



April 2, 2015

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

Re: Toronto Hydro-Electric System Limited (THESL) 2015-2019 Electricity Distribution Rate Application
AMPCO's Final Submissions
Board File No. EB-2014-0116

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: Toronto Hydro-Electric System Limited

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Introduction

- THESL's 2016-2019 rates are proposed to be set on the basis of a custom Price Cap Index that incorporates the OEB's inflation and productivity values; utilizes a custom stretch factor derived on the basis of PSE's total cost benchmarking study and includes a capital factor to fund THESL's necessary investments.
- THESL has not forecasted its OM&A, revenue offsets or taxes for 2016-2019, which it submits is in accordance with the formulaic approach and the OEB's 4GIRM approach.
- For the 2015 test year, Toronto Hydro requests a base revenue requirement of \$655.0 million, which represents an increase of \$132.9 million, or 25.5%, from the base revenue requirement previously approved by the OEB in the utility's last rebasing application
- The main drivers of the increase in base revenue requirement for the 2015 test year are the additions to rate base due to Toronto Hydro's significant capital program over the 2012-2019 period, and an increase in OM&A expenses.

Bill Impacts

- THESL's customer bill impacts are unprecedented.
- The impact of the application on distribution charges for AMPCO members (Large Users) is over 42%. For other customer classes the increases are similar.¹

AMPCO's Submissions

- Given the impact of capital on THESL's increase in rates, AMPCO's submission includes a detailed analysis of THESL's capital spending. At the end of AMPCO's submission, AMPCO provides additional comments on non-capital issues.
- AMPCO collaborated extensively with other intervenors during this proceeding and reviewed the draft submissions of others in preparing these submissions.

¹ Exhibit K7.5

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Capital

- THESL's requested capital expenditures and in-service additions for the test period 2015-2019 are shown in the Table below.

Table 1: Proposed Capital Expenditures & In-Service Capital Additions							
\$ M	2011 Board Approved	2015	2016	2017	2018	2019	Total 2015- 2019
CAPEX ²	378.8	531.1	518.8	467.4	470.0	502.2	2,489.5
In-service Additions ³		539.7	671.6	505.7	441.0	529.9	2,687.9

- The proposed total capital expenditures over the 5 year period are approximately \$2.5 billion or \$500 million per year and the in-service additions are forecast to exceed \$2.6 billion. This represents an increase of approximately \$152.3 million in CAPEX or 40.2% from the utility's last rebasing application in 2011.⁴
- THESL's evidence is that the main driver for the significant rate increases requested by THESL is increases in its capital program and ICM projects entering rate base in 2015 as well as other capital additions.
- As shown in the table below⁵, the largest category of capital spend is in the category of Asset Renewal which accounts for approximately 50% of the capital investments over the 2015 -2019

² Exhibit 2A-T6-S2 Appendix 2-AA

³ J4.3

⁴ Exhibit 1A-T2-S1 Page 16

⁵ Exhibit 2B-E1 Page 4

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period.

TABLE 1: CAPITAL INVESTMENT BY CATEGORIES

CATEGORY	Forecasted Spend (\$M)						
	Avg.	2015	2016	2017	2018	2019	Total
System Access	\$91.29	\$86.13	\$93.54	\$100.93	\$90.41	\$85.47	\$456.47
System Renewal	\$251.73	\$251.74	\$234.99	\$246.35	\$260.08	\$265.49	\$1,258.64
System Service	\$66.41	\$76.45	\$69.60	\$62.51	\$49.54	\$73.95	\$332.05
General Plant	\$58.60	\$104.63	\$99.44	\$28.93	\$32.13	\$27.88	\$293.01
Other CAPEX	\$29.86	\$12.18	\$21.22	\$28.65	\$37.89	\$49.37	\$149.31
Total	\$497.90	\$531.13	\$518.79	\$467.36	\$470.05	\$502.16	\$2,489

- AMPCO submits for all of the reasons described herein, THESL has not justified its request for capital to complete this asset renewal program.

Historical Spending

- In THESL's 2012-2014 Cost of Service Application (EB-2011-0144), THESL indicated that if its application for 2012-2014 rates was not approved, THESL's need at the end of the IRM period would be for a total 2015 capital program requirement of \$2.2 billion which at that time resulted in an approximate 43% rate increase from the capital budget alone. THESL's \$2.2 billion capital program in 2015 represented \$1.6 million for THESL to "catch up" on its capital renewal program as well as \$660 million that would be required in 2015. In its Decision to dismiss THESL's application, the Board stated in part that THESL's reliability measures did not show evidence of system deterioration.⁶
- THESL has since made significant capital investments of \$1,059.81 and in-service additions of \$759.27 million over the period 2012 to 2014 on Incremental Capital Module (ICM) projects that were approved in THESL's 2012-2014 ICM application EB-2012-0064.⁷ The Board accepted THESL's evidence on the need for these projects at that time⁸ which in AMPCO's view does not mean that THESL should automatically expect that the same level of spending will continue indefinitely.

⁶ EB-2011-0144 Decision Page 14

⁷ Exhibit OH, Tab 1, Schedule 3 Attachment 2

⁸ EB-2012-006 Page 28

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- THESL indicates that approximately 85% of the 2015-2019 capital work programs are comparable to the approved ICM segments. AMPCO notes THESL's proposed annual spending of \$500 million is 13.6% above the ICM years where THESL made substantial capital investments in renewing its asset base. For the ICM years (2012 to 2014) the average annual spending is \$440 million per year.⁹
- AMPCO submits it is important to note that for the years 2010 to 2014 the Board approved an average amount of \$363 million per year which is significantly below what THESL is asking the Board to approve in this application. Actual spending over the same timeframe was on average \$433 million per year and 20 per cent over the Board Approved amounts.¹⁰
- AMPCO's position is that THESL has not justified the proposed level of capital spending. It is substantially more than what was spent in the past 5 years (\$2,165 million compared to \$2,489). In this application THESL has determined that 26% of its asset base is at the end of useful life and is in need of replacement. This decision was based exclusively on the age of the assets. No condition assessment was used which would have indicated groups of assets in acceptable condition. So in effect THESL is proposing higher assets counts which do not necessarily need to be replaced.
- AMPCO does not support the rate increases that flow from this proposal.
- For the reasons discussed below, AMPCO submits the Board should approve a significantly reduced capital budget on System Renewal for 2015 that looks more like pre ICM spending and is more closely aligned with the priorities identified in THESL's asset condition assessment.
- For the years, 2016 to 2019, THESL has not provided details or project information for System Renewal investments. AMPCO submits therefore that there is no basis for the Board to approve spending on System Renewal beyond 2015.

THESL's Asset Management Approach and Investment Strategy is Flawed

- THESL indicates its proposed level of investment is required primarily to address the large and growing backlog of end-of-life and obsolete assets.
- THESL estimates that approximately 26% of the replacement value of THESL's asset base will be at the end of its useful life criteria in 2015. THESL estimates that if it were to invest in a minimal and

⁹ K1.1 Page 9

¹⁰ K1.1 Page 9

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reactive way (i.e. run to failure), this number is forecast to reach 32% by 2020 and reliability would likely deteriorate. THESL projects that a run-to-failure approach would result in SAIFI worsening by approximately 30% and SAIDI worsening by approximately 24%, from 2015-2019.

- THESL's long-term objective is to reduce the percentage of assets operating beyond end-of-life until a theoretically optimal "steady-state" is achieved.
- AMPCO submits that THESL is not unique in its desire to reach a "steady-state". In its 2016-2020 application, PowerStream defines steady-state in a different way as follows:

"If proactive replacement of the worst performing assets can be attained, the level of anticipated failures can be held to a steady state. If the levels of proactive system replacement, when combined with the reactive system replacements, fall within the anticipated annual failure rates within various asset classes, a steady state can be achieved."

PowerStream believes this approach results in levels of capital spending that are acceptable with the risk mitigated; that provide level, paced capital spending; and that do not increase the reactive maintenance capital costs."¹¹

- AMPCO submits THESL's pursuit of a steady-state as reflected in its proposed investment strategies described below reflects an illogical desire to reach a state of perfection with respect to its asset base at a significant cost to ratepayers.¹²

11 But that's the more theoretical steady state.
12 Basically, in the steady state, if you want to think of it
13 this way, it's when all of the backlog is taken care of, so
14 that for the most part our assets are operating within
15 their useful lives.

Three Investment Strategies Considered – Optimal, Accelerated & Paced

- THESL developed three investment strategies to achieve "steady-state". The first strategy considered optimal by THESL involves \$4.11 billion in spending in 2015-2019 with a significant

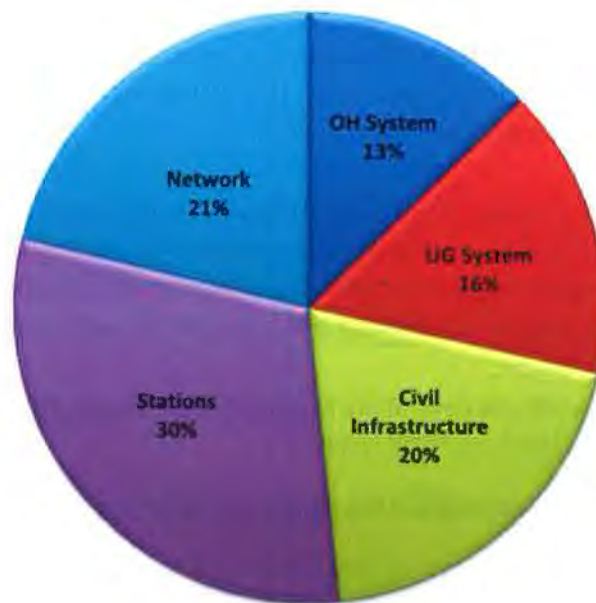
¹¹ EB-2015-0003 Exhibit G2, Tab 2 Page 5

¹² Transcript Vol 1 Page

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investment in 2015 (the first year) of \$2.56 billion to address the significant investment backlog, followed by \$1.15 billion in aggregate over 2016-2020.

- The Figure below provides a breakdown of the assets that will reach end-of-life by 2015, distributed between overhead, underground, network, station and civil categories.



10

FIGURE 3: DISTRIBUTION OF ASSETS BEYOND THEIR USEFUL LIFE BY 2015

- To arrive at \$2.56 billion in spending in 2015, it is AMPCO understands that the Feeder Investment Model was used to determine the optimal intervention time to replace certain asset groups based on calculated economic end-of-life, and useful life was used when economic end-of-life could not be calculated.¹³

¹³ Transcript Vol 4, Page

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- THESL concluded the \$2.56 billion in 2015 approach represented an unprecedented level of investment in a single year with a large step-increase in rates, and coupled with the infeasibility of completing the work in a single year considering current system constraints and available resources, THESL rejected this approach and instead considered two alternative timelines to carry out the work.
- The first was an Accelerated Execution Strategy that would allow the backlog of investments to be managed over the 5-year period at an average cost of \$830 million per year such that steady state is achieved by 2019 at a total cost of \$4.17 billion over 5 years. The second Paced Execution Strategy was a more gradually paced plan with a proposed investment of \$2.49 billion over 2015-2019 or approximately \$500 million per year. Under this strategy the backlog of investments are addressed in a manner that achieves steady state by 2037.
- THESL indicates it put forward the Paced Strategy for consideration by the Board in this application as it aligns best to THESL's resource and system constraints. THESL considered the rate impacts from the Accelerated Strategy to be too substantial for customers. THESL considers the rate impacts from the Paced Strategy to be moderate and acceptable to customers.
- THESL expects expenditures beyond the five year term of the CIR to 2037 to be comparable to the Paced Approach i.e. \$500 million per year.¹⁴

Steady State Investment Approach Not Supported by THESL's Asset Condition Assessment Results & Reliability & Outage Trends

- Asset age is the primary driver of THESL's current investment strategy. Historically, both asset age and condition have been the primary drivers. AMPCO has reviewed THESL's historical approach to developing capital plans and submits that THESL's current approach departs from THESL's historical approach and current industry practice which has the effect of significantly increasing the quantity of assets targeted for replacement in this application in a way that greatly exceeds the number of assets recommended for replacement in THESL's latest asset condition assessment. AMPCO submits the way THESL has historically considered age and asset condition to inform its long term capital spending levels is important and relevant to the current application and should be considered by the Board. As discussed below, when age is the primary driver, more unit replacements are identified for replacement than when a condition based approach is used. The Board should not approve the THESL's investment strategy put forward by THESL that is driven primarily by the age of its assets.

¹⁴ Transcript Vol 1, Page 50

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- Since 2007, THESL has used Kinetrics to assess the condition of its assets. In 2014 Kinetrics undertook its most recent Assess Condition Audit (ACA) Assessment of THESL's assets.
- In 2007, Kinetrics indicated that THESL's asset condition results showed most assets are in very good or good condition indicating in general that the maintenance and capital programs at THESL have been well designed and executed.¹⁵
- Kinetrics' asset condition results are for the most part determined using the Health Index Method. Kinetrics' classifies the percentage of total population of assets in the categories of "very poor", "poor", fair, "good" and "very good". Kinetrics recommended in 2007 that assets in very poor condition be planned for replacement in two to three years and assets in fair condition be planned for replacement in 4 to 10 years.¹⁶ In Kinetrics 2014 ACA, Kinetrics again recommends that long term strategies be put in place for groups that have large quantities in fair condition¹⁷ and for assets that have large quantities in poor and very poor condition, short term plans should be undertaken.¹⁸ It is AMPCO understands most utilities develop short and long term plans on this basis meaning assets in fair and good and very good condition are not targeted for replacement in the near term. For example, Hydro One uses a similar and considers an asset in fair condition to typically mean it can survive another 5 years.¹⁹
- In 2007 THESL developed a 10 year Electrical Distribution Plan for the years 2007-2016 totalling \$1.17 billion.²⁰
- THESL used the results of two models: an asset condition-based model (based on Kinetrics' results) and an age-based model, to prepare a detailed unit replacement plan for each year over a 10 year period that formed the basis of THESL's 2007 to 2016 Capital Plan. Approximately 30,000 assets were recommended for replacement over the 10 year period.²¹

¹⁵ K1.1 Page 17

¹⁶ K1.1 Page 17

¹⁷ Exhibit Page 23

¹⁸ Exhibit 2B, Section D, Appendix A Page 6

¹⁹ EB-2014-0416 AMPCO Submissions Page 13

²⁰ EB-2007-0680 Exhibit D1 Tab 8 Schedule 10 Page 18

²¹ EB-2007-0680 Exhibit D1 Tab 8 Schedule 10 Page 5

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- THESL determined that using the two models produced different results with respect to the quantities of assets recommended for replacement.²²
- Under the age-based model, asset age is used as a surrogate indicator for condition and the number of assets past end of life is determined and units are replaced until the target is achieved. In general THESL has observed that an age-based method directs more unit replacements than a condition based approach.²³
- Under the asset-condition based model, unit replacement forecasts are based upon an evaluation of asset condition and these results are used to effectively modify the timing of asset replacement resulting from the age-based model. THESL indicates that this method is preferred in that it minimizes the errors of age-based methods where the age of the asset class may not be a true indicator of asset health, whether for the better or worse. Accordingly, THESL used the condition-based method to guide its unit replacement forecast for 2007-2016 (modified to replace assets in groups and account for execution feasibility).²⁴
- In 2009, THESL filed an updated 10 year capital plan for the years 2010-2019 totalling \$3.54 billion, approximately \$1 billion less than THESL's latest capital summary shows for the same timeframe (2010-2019).²⁵ ²⁶ At that time reliability performance (excluding MEDs and Loss of Supply) had declined from 2004 to 2008.²⁷
- Fast forward to the current application where age is the primary driver and THESL's proposed capital spend for 2015 to 2019 has grown from \$1,553 million to \$2,489 million, a 60% increase that cannot be fully explained by Copeland TS in the latest estimate and the omission of General Plant spending in the earlier estimate.²⁸ In AMPCO's view the increase is primarily attributable to THESL's current age based approach (26% estimate of assets past useful life) which has the effect of increasing the asset quantities targeted for replacement compared to what was identified back in 2009 and what THESL's latest ACA recommends.

²² EB-2007-068D Exhibit D1 Tab 8 Schedule 10 Pages 10-13

²³ EB-2007-068D Exhibit D1 Tab 8 Schedule 10 Page 5

²⁴ EB-2007-068D Exhibit D1 Tab 8 Schedule 10 Pages 5-6

²⁵ EB-2009-0139 D1-T8-S10 Page 6

²⁶ Assets requiring most significant investment: direct buried cable (61%), underground cable in duct (31%), automatic transfer switches (63%), station transformers (50%), pole mounted transformers (35%) and network/Transformer/protector units (32%)

²⁷ EB-2009-0139 D1-T8-S1 Page 4

²⁸ Transcript Vol 1 Page

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- AMPCO developed the following Table which it provided at the oral hearing²⁹ to show how the percentage of assets that are in poor, very poor, fair, good and very good condition³⁰ translate into asset quantities for each asset class under the same categories, and how these quantities compare to the number of assets targeted for replacement in this proceeding. AMPCO submits these two sets of asset quantities are at odds and not compatible.

Exhibit 2B Section D2 Appendix A: 2014 Audit Results By Asset Class													
Asset	% very poor	% poor	% fair	% good	% very good	% very poor & poor	# very poor	# poor	# fair	# good	# very good	# very poor & poor	
1 Station Power Transformer	1.24%	13.64%	49.59%	23.14%	12.40%	14.88%	3	37	133	62	33	40	
2 Station Switchgear	4.84%	36.69%	33.47%	9.27%	15.73%	41.53%	14	102	93	26	44	116	
3 Air Blast Circuit Breakers	0.00%	3.89%	87.78%	2.78%	5.56%	3.89%	0	11	255	8	16	11	
4 Air Magnetic Circuit Breakers	0.21%	4.72%	74.25%	18.88%	1.93%	4.93%	1	30	466	118	12	31	
5 Oil Circuit Breakers	0.64%	10.19%	82.80%	6.37%	0.00%	10.83%	2	34	275	21	0	36	
6 Oil KSO Breakers	0.00%	4.55%	81.82%	13.64%	0.00%	4.55%	0	3	48	8	0	3	
7 SF6 Circuit Breaker	0.00%	0.00%	7.69%	46.15%	46.15%	0.00%	0	0	15	93	93	0	
8 Vacuum Circuit Breakers	0.00%	0.21%	3.14%	10.25%	86.40%	0.21%	0	1	21	69	583	1	
9 Submersible Transformers	0.00%	0.02%	6.68%	34.93%	58.36%	0.02%	0	2	638	3337	5576	2	
10 Vault Transformers	0.00%	0.23%	23.48%	39.80%	36.50%	0.23%	0	30	3060	5188	4757	30	
11 Padmounted Transformers	0.00%	0.02%	10.09%	43.51%	46.38%	0.02%	0	1	722	3115	3321	1	
12 Padmounted Switches	0.00%	0.39%	7.20%	36.12%	56.30%	0.39%	0	3	58	290	452	3	
13 3 Phase O/H Gang Manual Switches	0.00%	0.39%	3.01%	63.84%	33.15%	0.39%	0	4	33	707	367	4	
14 3 Phase O/H Gang Remote Switches	0.00%	0.00%	15.38%	76.92%	7.69%	0.00%	0	0	2	12	1	0	
15 SCADAMATE Switches	0.13%	0.00%	1.14%	57.34%	41.39%	0.13%	1	0	11	531	383	1	
16 Wood Poles	2.34%	7.64%	44.13%	7.28%	38.61%	9.98%	2885	9419	54403	8975	47598	12303	
17 Automatic Transfer Switches	0.00%	16.98%	32.08%	30.19%	20.75%	16.98%	0	10	19	18	12	10	
18 Network Transformers	0.00%	0.00%	16.40%	41.45%	42.14%	0.00%	0	0	310	784	797	0	
19 Network Protectors	0.00%	0.00%	3.75%	32.25%	64.00%	0.00%	0	0	61	521	1034	0	
20 Network Vaults	1.70%	8.80%	72.37%	16.08%	1.04%	10.50%	18	93	769	171	11	112	
21 Cable Cambers	0.26%	1.60%	10.77%	50.17%	37.20%	1.86%	28	174	1174	5470	4056	203	

- To illustrate this point, AMPCO draws the Board's attention to the Underground Circuit Renewal Program (E6.1) and the Overhead Circuit Renewal Program (E6.4) as these two programs have the largest proposed capital budgets under System Renewal.
- THESL proposes to spend \$459.3 million on Underground Circuit Renewal and \$147.9 million on Overhead Circuit Renewal over the years 2015-2019. Combined spending on these programs represents approximately 50% of THESL's System Renewal budget³¹ and 25% of its total capital

²⁹ K1.1 Page 100

³⁰ Exhibit 2B Section 2D Appendix A

³¹ \$606.8 M/\$1,258.64 M = 48%

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budget.³²

- The Underground Circuit Renewal program replaces switches, transformers, and cables. THESL proposes to ramp up the average annual spend under this program for the years 2015 to 2019 to approximately \$92 million compared to \$77 million per year under the ICM years.
- Specifically, THESL proposes to replace 1,667 transformers over 5 years, with 348 immediately in 2015 and 944 in the first 3 years even though Kinetrics' 2014 ACA indicates that no underground assets (transformers, switches) are in very poor condition and almost none of these assets are in poor condition.
- THESL also proposes to replace 405 underground switches yet only 4 switches in total are shown as being in poor condition, and none in very poor condition in the ACA. In fact, the percentage of padmounted switches classified as good or very good increased by 7% in 2014 compared to 2012.³³

E6.1 Underground Infrastructure Replacement Asset Units to be Replaced							Kinetrics ACA % assets poor/very poor
	2015	2016	2017	2018	2019	Total	
U/G Switches	84	71	74	88	88	405	4
U/G Transformer	348	291	305	363	361	1,667	33
U/G Cable (km)	149	125	131	155	155	715	N/A

- THESL determined its asset replacement quantities based on the remaining life of all assets and concluded that 1,349 switches, 7,504 transformers and 692 kilometres of cable are currently operating beyond their useful service lives and by 2015 the majority of the underground assets in the program will need to be replaced. Due to operational constraints and limited resources, THESL determined it was not prudent or feasible to replace all of these assets at once in 2015 so THESL has spread the work over the 2015-2019 period.³⁴ It is unfathomable to AMPCO how THESL could

³² \$606.8 M/\$2,489 M = 24%

³³ Exhibit 2B E6.1 Page 14

³⁴

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determine it was prudent to replace these levels of underground asset quantities when the ACA says virtually no underground assets are in very poor or poor condition.

- A similar disconnect in the number of assets proposed for replacement compared to the quantity identified as being very poor or poor condition in the ACA is also evident in the Overhead Circuit Renewal Program.
- The Overhead Circuit Renewal Program focuses on replacing poles, switches, transformers at a cost of \$147.5 million over 2015-2019 compared to \$179.6 million over the previous 5 years.
- THESL proposes to replace 981 overhead switches between 2015-2019, with 218 in the first year yet only 4 switches are shown to be in poor condition and none are in very poor condition.³⁵ THESL also proposes to replace 3,232 overhead transformers yet only 33 total transformers are considered to be in poor condition. The asset quantities THESL has proposed for replacement in 2015 alone are at a scale way beyond what the asset condition results are showing.
- THESL determined what AMPCO considers extreme quantities using the percentage of existing switches (33%) and transformers (24%) that are at or near their end-of-life and will require proactive replacement during the 2015-2019 period.³⁶ AMPCO notes these quantities represent a subset of the total 2,685 overhead switches and 7,252 overhead transformers that THESL determined were past their useful lives³⁷ as it represents the asset quantities that could practically be replaced in the next 5 years.
- THESL attempts to explain its proposed asset replacement quantities on the basis that Kinetrics 2014 ACA shows declining trends related to certain asset classes. The ACA shows that for certain asset classes a percentage is shifting from very good to good or good to fair. An increasing trend in poor or very poor assets is not occurring. Most asset classes have zero assets in very poor condition and there are no asset classes with greater than 5% of assets in very poor condition. There are only two asset classes with greater than 15% of assets in poor and very poor condition.
- Given that assets in very poor and poor condition represent a greater risk of failure, it is typically recommended that these assets be given priority and a higher level of investment. As discussed earlier, THESL has typically replaced assets in very poor condition in 2 to 3 years and assets in good condition in 4 to 10 years. This is consistent with Kinetrics' more recent recommendation that

³⁵ K1.1 Page 100

³⁶ Exhibit 2B Section E6.4 Page 8,10

³⁷ Exhibit 2B Section E6.4

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THESL work on short term plans for assets that have large quantities in poor and very poor condition³⁸ (which it does not have).

- It is clear THESL's approach to use the percentage of assets at the end of remaining life is greatly accelerating the timing of when the assets should be targeted for replacement at a rate far beyond what is reasonable or appropriate. The outcome is that THESL will replace many assets under its proposed plan way too soon and at a significant cost to ratepayers which in no way reflects good value for ratepayers. THESL is not getting get the full life out its assets. AMPCO cannot support THESL's proposed investment strategy related to System Renewal on the basis that is unnecessarily driving up costs and rates.
- AMPCO submits THESL's Asset Condition Assessment results do not support the need for THESL to operate its system with most assets operating within their useful lives.

THESL Compared to Hydro One

- In Hydro One's 2015 to 2019 application, it requested a 2015 revenue requirement of \$1,415 million and a capital budget of \$564.3 million (40% of revenue requirement). THESL's 2015 revenue requirement request is \$665 million with a capital budget request of \$531 million (80% of revenue requirement).
- Given the relative size of each utility (Hydro one's revenue requirement is twice that of THESL) , a THESL's capital request seems unbalanced.

Reliance on Navigant Study

- In the report prepared by Navigant Consulting Ltd. (the "**Navigant Report**") Navigant Consulting Ltd. ("**Navigant**") indicates that it, "was retained by THESL to conduct an independent review of its Distribution System Plan (DSP) and business cases that it prepared to support proposed capital investments from 2015 through 2019, inclusive."³⁹
- In the Executive Summary, Navigant summarizes its conclusions. Navigant draws six (6) conclusions all of which are complimentary to and support THESL's DSP.
- AMPCO submits that the Board should attribute no weight to the Navigant Report.

³⁸ Exhibit 2B, Section D, Appendix A Page 6

³⁹ Navigant Report, p.6

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- In cross-examination, Mr. Eugene Schlatz indicated that, "we did not conduct an independent assessment of the rate impact [of the capital spend]."⁴⁰
- Mr. Schlatz further said in cross-examination that, "efficiency as a target wasn't evaluated per se..."⁴¹
- Mr. Schlatz was asked the following question in cross-examination:

"So you won't be able to tell me whether they were able to...whether they're proposing to replace a pole or a switch or underground vault or transformer less expensively... in this application, as opposed to what they had done...during the ICM?"⁴²
- Mr. Schlatz answered the question as follows:

"No. We were not asked to conduct that type of review."⁴³
- Mr. Schlatz was asked in cross-examination to comment on the pie chart produced by THESL which indicated that to achieve a steady state by 2027, 26% of its assets would have to be replaced. He was asked the following question:

"Did you do anything to independent...to determine whether that was a reasonable...that was the right figure, the 26% was the right figure?"⁴⁴
- He answered as follows:

"No, we did not conduct an independent analysis."⁴⁵
- Mr. Schlatz was asked in cross-examination, "...you accepted the numbers that THESL proposed in their application? You didn't go behind those numbers?".

He answered, "That's correct".⁴⁶
- Mr. Schlatz was asked in cross-examination the following:

"So your conclusions are on page 13 then, in the second-last paragraph that: "THESL demonstrated that it has incorporated least cost planning criteria"...is based on the fact

⁴⁰ Transcript, Volume 5, p.5, line 18 and following

⁴¹ Transcript, Volume 5, p.6, line 5

⁴² Transcript, Volume 5, p.7, line 26 and following

⁴³ Transcript, Volume 5, p.8, line 1

⁴⁴ Transcript, Volume 5, p.12, line 12

⁴⁵ Transcript, Volume 5, p.12, line 15

⁴⁶ Transcript, Volume 5, p.15, lines 19 and 21

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that THESL says it has incorporated least cost planning criteria?"⁴⁷

- Mr. Schlatz answered "Yes".⁴⁸
- Further on page 14 of the transcript, Mr. Schlatz indicated that he accepted the SAIDI and SAIFI numbers produced by THESL.
- He also indicated in cross-examination that he expects that if the capital spending of THESL goes up the O&M dollars spent by THESL would drop. That does not reflect the THESL application as understood by AMPCO.
- AMPCO submits that Navigant did a cursory review of the application and did not test any of the assumptions made by or the conclusions reached by THESL; but, rather accepted them.
- The only analysis which Navigant appears to have done is to determine whether THESL's application complied with Chapter 5 of the Board's *Filing Requirements For Electricity Transmission And Distribution Applications*.
- Without diminishing the importance of these filing requirements, they are just filing requirements.
- AMPCO submits that because Navigant has done no serious analysis to reach the conclusions that they have, the Board should give those conclusions and the Navigant Report no weight.

THESL's Reliability Trends Improving

- THESL's evidence in the current application is that its reliability has been showing steady improvement since 2009.⁴⁹ On a system wide level, reliability measures typically inform the asset management process to identify assets and the programs required to address the root causes across the system.
- THESL tracks service interruptions using ten primary cause codes. Between 2009 and 2013, Defective Equipment was the main contributor to SAIFI and SAIDI, at 41.1% and 44.3% respectively. THESL views the Defective Equipment cause code as a primary indicator of the condition of its distribution system, and tracks this cause code as a measure of continuous improvement over the course of its capital expenditure and maintenance plans.

⁴⁷ Transcript, Volume 5, p.13, line 22

⁴⁸ Transcript, Volume 5, p.14, line 1

⁴⁹ Exhibit 2A Tab 10 Schedule 2 Pages 1 to 2

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- AMPCO notes the majority of improvement in SAIFI and SAIDI in 2013 over the previous years is in Defective Equipment. Defective Equipment tracks Underground Equipment, Overhead Equipment, Stations and Other. The Table below shows that the contribution of Defective Equipment to SAIDI and SAIFI has decreased over the past 5 years.

Defective Equipment Contribution to SAIFI & SAIDI						
	2009	2010	2011	2012	2013	
SAIFI	0.75	0.70	0.62	0.64	0.53	
SAIDI	0.69	0.49	0.59	0.55	0.46	

- Between 2009 and 2013, the contribution to SAIFI and SAIDI from Defective Equipment has decreased by 30% and 33%, respectively. In particular, the contribution from Overhead Equipment and Underground Equipment to SAIFI and SAIDI has decreased from 2009 to 2013⁵⁰, with a considerable reduction in outages from overhead equipment primarily from poles and pole hardware, overhead transformers and overhead switches.
- Similarly, the number of outages caused by failed equipment (which speaks to the general condition of the assets) has steadily improved over the past 5 years from 728 events in 2009 to 636 in 2013, an improvement of over 11%.⁵¹
- AMPCO submits THESL's reliability and outage trends do not support the unprecedented capital investment levels proposed by THESL in this application. These results should be taken into consideration by the Board in determining the appropriate capital amount approved.

⁵⁰ Exhibit 2A-T10-S2 Page 15

⁵¹ Exhibit 2B, Section C Page 28

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ICM True-Up

- THESL is required to true-up the revenue requirement used to derive the ICM rate rider revenues for the ICM funding on the basis of total annual revenue requirement impacts based on the actual in-service assets of Board-approved ICM segments. THESL is required to report on the true up at the segment level to account for the differences between forecast and actual expenditures.
- In its Decision in EB-2012-0064 (ICM application) the Board indicated that a review of actual spending and in-service additions will be undertaken at the next cost of service proceeding (to determine whether any overspending should be approved in rate base or underspending should be returned to ratepayers) and rate payer interests will be protected through that process.⁵²
- THESL did not provide for a review of actual spending and in-service additions related to ICM in this application. Instead, THESL proposed to defer the ICM true-up in a separate application in 2015, once actual ICM amounts are known. THESL does not expect to have a final report of actual in-service additions (ISAs) for 2014 and detailed variance explanations for each Board approved ICM segment until the second quarter of 2015.
- In response to questions raised during the hearing about how much has actually been spent by the end of 2014 on which segments and jobs and on what work, THESL provided supplemental information on the ICM job level accomplishments. THESL provided a status summary that indicated that out of 657 jobs, 461 are complete (70%); 129 (20%) are in progress; 46 (7%) are not yet started and 21 (3%) have been cancelled. In addition, 180 jobs were added to the execution work program of which 163 are complete and 17 are in progress. THESL also provided a summary of ICM CAPEX and ISA spending as follows:⁵³

\$ millions	2012-2014 CAPEX Board Approved	2012-2014 CAPEX Actuals	Variance	2012-2014 ISA Board Approved	2012-2014 ISA Actual	Variance
Total ICM Projects	731.25	712.08	(19.17)	633.39	471.18	(162.22)
Total Normal Capital Budget	355.08	347.73	(7.35)	279.49	288.10	8.61
Total	1,086.33	1,059.81	(26.52)	912.88	759.27	(153.61)

⁵² EB-2012-0064 Decision Page 67

⁵³ Exhibit OH, Tab 1, Schedule 3 Attachments 2 & 3

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- At a segment level, THESL was unable to provide a further breakdown of additional project details.
- Although THESL has provided the actual capital spending and in-service additions compared to the Board-approved amounts, parties do not fully know at this point what work was actually done for the dollars spent at a segment level and how many total assets were replaced compared to what was forecast, in order to account for any over or underspending. AMPCO submits this information would be helpful to the Board in assessing the reasonableness and appropriateness of THESL's forecast projections of capital expenditures and in-service additions and asset quantities over 2015-2019 since THESL's 2015-2019 work plan is largely a continuation of ICM programs.
- In the absence of more details at the segment level and a variance analysis related to what work was actually done, it is unclear to AMPCO how the Board can approve future spending in the same segments for 2015 to 2019. It may be that efficiencies exist moving forward but in AMPCO's view there is currently no way for the Board to assess that without the outcome of the ICM true-up.
- AMPCO was unsuccessful in its attempt to obtain asset quantities for the historical period in order to assess how THESL's historical costs for the same work compare to the forecast costs. AMPCO sought this information to assess whether THESL's proposed investment plan with respect to a specific asset type is reasonable, cost effective and appropriately paced to promote affordability for customers.
- For example, looking at the Underground Circuit Renewal Program (E6.1) to replace end-of-life and obsolete underground assets (switches, transformers, cables) on a "like-for-like" basis, AMPCO sought the asset quantities for the historical period to assess if THESL is improving over time with respect to replacing like for like underground assets (switches, transformers, cables).

	2010	2011	2012	2013	2014	Total	2015	2016	2017	2018	2019	Total
CAPEX \$	108.4	90.3	53.8	68.8	108.1	429.4	96.0	80.1	84.0	99.7	99.5	459.3
Asset Units												
U/G Switches							84	71	74	88	88	405
U/G Transformer							348	291	305	363	361	1,667
U/G Cable (km)							149	125	131	155	155	715

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- THESL indicated that an average unit cost would not be meaningful because the mix of work within a program or portfolio in a given year would differ year over year and so such so the numbers would be misleading.
- Although the conditions in THESL's territory vary, AMPCO expected that THESL could potentially have been able to provide a unit cost comparison for asset based work undertaken in different areas in THESL's territory i.e. urban residential, urban commercial or downtown core areas that would have been meaningful.
- THESL explained that it does not consider costs on a per-asset basis. Instead THESL tracks actual project costs through a detailed work order process. THESL tracks and manages its project costs by comparing its actual costs for specific jobs within a project to its design estimate for a specific job within a project. THESL states that the mix of work within a program or portfolio in a given year may not be consistent from year to year and it is because of this diversity that THESL measures, tracks and monitors its project costs relative to design estimates rather than a comparison of unit costs between programs or from year to year.
- In AMPCO's view this is not a meaningful comparison from a ratepayer perspective. This analysis speaks only to the accuracy of THESL's design estimating accuracy and has no bearing on assessing performance, productivity and efficiency.

Internal inefficiencies

- THESL indicates that completing the true-up is complicated and onerous and requires numerous individuals and multiple rounds of data gathering and reconciliation. THESL explained that this labour intensive exercise is in part due to the fact that when THESL began work on a particular job in a segment it created a new job number different from that used in the ICM filing and now THESL must manually reconcile the two. AMPCO is astounded by the inefficiency of THESL's internal processes to manage its ICM work and final reporting in order to be able to report back on the status of filed ICM jobs in a timely fashion. It is unclear to AMPCO why THESL would not permanently map the original ICM job number to the project as it went through the design estimate phase. AMPCO submits this manual reconciliation currently underway is undoubtedly expensive and it raises questions regarding one's confidence in the accuracy of the information to be provided.

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Asset Renewal Capital Program: Discrete Project Details for 2016-2019 Not Provided

- For 2015, THESL provided discrete project details by location and job number and start date to support the proposed capital expenditures. For example, under the Underground Circuit Renewal Program (E6.1)⁵⁴, THESL provides a listing of 122 jobs to be undertaken in 2015 and then individual details for each project that correspond to the assets quantified to be replaced.
- For 2016-2019, THESL provides asset quantities to be replaced each year (as shown in the table above) but THESL does not provide any discrete project details to support the quantities proposed and the associated spending.
- At the hearing, the witness confirmed:

18 What we don't have are these exact details of the jobs
19 that will allow us to address those assets.

- Essentially THESL is asking the Board to provide a "blank cheque" for 2016-2019 as THESL has not provided any discrete project details on where and how the money will be spent. All we have is asset quantities that fall out of THESL's 26% estimate of assets at the end of useful life. Without these details there is no way to test the prudence of THESL's capital plan for these years.
- It is worth noting that in contrast to the lack of discrete project details in this plan beyond 2015, THESL provided project details by job numbers (similar to 2015) for each of the three years in its ICM application related to its ICM projects (2012 to 2014).

Performance Measurement

- THESL developed a set of twelve DSP measures to monitor its performance as shown in the Table below.⁵⁵

⁵⁴ Exhibit 2B

⁵⁵ Exhibit 2B Section C Page 3

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TABLE 1: PROPOSED PERFORMANCE MEASURES FRAMEWORK

Customer-Oriented Performance	Cost Efficiency/ Effectiveness of Planning and Implementation	Asset/System Operation Performance
1. System Average Interruption Duration Index (SAIDI). 2. System Average Interruption Frequency Index (SAIFI). 3. Customer Average Interruption Duration Index (CAIDI). 4. Feeders Experiencing Sustained Interruptions (FESI). 5. Momentary Average Interruption Frequency Index (MAIFI).	1. Distribution System Plan Implementation Progress. 2. Planning Efficiency: Engineering, Design and Support Costs. 3. Supply Chain Efficiency: Materials Handling On-Cost. 4. Construction Efficiency: Internal vs. Contractor Cost Benchmarking. 5. Construction Efficiency: Standard Asset Assembly Labour Input.	1. Outages caused by defective equipment. 2. Stations capacity availability.

- THESL indicates the Chapter 5 filing requirements do not require it to develop any specific targets associated with its metrics and as such, THESL has not developed any targets, incentives or penalties associated with its performance in respect of the proposed measures and metrics.
- THESL considers it premature to establish firm targets given its lack of experience in capital-related performance measurement on the part of the Board and utilities.
- Should the Board approve THESL's 5 year CIR plan, AMPCO submits measures without targets is meaningless. Given that THESL has historical data for some of these measures, AMPCO submits THESL should be required to set targets for these measures in order to demonstrate continuous improvement over the plan. This is particularly important for the Cost Efficiency and Asset/System Operation Performance measures given the level of capital spending proposed and the resulting unprecedented rate increases.

Reliability Measures – SAIDI, SAIFI, CAIDI⁵⁶

⁵⁶ Exhibit 2B, Section OO Page 8

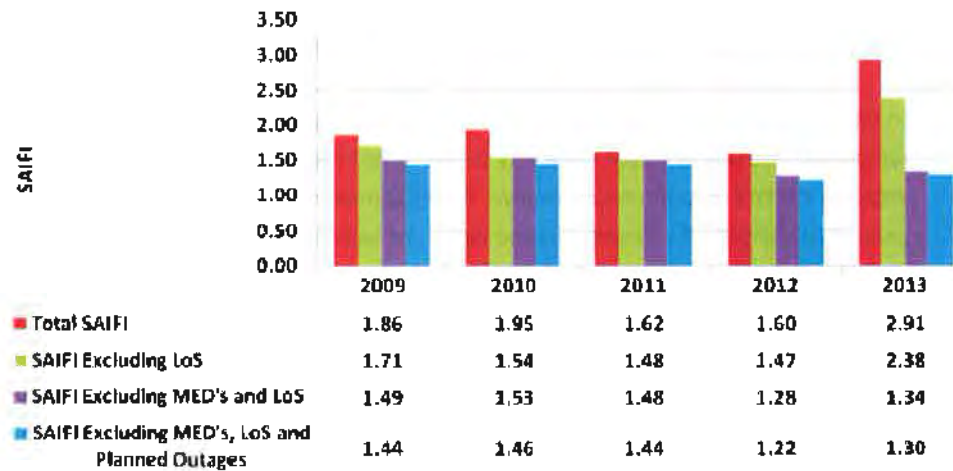
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- On a system level, THESL projects SAIDI and SAIFI to improve by the end of the CIR period due to the capital investment programs proposed. Specifically, based on THESL's Paced Execution Strategy, THESL projects a forecast SAIFI reduction from 1.53 outages in 2014 to 1.19 outages in 2019 and a projected SAIDI reduction from 1.23 hours in 2014 to 1.02 hours in 2019.⁵⁷
- In consideration of THESL's evidence, AMPCO submits that the Board should not put significant weight on THESL's forecast reliability projections in its analysis of THESL's proposed investment strategy for the reasons noted below. AMPCO makes further submissions on how reliability projections should be developed and reported to better reflect system performance and to achieve consistency.
- By way of background, THESL tracks reliability performance indicators System Average Interruption Frequency Index (SAIFI), System Average Interruption Duration Index (SAIDI), and Customer Average Interruption Duration Index (CAIDI) based on:
 - including all events;
 - excluding Loss of Supply;
 - excluding Major Event Days (MEDs) and Loss of Supply; and
 - excluding MEDs, Loss of Supply, and Scheduled Outages.⁵⁸
- As can be seen in the Tables below, THESL's reliability indicator results over the past 5 years (2009 to 2013) under the first two scenarios differ considerably from the last two scenarios.

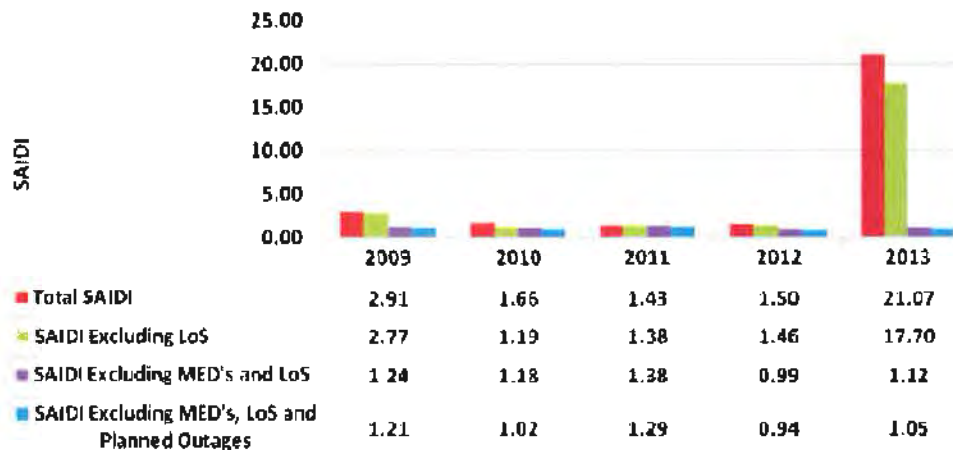
⁵⁷ Exhibit 2B, Section OO Page 8

⁵⁸ Exhibit 2A Tab 10 Schedule 2

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3 **Figure 1: System Level SAIFI**



4 **Figure 2: System Level SAIDI**

- THESL indicates it places greater value on the last two scenarios (which exclude MEDs, Loss of Supply and in the last scenario also excludes Scheduled Outages) on the basis that they provide a better indication of the performance trend of THESL's system and the impact of recent investments,

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and are more commonly used across the industry for benchmarking against past performances.

- The Board requires that THESL track SAIFI and SAIDI (Appendix 2-G) and report in two ways i.e. including and excluding loss of supply (i.e. scenarios 1 and 2 above) even though excluding MEDs, Loss of Supply and Scheduled Outages provides a more normalized reflection of total system reliability. Weather impacts (MEDs) on the distribution system account for a significant portion of total system SAIFI and SAIDI. On a system level over the past 5 years (2009 to 2013), Loss of Supply on THESL's system typically affects up to 13% of SAIFI and 10% of SAIDI. Scheduled Outages are associated with construction and preventative maintenance activities. In the last 5 years, Scheduled Outages have affected between 2 to 4% of SAIFI and 2 to 12% of SAIDI. During the ICM 2012-2014 period, Scheduled Outages have affected on average 3% of SAIFI and 6% of SAIDI.
- THESL indicates these factors (MEDs, Loss of Supply and Scheduled Outages) are typically excluded from its analysis of overall system performance since THESL has minimal control over Major Event Days and Loss of Supply events. In addition, Scheduled Outages are also typically excluded from the analysis of overall system performance as they are required in order to replace assets that are at their end of life and are not a reflection of distribution system performance.
- Given that tracking reliability indices that exclude MEDs, Loss of Supply, and Scheduled Outages provide a better indication of system performance, AMPCO submits that the Board should consider requiring that utilities as a whole track reliability on this basis moving forward in order to report more accurately on the performance of their system and to better inform their asset management processes and plans. Accordingly, AMPCO submits that THESL should also report its proposed Reliability Measures (SAIFI, SAIDI, CAIDI) during its CIR plan (if approved) on the basis of excluding MEDs, Loss of Supply, and Scheduled Outages.
- THESL's forecast reliability projections over the CIR plan exclude MEDs, but Loss of Supply and Planned Outages are included.⁵⁹
- AMPCO submits that the way THESL reports and forecasts on reliability needs to be consistent.
- For the same reasons discussed above, AMPCO submits THESL's SAIDI and SAIFI projections for the CIR period should ideally exclude MEDs, Loss of Supply, and Scheduled Outages in order to provide a better indication of system performance and the impact of its proposed investments. AMPCO submits based on historical data and THESL's proposed investment levels, THESL should be able to

⁵⁹ Transcript Vol 4 Page 11

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make reasonable assumptions for the exclusion of Loss of Supply and Scheduled Outages as it does with excluding MEDs.

- The Board's Filing Requirements (as per Appendix 2-G) for utilities to report Reliability Indicators (SAIFI & SAIDI) including and excluding Loss of Supply differs from the way THESL has forecast its reliability projections. THESL may wish to provide its projections on this basis as well to be consistent with how it reports in the Board's Scorecard process.
- THESL's annual reliability targets included in its annual Key Performance indicators are without MEDs but with supply loss. AMPCO submits that this is inconsistent with THESL's view noted above that it places greater value on reporting reliability under scenarios 3 and 4 i.e. excluding Major Event Days (MEDs) and Loss of Supply; and excluding Major Event Days (MEDs), Loss of Supply and Scheduled Outages. AMPCO notes Scheduled Outages can be significantly impacted by the amount of capital work undertaken in a given year. AMPCO submits THESL should consider setting its KPI reliability targets on the basis of excluding MEDs, Loss of Supply, and Scheduled Outages in order to provide a better indication of the performance trend of THESL's system and the impact of recent investments.
- Further, AMPCO does not support THESL's comparison of its forecast reliability projections to a run-to-fail approach over the same time period on the basis that this does not accurately reflect how THESL operates its system, and inappropriately reflects a scenario whereby THESL undertakes a minimal capital investment strategy over the CIR term which in AMPCO's view is not realistic.
- In AMPCO's view THESL's evidence is weak on its forecast that SAIFI and SAIDI would worsen by approximately 30% and 24%, respectively from 2015-2019 under a run-to-failure approach⁶⁰ and SAIDI and SAIFI would improve by 26% and 20%, respectively by the end of the CIR period due to the capital investment programs proposed.
- At the hearing, THESL confirmed that its reliability projections weren't based on any specific mathematical model. Instead the reliability projections were based on a variety of considerations and judgment. During the oral hearing Dr. Kaufmann agreed that he would not place any high reliance on THESL's reliability projections due to the lack of empirical backing. AMPCO agrees THESL could be incented to forecast higher, and given the lack of empirical backing, and inconsistencies in reporting reliability, AMPCO submits that the Board should not place any significant weight on THESL's forecast reliability projections in making a determination on THESL's proposed level of

⁶⁰ Exhibit 1A-T2-S1 Page 7

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capital investments.

Proposed New Measure

- THESL is already required to track and report SAIFI, SAIDI and CAIDI.
- The Defective Equipment cause code and its contribution to SAIFI and SAIDI as a primary indicator of the condition of its distribution system. THESL tracks this cause code as a measure of continuous improvement.
- Given THESL's unprecedented capital request in this application, AMPCO submits the Board should consider requiring THESL track and report on the Defective Equipment cause code against a predetermined target.

Distribution Plan Implementation Progress Measure

- THESL plans to measure the overall progress of its DSP implementation as a rolling ratio of total capital expenditures made over the plan years completed to date, divided by the 5-year total CAPEX approved by the Board.⁶¹
- Using its 2013 OEB Scorecard that includes a measure Distribution System Plan Implementation Progress, THESL deems its year-end capital program results to be successful if the year-end results are within +/- 20% of the approved CAPEX amount.⁶² AMPCO notes that 20% coincides with THESL's historical 20% overspending for the period 2010 to 2014 compared to Board Approved CAPEX.
- AMPCO submits THESL should be required to set a target for this metric. AMPCO submits 20% is not an appropriate measure for success for this measure. AMPCO submits a target of +/- 10% would be more appropriate in part on the basis that at the 10% threshold THESL should be conducting a variance review to determine if there are productivity issues in the field that need to be addressed.

Construction Efficiency Measure: Internal vs. Contractor Cost

⁶¹ Exhibit 2B Section C Page

⁶² 2B-CCC-24

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- AMPCO submits THESL could set a target in this application to bring THESL's costs closer to its Contractor Costs.

Construction Efficiency Measure: Standard Asset Assembly Labour Inputs

- Beginning in 2011, each year Toronto Hydro selects up to ten reference capital projects constructed by its internal crews over the previous year. To date, the projects have been selected from three of the utility's larger capital portfolios, namely Direct Buried Cable Replacement, Overhead and Underground Rehabilitation. To establish a consistent baseline for cost comparison, the selected internally delivered projects have minimal cost and scope variations from the original design.
- AMPCO supports this measure.
- AMPCO submits the Board may wish to consider requiring THESL to benchmark its Direct Buried Cable Replacement, Overhead and Underground Rehabilitation costs against comparable utilities.

Outages Caused by Defective Equipment

- In order to track the number of outages occurring over 2015-2019, THESL plans to track the number of outages occurring over a rolling 12-month period due to defective or malfunctioning equipment.
- For the periods 2009 to 2013, the number of outages caused by defective equipment has decreased from 728 events in 2009 to 557 to 636 in 2013 (an improvement of 11%).⁶³
- Given the historical data and the systems THESL has in place to track the number of outages caused by defective equipment, AMPCO submits THESL should be able to set a target by the end of the 5-year CIR plan
- It is unclear to AMPCO if THESL is able to exclude the number of outages caused by defective equipment due to MEDs. In AMPCO's view, excluding outages during MEDs would provide a better indication of THESL's system performance resulting from its proposed investment plan and accordingly AMPCO submits the measure should be reported on this basis.

⁶³ Exhibit 2B Section C Page 28

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Other Considerations

“Do Nothing/Run to Fail” Approach Not Meaningful

- THESL does not currently operate its system under a “run-to-fail” approach with minimal proactive asset replacement and it is unlikely this will be the case moving forward. THESL currently operates its system under a proactive intervention strategy as it has in the past. AMPCO is not aware of any other utility that takes a run to fail approach with respect to asset renewal. AMPCO is aware (as was THESL) that certain utilities operate certain specific assets under a “run to fail” approach (such as padmounted or pole mounted transformers which THESL does not run to failure)⁶⁴ but utilities do not typically operate their entire system on a run to fail approach. Notwithstanding AMPCO’s issue with respect to THESL’s consideration of age alone to set its long term capital strategy, AMPCO submits a more meaningful comparison would have been for THESL to determine the percentage of assets that will reach end of useful life by 2020 should THESL’s capital spend be based on investment strategies reflective of its current and historical proactive approach to asset renewal. In AMPCO’s view, this would tell a different story about the quantity of assets forecast to be at end-of-life moving forward.

Feeder Investment Model (FIM) Biased Towards Early Replacement

- The FIM is one of the many decision-support tools that THESL uses to inform its system asset decisions.
- The Feeder Investment Model (FIM) determines the optimal asset renewal timing based on economic end-of-life criteria for each asset. It is used to establish the relative priority of program expenditures.
- In order to achieve THESL’s vision of steady state by 2037, THESL used the FIM to evaluate the business cases for the asset replacement programs proposed and to confirm the prioritization of the particular assets scheduled for replacement. It is AMPCO understands that the FIM was not the driver for asset replacement. The primary driver for asset replacement is the age of assets (i.e. the estimated 26% of assets that are at end of useful life). None of the dollars requested for asset replacement under THESL’s Asset Renewal budget are determined from the FIM. The FIM is used to identify the economic end-of-life criteria and the investment timing for all evaluated assets based on a risk-based optimization approach.

⁶⁴ Transcript Vol 9 Page 133

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- It is AMPCO understands that THESL used the FIM model to justify and prioritize projects for 2015. THESL indicates that 87% of the proposed system renewal category investments were evaluated using the FIM in 2015 representing \$218.6 million of the total \$251.7 million system renewal budget.⁶⁵ For assets not evaluated by the FIM, asset investment timing was determined based upon the assets' remaining useful life⁶⁶ determined by age.
- THESL's position is that assets reaching or exceeding their economic-end-of-life criteria as determined by the FIM must be replaced.
- AMPCO has voiced concerns in the past about the Customer Interruption Costs utilized in the model which in AMPCO's view are overstated. Of equal concern to AMPCO is that the Health Index and condition-based failure probability calculations are applied to increase the probability of failure where an asset is experiencing an accelerated failure rate due to its condition.⁶⁷ There are no provisions in the formula to improve the lifespan of that asset based on superior asset performance and condition.⁶⁸ In AMPCO's view, this distorts the optimal asset renewal timing contributing to replacing assets sooner than they need to be replaced.
- In this application THESL states it proposes to examine and explore future enhancements to further improve upon its Asset Management planning process which includes potential enhancements to the FIM to respond to feedback as part of the 2012-2014 IRM Filing Submission. The potential enhancements to the FIM include:
 - Geospatial tracking of non-asset related outage events to further improve the calculation of non-asset related risks
 - Improvements to link customer data to assets to improve asset-level load impact data used as part of the outage cost calculation procedure
 - Improvements to customer interruption costs used as part of the outage cost calculation procedure.⁶⁹
- AMPCO submits parties would have benefited from a review of improvements to customer interruption costs in this application.

⁶⁵ J6.1

⁶⁶ Exhibit 2B-E2 Page 4

⁶⁷ J1.5

⁶⁸ Transcript Vol 4, Pages 59 to 61

⁶⁹ Exhibit 2B, Section A Page 19

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- In considering the above, AMPCO submits the Board should consider the a limitations AMPCO has identified above in assessing the value of the FIM in determining the asset renewal timing which in AMPCO's view favours early replacement.

Expected Useful Life of Wood Poles

- Power System Engineering (PSE) prepared a Standards Review Study Report for THESL. As part of that study, PSE reviewed THESL's Distribution Construction Standards. PSE noted the most noteworthy deviation from the industry is THESL's exclusive use of Western Cedar poles typically at a higher cost. THESL prefers cedar wood for poles because cedar is generally more uniform in dimension, easier to climb, and lightweight.⁷⁰
- PSE's experience is that although Western Cedar poles are generally superior to most other wood pole species it is not uncommon for distribution systems to consist of other wood species of lower cost.
- PSE notes that the life longevity of Western Cedar may very well offset the higher cost.
- THESL is using 45 years as the expected useful life of its wood poles. AMPCO submits that 45 years is the typical expected life utilities use for non-cedar poles. Based on PSE's study, AMPCO submits THESL should be using a longer expected useful life for wood poles to offset the higher cost.
- Given that THESL's driver for the significant number of wood poles proposed for replacement under its capital plan is expected useful life and THESL is using 45 years when it should be something longer, AMPCO submits THESL is replacing wood poles at a further accelerated pace which is not providing good value for ratepayers and is exacerbating the premature replacement issue. AMPCO does not accept 45 years as the expected useful life of THESL's wood poles.
- THESL indicates that approximately 31% of its existing poles are at or near end-of-life and will require proactive replacement during the 2015-2019 period.⁷¹ THESL indicates it plans to replace these poles with new butt-treated Western Red Cedar poles. THESL's asset population for wood poles is 123,280 which means that it plans to replace over 38,000 poles in the next 5 years under its steady-state investment strategy. The ACA shows that 2,885 poles are in very poor condition and 9419 are in poor condition. It seems to AMPCO that a proactive replacement strategy of about

⁷⁰ Exhibit 2B Section 6.4 Page 6

⁷¹

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12,000 poles would provide better value to ratepayers and result in lower rate increases.

- PSE notes THESL agreed that it would be appropriate to perform a comparison review of other wood species such as Northern Red and Southern Yellow Pine to determine if Western Cedar continues to be the best option in terms of cost, safety, and reliability.⁷²
- AMPCO submits the Board should require THESL to undertake this study.

Lack of Productivity

- THESL indicates its productivity is embedded in the application of the Price Cap formula.
- THESL has not included any additional productivity measures in its capital plan.
- AMPCO submits the Board should take this into consideration in assessing the merits of THESL's CIR plan.

Customer Preferences

- THESL indicates its customers accepted the need for the timely renewal of the distribution system, while acknowledging that this will mean an increase in their monthly bills. THESL confirmed at the oral hearing that it only provided the \$ impact of its proposed plan on a total bill basis, it did not provide customers surveyed with the distribution percentage increases by year and as a total which in AMPCO's view leaves a different impression with respect to perceived impact.

Inflation

- From 2016 onwards to 2019, inflation costs at 2.07% per year, consistent with the Statistic Canada Consumer Price Index ("CPI") for Toronto⁷³, are included as a separate category in THESL's Capital plan. AMPCO submits the Board's inflation amount should be used.

In-Service Additions Variance Account

⁷² Exhibit 2B Section D Appendix B Page 9

⁷³ Statistics Canada, Consumer Price Index, by city (Index), (Ottawa: Statistics Canada, 2014), online: Statistics Canada

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- To protect ratepayers, AMPCO submits the Board should approve a variance account to track the revenue requirement associated with approved in-service capital additions and actuals, if it is less.
- This approach is consistent with the similar variance accounts that have been recently approved by the Board in Horizon (EB-2014-0002) and Hydro One Transmission (EB-2014-0140) applications.

Working Capital

- THESL proposes working capital as a percentage of Cost of Power and Controllable Expenses using 7.99% based on a study undertaken by Navigant.⁷⁴ AMPCO supports THESL's Working Capital Allowance calculation.⁷⁵

Conclusions

- AMPCO acknowledges that a utility must have an asset management process that strikes an optimal balance between required capital investment and risk costs associated with asset failure that at a system level this balance represents a "steady-state".
- AMPCO does not support THESL's Steady-State approach and the significant rate increases that from this approach.
- AMPCO views THESL's investment strategy of \$500 per year in capital investments over the next 22 years based on the age of the asset as being flawed as the quantities of assets proposed for replacement that are driving the increases in no way align with the recent results of THESL's asset condition assessment results; or appropriately consider rate impacts on customers.
- AMPCO submits THESL's Asset Condition Assessment results do not support the need for THESL to operate its system with most assets operating within their useful lives.
- End of life does not always imply replacement is needed and age should not be relied on as a proxy for condition.

⁷⁴ Exhibit 2A, Tab 3, Schedule 2

⁷⁵ Exhibit 2A, Tab 3, Schedule 1 Page 2

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- AMPCO submits the Board should approve a significantly reduced capital budget on System Renewal for 2015 that looks more like pre ICM spending and is more closely aligned with the priorities identified in THESL's asset condition assessment.
- For the years, 2016 to 2019, THESL has not provided details or project information for System Renewal investments. AMPCO submits therefore that there is no evidence that THESL's capital spending has been optimized in the longer term and there is no basis for the Board to approve spending on System Renewal beyond 2015.

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Non-Capital Issues

AMPCO makes the following submissions on some of the non-capital related aspects of THESL's CIR application. AMPCO has reviewed and considered the draft submissions of Consumers Council of Canada (CCC) and the School Energy Coalition (SEC) in preparing the comments below.

OM&A

- THESL proposes that 2015 OM&A be set on a cost of service basis. THESL's 2015 forecasted OM&A amount of \$269.5 million in 2015 represents a 13.2% increase of \$31.5 million increase above 2011 actual expenditures of \$238.6 million.

OM&A \$ M ⁷⁶						
2011	2011	2012	2013	2014	2014	2015
Approved	Actual	Actual	Actual	Bridge	Actual ⁷⁷	Test
238	238.6	215.8	246.4	246.6	241.2	269.5

- THESL's 2014 actuals are \$5.4 million below the 2014 forecast.
- The variance of -\$5.4 million from the projected Bridge amounts is a result of variances in a number of Programs, but is primarily driven by spending levels below forecast in the Control Centre, Corrective Maintenance, Work Program Execution Management and Support, and Customer Care.
- AMPCO submits THESL's 2015 OM&A amount should be set at 2014 actuals adjusted for inflation. In AMPCO's view THESL should be able to operate effectively within this amount as is has in 2014, with capital spending levels at \$585.9 million in 2014. AMPCO submits this proposed reduced level of OM&A spending strikes an appropriate balance between the interests of customers with respect to price and the interests of the utility.

Wireless Proceeding Costs

- AMPCO agrees with CCC that that the Board should not allow for recovery of the costs associated with the wireless proceeding in this proceeding. These costs are historical costs and prospective

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⁷⁷ Exhibit OH, Tab 1, Schedule 5

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recovery would constitute retroactive rate-making. In addition, THESL did not request a deferral account to record these costs, so there is no provision to facilitate prospective recovery.

2011 Rate Base Adjustment:

- AMPCO agrees with CCC's analysis and submission the Board should reject THESL's proposal to recover \$33 million calculated as the revenue requirement impact of the application of the half-year rule in determining 2011 rate base for the years 2012-2014 on the basis that it is not appropriate to incorporate the full year impact of prudent 2011 rate base additions in setting 2015 rates and it would clearly constitute retroactive rate-making.

Overall Revenue Requirement Increase

- SEC's analysis, based on its thorough review of THESL's benchmarking results, proposes that the Board limit THESL's revenue requirement over the period to approximately 3.1% per year.
- AMPCO supports SEC's detailed analysis and submits that AMPCO's proposed reductions to OM&A and Capital spending align with SEC's approach.