

**Toronto Hydro-Electric System Limited (THESL) 3rd GIRM Application – 2012, 2013 & 2014 Rates
AMPCO Interrogatories
2012-09-14**

1. Incentive Regulatory Mechanism (“IRM) Schedules and Models

1.2 Is THESL’s proposal that the Board approve under the IRM framework separate and successive ICM revenue requirements and corresponding distinct electricity distribution rates and rate adders for each of the 2012, 2013 and 2014 rate years appropriate?

1.2-AMPCO #1

Reference: Tab 2

- a) Please summarize the opportunities for efficiencies and any potential cost savings resulting from THESL’s proposed 3 year IRM/ICM approach.
- b) Please summarize the value/benefit to the customer from THESL’s proposed 3 year IRM/ICM approach.
- c) Please discuss the how the Board’s latest announcement (September 14, 2012 OEA Speaker Series) on the Renewed Regulatory Framework for Electricity impacts THESL’s proposed approach.

1.3 Is THESL’s proposal that the Board recognize in rates THESL’s approved 2011 year-end rate base appropriate?

1.3-AMPCO #2

Reference: Tab 2, Page 3

- a) Please explain why THESL believes it should be exempt from the Board’s current practice regarding the treatment of ratebase.

Issue 1.4 What is the consequence of this application on any future application by THESL for rates for 2013 and/or 2014?

1.4-AMPCO #3

Reference: Tab 2

- a) Please describe THESL’s plan to set rates in 2013 and 2014 if the Board does not approve its proposed IRM/ ICM applications at this time for 2013 and 2014?
- b) Please confirm THESL’s next Cost of Service application is planned for 2015.

2. Incremental Capital Module (“ICM”)

**Toronto Hydro-Electric System Limited (THESL) 3rd GIRM Application – 2012, 2013 & 2014 Rates
 AMPCO Interrogatories
 2012-09-14**

2.1 Is THESL’s application of the ICM criteria appropriate?

2.1-AMPCO #4

Reference: Tab 4, Schedule A, Appendix 1, page 1

- a) Please identify the projects in Appendix 1 that were unanticipated in 2012, 2013 and 2014 in the context of THESL’s long term capital plan.
- b) Please discuss each capital segment in Appendix 1 in the context of the significant influence on the operation of the distributor.
- c) Please confirm that none of the capital expenditures have previously been included in THESL’s rate base.
- d) Please confirm that none of the projects included in the 2012, 2013 and 2014 forecasted capital are discretionary in nature.
- e) Please discuss the need for projects in the context of the actual capital spending in 2011.

2.2 Has THESL provided sufficient evidence including consultant reports, business cases and consideration of alternatives, for the proposed capital projects to adequately justify them?

2.2-AMPCO #5

Reference: Tab 2

- a) Please complete the following table to provide THESL’s recent Reliability Statistics:

	2008	2009	2010	2011
Interruptions				
Customers Interrupted				
Customer Hours Interrupted				
SAIDI				
SAIFI				
CAIDI				

**Toronto Hydro-Electric System Limited (THESL) 3rd GIRM Application – 2012, 2013 & 2014 Rates
AMPCO Interrogatories
2012-09-14**

- b) Please provide the data and percentage breakdown of customer hours interrupted by cause for the years 2008 to 2011.
- c) Please provide the data and percentage breakdown of types of equipment failures based on customer hours interrupted for 2010 and 2011.
- d) Please comment on reliability trends based on 2012 year to date.

2.2-AMPCO #6

Reference: Tab 4, Schedule A, Appendix 1, Page 1

- a) Please provide the labour components of the capital programs listed in Appendix 1.
- b) Please discuss the basis for the budget amounts i.e. which ones will be determined by competitive bidding?
- c) Please provide details of any new hires planned to carry out the incremental projects and reconcile total labour costs with new hires.
- d) Please reproduce the Summary of Capital Program Table in Appendix 1 on the basis of highest priority to lowest priority.
- e) Please provide a Capital Spending Schedule that sets out on a comparative basis 2009 actual capital spending, 2010 actual capital spending, 2011 approved (EB-2011-0142), 2011 actual, 2012 year to date and the proposed capital spending for 2012, 2013 and 2014 using the spending categories from EB-2011-0142 (Tab 8, Schedule 1, Page 5).
- f) Please provide explanations for any categories where the variance is plus/minus 10 % between 2011 approved and the 2011 actual.
- g) Please explain any significant variances for 2012, 2013 and 2014 compared to previous years.
- h) Please identify the spending in the 2012, 2013 and 2014 budget that does not include replacement.

2.2-AMPCO #7

Reference: Tab 2, page 7

- a) Page 7 - Please explain why THESL is not requesting to transfer resources between projects.

**Toronto Hydro-Electric System Limited (THESL) 3rd GIRM Application – 2012, 2013 & 2014 Rates
AMPCO Interrogatories
2012-09-14**

- b) Page 16 – On what basis has THESL estimated that for each year, two thirds of the jobs would be complete within that year, with the remaining third completed the following year.
- c) Page 23 – On what basis has THESL determined that it does not plan to execute projects such as Paper Insulated Lead Covered Cable Replacement, Asbestos Insulated Lead Covered Cable Replacement, Stations Infrastructure, Nomenclature, Grounding Compliance, Electric Vehicles and Modernization Initiatives in the next three years.
- d) Page 24 – Please explain further the areas of significant change in the composition of proposed spending.

2.2 – AMPCO #8

Reference: Tab 2, Page 16 lines 26 to 30 & Page 17 lines 1 to 21

Preamble: THESL indicates that not all projects are non-discretionary based on five considerations described on Page 17, but every project is needed and non-discretionary based on at least one of these criteria.

- a) Please provide a table that lists each proposed project and the corresponding non-discretionary criterion considered by THESL.

Underground Infrastructure and Cable

B1 Underground Infrastructure

2.2 – AMPCO #9

Reference: Tab 4, Schedule B1

- a) Page 4 - The evidence indicates that in 2011 Customers Interrupted (CI) and Customer Hours Interrupted (CHI) values for direct buried cables accounted for 57% and 43% respectively for the CI and CHI for the entire underground distribution system. Please provide a breakdown of the other causes that make up 100% of the CI and CHI values in 2011.
- b) The Table on Page 4 provides the number of interruptions attributed to direct buried cable failures. Please explain the increase in 2005 and decrease in 2006.
- c) Page 110 - The evidence indicates that 66% of the direct buried XLPE cables (580 circuit kilometres) are in need of immediate attention. Please confirm the total km proposed for replacement in 2012, 2013 and 2014.

**Toronto Hydro-Electric System Limited (THESL) 3rd GIRM Application – 2012, 2013 & 2014 Rates
AMPCO Interrogatories
2012-09-14**

2.2 – AMPCO #10

Reference: Tab 4, Schedule B1

Preamble: Table 1 on Page 2 lists the jobs to be executed in 2012, 2013 and 2014. The jobs are listed in order of the number of sustained outages in 2011.

- a) Please provide the number of customers serviced by each feeder.
- b) Please provide the useful life and age of each feeder.
- c) Please provide the total number of unplanned sustained outages and unplanned sustained outages related to primary cable failures for each feeder for the years 2009, 2010 and 2011.
- d) Feeder NY80M29 had 15 unplanned sustained outages in 2011 and 5 were related to primary failure cables. Please explain the reasons for the remaining 10 unplanned outages.
- e) Please provide the total km of buried cable replaced to date by year.
- f) Please comment on the trend in 2012 year to date regarding the number of interruptions attributed to direct buried cable failures.
- g) Table 2 on Page 10 provides historical data regarding reliability performance. Please explain the decrease in 2010 compared to 2009 and why the 2011 levels are below the 2009 levels.
- h) Please explain how the values in Table 2 on Page 10 are cumulative.
- i) Page 113 - The evidence indicates that several utilities across North America have reported an unexpected increase in failures due to their direct buried underground assets. Please discuss if THESL is aware of other utilities in Ontario who have reported an increase in failures due to their direct buried underground assets

B3 Handwell Replacement Segment

2.2 – AMPCO #11

Reference: Tab 4, Schedule B3

- a) Please provide the number of proposed handwell replacements by year.
- b) Please provide the number of handwell replacements in the downtown core by year.

**Toronto Hydro-Electric System Limited (THESL) 3rd GIRM Application – 2012, 2013 & 2014 Rates
AMPCO Interrogatories
2012-09-14**

Network Infrastructure and Equipment

B9 Network Vaults & Roofs

2.2 – AMPCO #12

Reference: Tab 4, Schedule B9, Page 2 - 3

- a) Please provide the total number of vaults classified by the Asset Condition Assessment with a status of “poor” and “very poor”.

2.2 – AMPCO #13

Reference: Tab 4, Schedule B9, Pages 5 to 9

Preamble: THESL proposes to eliminate immediate structural deficiencies of 50 high risk vaults identified by the ACA as being in “poor” or “very poor” condition.

- a) Please provide a breakdown of the 50 vaults classified by the ACA as either poor and very poor.
- b) Please provide a breakdown of the 15 network vault roofs rebuilds between poor and very poor.
- c) Please confirm the total number of vault roof rebuilds in Table 2 by Job Number/year.
- d) Page 7 - Please identify the vault roof rebuilds in the worst structural condition that have been prioritized to be addressed first.
- e) Page 9 - Please identify the network vault rebuild projects in the worst structural condition that have been prioritized to be addressed first.

2.2 – AMPCO #14

Reference: Tab 4, Schedule B9, Pages 13, Figure 4

- a) Please confirm the age of each of the 50 vaults.

B10 Fibertop Network Units

2.2 – AMPCO #15

Reference: Tab 4, Schedule B10, Page 1

**Toronto Hydro-Electric System Limited (THESL) 3rd GIRM Application – 2012, 2013 & 2014 Rates
AMPCO Interrogatories
2012-09-14**

The assets selected for replacement have been identified as possessing the highest probability of failure, based on inspection of all THESL units.

- a) Please confirm this finding is reflected in THESL's Asset Condition Assessment.
- b) Please provide a breakdown of the 187 Fibertop Network Units between poor and very poor.

2.2 – AMPCO #16

Reference: Tab 4, Schedule B10, Page 4

Preamble: THESL indicates that in the recent past it has replaced 40 to 60 Network units annually due to corrosion. Leaking transformers and fibertops have made up a significant portion of these replacements (40% in 2009 and 60% in 2010). The proposed segment would be an increase to the existing replacement strategy as more units would be replaced annually.

- a) Please provide the number of fibertop replacements in 2009, 2010, 2011 and 2012 year-to-date.
- b) Please discuss the impact on THESL's proposed replacement strategy and budget if the level of replacement of fibertops in 2012, 2013 and 2014 was maintained at the average of the past three years.

2.2 – AMPCO #17

Reference: Tab 4, Schedule B10, Page 9

Preamble: According to its records THESL indicates there have been 18 vault fires in the past ten years.

- a) Please tabulate the 18 vault fires by vault number, cause and by year
- b) Please provide THESL's maintenance budget for Fibertop Network Units for the past three years.

2.2 – AMPCO #18

Reference: Tab 4, Schedule B10, Page 18

- a) THESL indicates that there are approximately 854 available crew days that must be divided amongst the entire underground capital program. Please provide this

**Toronto Hydro-Electric System Limited (THESL) 3rd GIRM Application – 2012, 2013 & 2014 Rates
AMPCO Interrogatories
2012-09-14**

calculation.

- b) THESL indicates that even if these resources were entirely dedicated to replace Fibertop Network Units, only approximately 113 units could be addressed annually. Please provide this calculation.
- c) THESL proposes to replace only units that are deemed high risk of immediate failure and have a direct impact on the safety of the general public. Please confirm how the determination of high risk of immediate failure was made.

2.2 – AMPCO #19

Reference: Tab 4, Schedule B10, Appendix A

Preamble: Appendix A contains a detailed list of projects.

- a) Please confirm the number of proposed replacements by year is 61 in 2012, 61 in 2013 and 65 in 2014.

B11 Automatic Transfer Switches (ATS) and Reverse Power Breakers (RPB) Segment

2.2 – AMPCO #20

Reference: Tab 4, Schedule B11, Pages 9 to 10

- a) Please explain why Reverse Power Breakers (RPB) were not assessed in the 2010 and 2011 ACA program.
- b) Of the 30 identified ATS assets that have degraded from a condition of fair to poor or very poor, please provide the current number with a status of poor and very poor.
- c) Please provide the age of each proposed asset for replacement.
- d) Please provide the number of ATS and RPB replaced in 2009, 2010, 2011 and 2012 year-to-date.
- e) Please provide the number of failures of ATSS and RPBs in 2009, 2010, 2011 and 2012 year-to-date.

Station Infrastructure and Equipment

B12 Stations Power Transformers

2.2 – AMPCO #21

**Toronto Hydro-Electric System Limited (THESL) 3rd GIRM Application – 2012, 2013 & 2014 Rates
AMPCO Interrogatories
2012-09-14**

Reference: Tab 4, Schedule B12, Page

- a) Please provide the failure rates for each transformer.
- b) Please provide the definition of catastrophic failure of transformers.

2.2 – AMPCO #22

Reference: Tab 4, Schedule B12, Pages 10 to 32

Preamble: Pages 10 to 32 describe the need to replace each transformer station and under the justification section various risks are included.

- a) Please tabulate the risks by transformer and provide the expected timeline for failure.
- b) The evidence indicates that two power transformers selected for replacement are less than 43 years old: Blaketon MS-TR1 and Albion MS-TR2. Under the justification for each of these transformers, THESL indicates the transformer has reached the end of its operating life. Please explain.
- c) Please provide the Health Index Distribution Change from 2010 to 2011 for Power Transformers.

2.2 – AMPCO #23

Reference: Tab 4, Schedule B12, Page 55

Based on THESL's Health Index (HI) a rating of 31 to 50 is poor and a rating of less than 30 is very poor. AMPCO observes that THESL has three transformers selected for replacement with a poor rating and no transformers selected for replacement have an HI of less than 30.

- a) Please explain why transformer stations with an HI rating of greater than 50 and DGA results with Condition ratings of 1 have been selected for replacement in the 2012 to 2014 timeframe.

B13.1 Municipal Substation Switchgear Replacement

2.2 – AMPCO #24

Reference: Tab 4, Schedule B13.1

**Toronto Hydro-Electric System Limited (THESL) 3rd GIRM Application – 2012, 2013 & 2014 Rates
AMPCO Interrogatories
2012-09-14**

- a) Please provide the number of customers affected and customer load served by switchgear.
- b) Please explain why the work at Leslie MS and Thornton MS continues into the following year.
- c) Please provide the failure rates for switchgears for the years 2009, 2010, 2011 and 2012 year to date.
- d) Please provide the number of switchgears replaced in 2009, 2010, 2011 and 2012 year-to-date.
- e) Please provide the Health Index of the switchgears selected for replacement.
- f) Please provide the individual optimal intervention timing results for each of the 12 switchgear assets.

B 13.2 Stations Switchgear – Transformer Stations Segment

2.2 – AMPCO #25

Reference: Tab 4, Schedule B13.2

- a) Please provide the total number of transformer station switchgears in THESL's system.
- b) Please provide an age profile (quantity vs years) for switchgear TS assets.
- c) Please provide the number of customers served by each switchgear.
- d) Please provide the failure rates for transformer stations switchgears for the years 2009, 2010, 2011 and 2012 year to date.
- e) Please provide the failure rates for the 12 transformer station switchgears selected for replacement for the years 2009, 2010, 2011 and 2012 year to date.
- f) Please provide the Health Index range for very poor to very good for switchgears.
- g) A Health Index was not provided for the switchgear at Duplex TS. Please provide.
- h) Please provide the latest Health Index for each switchgear selected for replacement from the Asset Condition Assessment (ACA) update report in 2011 and 2012.
- i) Please provide the individual optimal intervention timing results for each of the 6 switchgear TS assets.

**Toronto Hydro-Electric System Limited (THESL) 3rd GIRM Application – 2012, 2013 & 2014 Rates
AMPCO Interrogatories
2012-09-14**

B14 Station Circuit Breakers

2.2 – AMPCO #26

Reference: Tab 4, Schedule B14

- a) Figure 1 on page 5 shows zero outdoor-mounted circuit breakers in the range 42 to 47 years. Table 2 on Page 4 shows three circuit breakers (Fairchild TS) with an age of 42 years. Please explain.
- b) Please provide the number of interruptions by year since 2000 attributed to station circuit breakers.
- c) Please provide the failure rates since 2000 (number of failures by year) for station circuit breakers.
- d) Please provide the latest Asset Condition Assessment results and Health Index for each circuit breaker selected for replacement.
- e) Please provide the individual optimal intervention timing results for each of the circuit breaker assests.

B 15 Stations Control and Communication

2.2 – AMPCO #27

Reference: Tab 4, Schedule B15

- a) Please indicate the measure used to track the performance of the SONET system and MOSCAD system.
- b) The evidence indicates there were approximately 50 entries in defective equipment tracking related to Etobicoke RTUs equipment and three MOSCAD systems experienced communication failure in 2011. Please provide these results for 2009 and 2010.
- c) Please provide the useful life of the SONET communication system and the Motorola radio communication system.
- d) Please provide the rationale for choosing the specific projects detailed under 1.1.1 to 1.1.6 on Pages 5 to 9.

**Toronto Hydro-Electric System Limited (THESL) 3rd GIRM Application – 2012, 2013 & 2014 Rates
AMPCO Interrogatories
2012-09-14**

- e) Please confirm the rationale for choosing the five MS SCADA RTU locations under 2.1.3 on Pages 12 to 13 and 2.1.5 on Page 15.
- f) Please confirm why THESL believes these projects qualify as a non-discretionary cost that is appropriate for recovery through an ICM?

B 16 Downtown Station Load Transfer Facilities

2.2 – AMPCO #28

Reference: Tab 4, Schedule B16

- a) Please summarize the risks identified at six of the 15 downtown stations.
- b) Please provide the number of customers served by each feeder.

C1 Operations Portfolio Capital

2.2 – AMPCO #29

Reference: Tab 4, Schedule C1

- a) Please reproduce Table 1 on Page 1 to include data for 2009 to 2011.
- b) Please provide a breakdown of the Continuing projects from 2011 into 2012 in Table 6 on Page 9.

C2 Information Technology Capital

2.2 – AMPCO #30

Reference: Tab 4, Schedule C2

- a) Please provide a breakdown of the 2011 Carryover Projects into 2012 in Table 1 on Page 1.
- b) Please provide the useful life for IT hardware assets.

C3 Fleet Capital

2.2 – AMPCO #31

Reference: Tab 4, Schedule C3

**Toronto Hydro-Electric System Limited (THESL) 3rd GIRM Application – 2012, 2013 & 2014 Rates
AMPCO Interrogatories
2012-09-14**

- a) Please provide the useful life and age for each of the vehicles listed in table 1.

C4 Buildings and Facilities Capital

2.2 – AMPCO #32

Reference: Tab 4, Schedule C4

- a) Please provide the historical capital spending for 2009 to 2011 on buildings and facilities.

2.2-AMPCO #33

Reference: Tab 4, Schedule D1, THESL Asset Condition Assessment Audit

- a) Please explain further how the BI Calculator facilitates decision making with respect to capital projects and expenditures.
- b) Please explain why Underground Cables and Network Protectors have not been incorporated in to the calculator.

B5 Box Construction Segment

2.2-AMPCO #34

Preamble: THESL describes the box construction program as a proactive program.

- a) Please explain why THESL believes this program qualifies as a non-discretionary cost that is appropriate for recovery through an ICM?

2.3 Is THESL's proposal that the Board consider ICM projects for a three-year period, severable into three successive one-year rate periods, each with its own ICM rate adder appropriate?

2.3-AMPCO #35

- a) Please identify the proposed capital projects that span one year only.

4. Implementation

4.2 Are THESL's proposals relating to rate implementation appropriate for each of the years 2012, 2013 and 2014?

**Toronto Hydro-Electric System Limited (THESL) 3rd GIRM Application – 2012, 2013 & 2014 Rates
AMPCO Interrogatories
2012-09-14**

4.2-AMPCO #36

Reference: Tab 4, Schedule A, Page 1

Preamble: The evidence indicates that THESL seeks the Board's approval for incremental revenue requirements of \$26.8 M, \$36.0 M and \$13.5 M for the years 2012, 2013 and 2014, respectively, to be recovered from customers through fixed and variable class specific rate adders over the applicable calendar years commencing June 1, 2012 and May 1, 2013 and 2014, respectively, related to non-discretionary, incremental capital investments.

- a) Please provide the rationale for recovering ICM funds using fixed and variable rate adders?