its plan meets customer expectations.

Based on survey results, dissatisfied Residential and Small Business customers indicated that size of the bill and increasing bill totals and reliability and outage handling are the top two issues resulting in dissatisfaction. Very few customers are willing to pay more for reliability improvements and the main reason is price related as customers feel their current prices are high enough. Combining all customer research input determined that customers want in priority order to maintain or reduce their total bill, meet commitments and timelines for planned outages, maintain reliability, ensure the customer is the focus in planning work programs and demonstrate value.⁹⁸

AMPCO submits its proposed reductions in spending result in an investment plan that speaks to customer preferences regarding lower bills.

5.0 Deferral and Variance Accounts

AMPCO has submissions regarding Hydro One's proposed smart meter allocator of number of metered customers based on the rationale that this approach was previously approved in EB-2009-0096. Hydro is proposing to recover its smart meter balance from all metered customers.⁹⁹ The outcome of this proposal is that less than \$37,000 is recovered from rate classes that did not receive smart meters.¹⁰⁰ AMPCO submits as a matter of principle, smart meter costs should only be recovered from rate classes that received smart meters regardless of the approach approved in EB-2009-0096. Since that time, recent Board decisions regarding recovery of smart meter costs reflects recovery only from those rate classes that received smart meters.

7.0 Cost Allocation & Rate Design

7.1 Cost Allocation

Hydro One proposes to move the revenue to cost (R/C) ratios for all rate classes within the range of 98% to 102% over the 5-year Custom Cost-of-Service period (see Table below).

The approach is to move the R/C ratios as determined by the Board's Cost Allocation Model to ensure all rate classes with R/C ratios outside the upper limit of the Board range are brought within the Board approved ranges in 2015. In subsequent years, the class with the highest R/C ratio will be phased-in over the remaining years to achieve the end target of 1.02. All other ratios above the phased-in target will be

⁹⁸ A-5-1

⁹⁹ J2.11

¹⁰⁰ Board Staff #84

brought to the same value. The decrease in revenue will be made up by increasing the R/C ratios below 1 as required, starting with the classes with the lowest R/C ratios. The rate classes with R/C ratios below 1 will be brought closer to 1.¹⁰¹

AMPCO notes that Hydro One's cost allocation analysis and results are based on numerous improvements to its cost allocation related to improved data and increased experience since its last cost of service application.¹⁰² The Board's report "Application for Cost Allocation for Electricity Distributors" (EB-2007-0667) established target ranges for the R/C ratios for each customer class and states that utilities should endeavour to move their R/C ratios closer to 1 if this is supported by improved cost allocation. In its evidence, Hydro One provided previous Board decisions in electricity rate applications where this view was reinforced.¹⁰³

AMPCO submits Hydro One's documented improvements in data, assignment of costs and experience in cost allocation appropriately support its plan to move the revenue to cost ratios for all rate classes within the range of 98% to 102% over the 5-year period and this approach should be accepted by the Board.

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Table 6
Revenue-to-Cost Ratios

Rate Class	2015		2016		2017		2018		2019		Board Range
	CAM	Rate Design	CAM	Rate Design	CAM	Rate Design	CAM	Rate Design	CAM	Rate Design	
UR	129	115	118	113	115	110	111	105	106	102	85 - 115
R1	123	115	116	113	114	110	110	105	106	102	85 - 115
R2	92	94	94	94	95	96	96	98	98	99	85 - 115
Seasonal	91	94	94	94	95	96	97	98	98	99	85 - 115
GSe	103	103	103	103	102	102	101	101	101	101	80 - 120
UGe	71	94	95	94	93	96	95	98	97	99	80 - 120
GSd	91	94	92	94	91	96	93	98	95	99	80 - 120
UGd	93	94	92	94	91	96	93	98	95	99	80 - 120
St. Lgt	88	94	93	94	94	96	96	98	98	99	70 - 120
Sen. Lgt	89	91	90	92	92	95	96	98	99	99	80 - 120
USL	124	120	121	113	114	110	111	105	106	102	80 - 120
DGen	39	51	56	67	69	79	81	91	93	99	80 - 120*
ST	72	94	94	94	95	96	95	98	97	99	85 - 115

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* Assume same as for GSe

7.2 Rate Design

¹⁰¹ G1-2-1 Pages 15-16

¹⁰² G1-2-1 Page 15

¹⁰³ G1-2-1 Page 15

Hydro One proposes to reset the fixed charge for all rate classes in 2015 to the minimum system values (with Peak Load Carrying Capacity (PLCC) Adjustment Scenario 3) calculated in sheet 02 of the Cost Allocation Model, with noted exceptions.¹⁰⁴ Hydro One believes a minimum system-based fixed charge appropriately recovers the utility's cost and ensures consistency with the principles underlying the Board's Cost Allocation Model which allocates the minimum system portion of a utility's costs to a rate class in proportion to the number of customers within the class. Given how costs are allocated to rate classes, Hydro One indicates that the current approved fixed charge levels place a disproportionate emphasis for collection of costs on the volumetric charge.

Hydro One's proposal results in a change in the fixed and variable percentage split for each rate class in 2015 compared to 2014. Hydro One proposes to maintain the fixed and volumetric percentage splits established in 2015 for the 2016 to 2019 period to provide stability in the revenue mix over the period. Hydro One indicates that the overall change in the fixed portion for all rate classes is increasing from 40% to 42%.

Exceptions to this proposal relate to the fixed charges for the Streetlight and Sentinel light classes which have been set at the Directly Related Costs (Cost Allocation Model Scenario 2). In addition, the minimum system fixed charge calculated by the Cost Allocation Model provides the basis for establishing the fixed charges for the ST rate class.¹⁰⁵

AMPCO accepts Hydro One's rationale for the proposed change in the determination the fixed charges for each rate class and submits Hydro One's approach to reset the fixed charge to reflect the minimum system values to provide electricity to its customers is reasonable and should be approved by the Board.

AMPCO submits that its participation in this proceeding has been focussed and responsible. Accordingly, AMPCO requests an award of costs in the amount of 100% of its reasonable-incurred fees and disbursements.

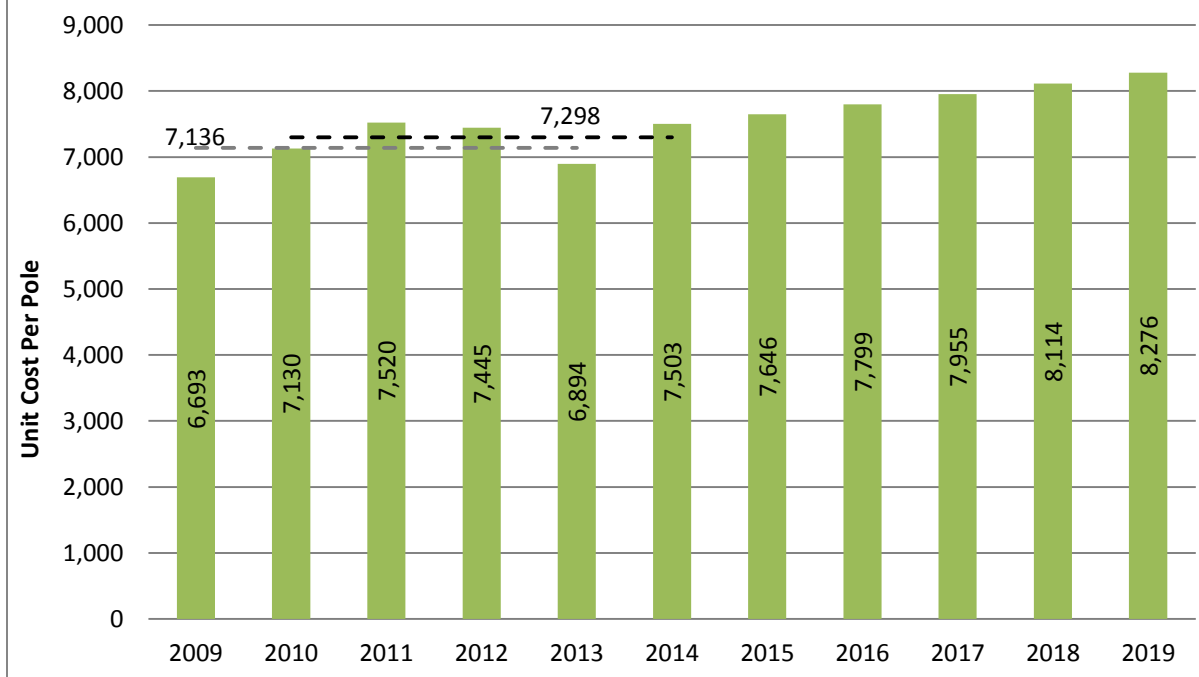
All of which is respectfully submitted this 16th day of October 2014.

¹⁰⁴ G1-4-1 Page 4

¹⁰⁵ G1-4-1 Page 7

APPENDIX A

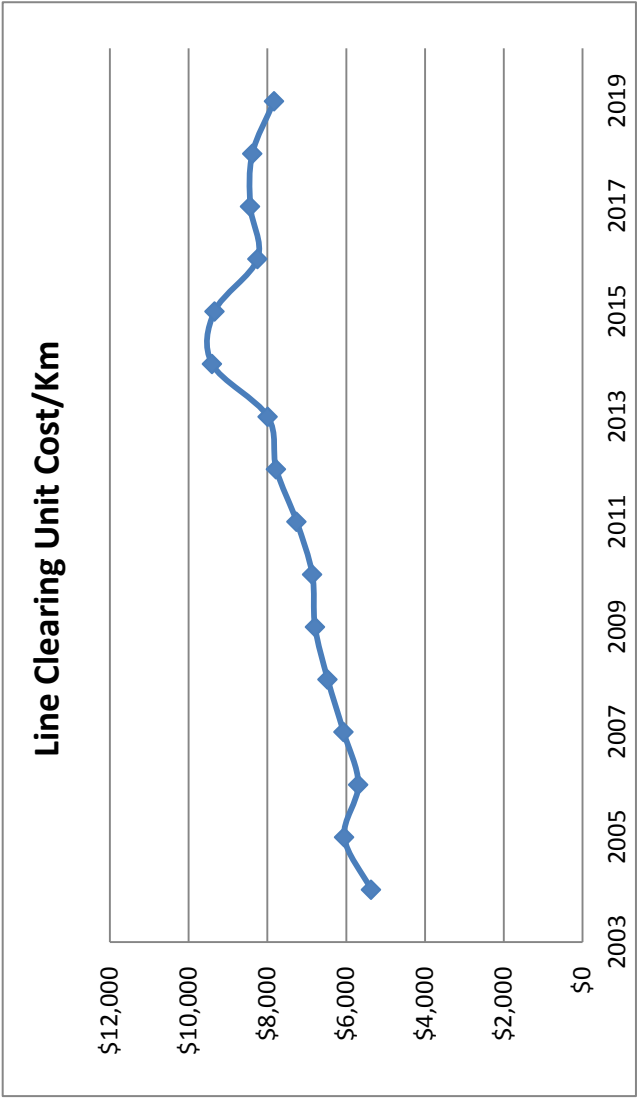
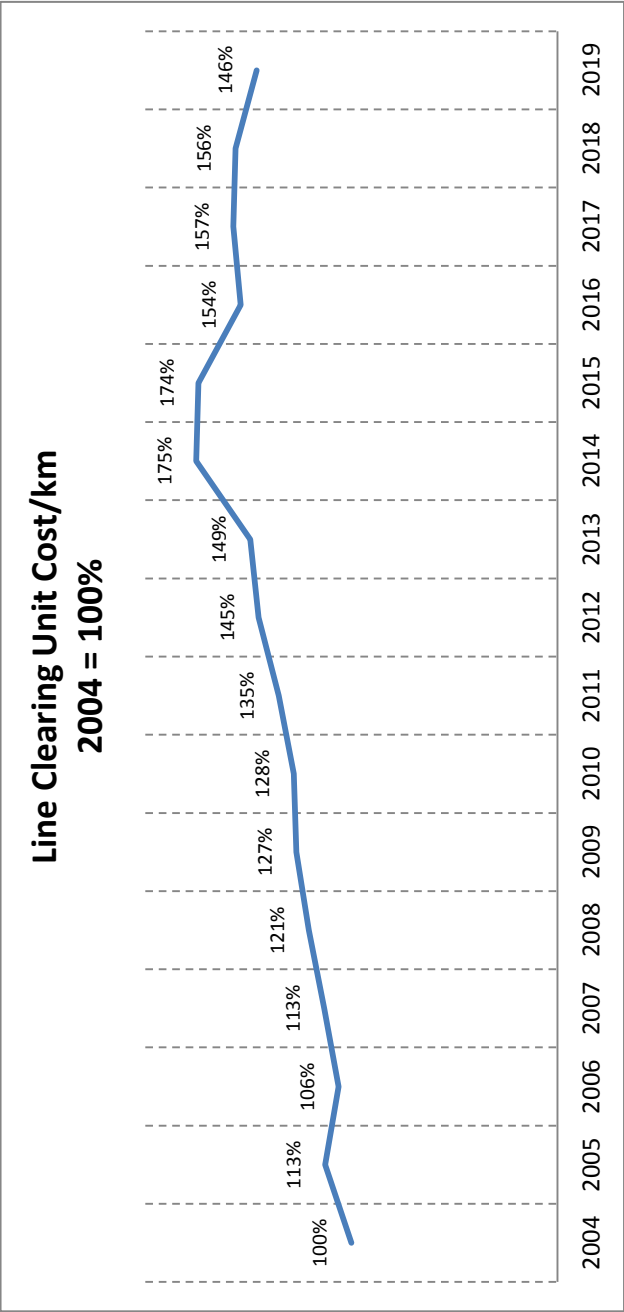
Wood Pole Replacement Program Unit Cost



		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Clearing	Cost (\$M)	55.6	52.9	50.6	74.1	78.7	88.3	78.4	80.5	87.1	83	92.2	95.3	117.5	120.2	106.9	99.8
	Units (km)	10,361	8,746	8,889	12,211	12,163	13,000	11,432	11,097	11,195	10,738	9,800	10,200	14,250	14,250	12,750	12,750
	<i>Unit Price (\$/km)</i>	<i>\$5,366</i>	<i>\$6,048</i>	<i>\$5,692</i>	<i>\$6,068</i>	<i>\$6,470</i>	<i>\$6,792</i>	<i>\$6,861</i>	<i>\$7,258</i>	<i>\$7,777</i>	<i>\$7,994</i>	<i>\$9,407</i>	<i>\$9,342</i>	<i>\$8,249</i>	<i>\$8,436</i>	<i>\$8,383</i>	<i>\$7,829</i>
Brush	2004=100%	100%	113%	106%	113%	121%	127%	128%	135%	145%	149%	175%	174%	154%	157%	156%	146%
	Cost (\$M)	19.6	21.1	25.2	26.9	25.8	31.3	34.8	31.2	34.7	35.6	31.4	31.6	42.8	42.8	38.3	37
	Units (km)	10,731	9,076	10,246	10,777	10,856	12,250	12,980	11,426	11,557	10,448	9,800	10,200	14,250	14,250	12,750	12,750
	<i>Unit Price (\$/km)</i>	<i>\$1,826</i>	<i>\$2,325</i>	<i>\$2,459</i>	<i>\$2,496</i>	<i>\$2,377</i>	<i>\$2,555</i>	<i>\$2,683</i>	<i>\$2,727</i>	<i>\$3,000</i>	<i>\$3,403</i>	<i>\$3,200</i>	<i>\$3,100</i>	<i>\$3,000</i>	<i>\$3,000</i>	<i>\$3,000</i>	<i>\$2,900</i>

Source:

2010-2019 - Executive Panel Presentation (May 12, 2014) at p.10
2006-2009 - C1-2-2 -p.33 (EB-2009-0096/Staff IR 34 (EB-2009-0096)
2004-2005 - C1-2-2 -p.30 (EB-2007-0681)/ Staff IR 34 (EB-2009-0096)



2010-2011 Request versus Actuals

		2010 Request	2010 Actual	2011 Request	2011 Actual
Clearing	Cost (\$M)	84	78.4	91.6	80.5
	Units (km)	13,500	11,432	14,300	11,097
	Unit Price (\$/km)	\$6,222	\$6,861	\$6,406	\$7,258
Brush	Cost (\$M)	33.3	34.8	36.2	31.2
	Units (km)	13,500	12,980	14,200	11,426
	Unit Price (\$/km)	\$2,467	\$2,683	2,531	\$2,727

Source:

2010-2011 Request - C1-2-2 Page 33 (EB-2009-0096)

2010-2011 Actuals - Executive Panel Presentation (May 12, 2014) at p.10