



May 10, 2016

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) – ICM True-up Application
AMPCO Interrogatories
Board File No. EB-2015-0173

Dear Ms. Walli:

Attached please find AMPCO's interrogatories in the above proceeding.

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

Sincerely yours,

ORIGINAL SIGNED

Mark Passi
Chairman, Board of Directors
Association of Major Power Consumers in Ontario

Copy to: Toronto Hydro-Electric System Limited

**Toronto Hydro-Electric System Limited (THESL)
ICM True-Up Application
AMPCO Interrogatories**

1-AMPCO-1

Ref: Exhibit 1, Tab 2, Schedule 2, Page 2

Preamble: THESL indicates the Revenue Requirement associated with Actual ISAs is \$52.3 million.

- a) Please provide the Revenue Requirement associated with ISAs excluding analogous jobs.

1-AMPCO-2

Ref: Exhibit 1, Tab 2, Schedule 2, Page 13, Table 1

- a) For each segment, for completed jobs only, please provide the forecast and actual ISA \$ split between work undertaken by contractors versus internal resources.

1-AMPCO-3

Ref: Exhibit 1, Tab 2, Schedule 2, Page 23

Preamble: THESL indicates that high level estimates are based on standardized costs for installing various types of assets.

- a) Please provide the standardized costs for each type of asset.
- b) Please list the job segments with high level estimates determined using standardized asset costs.

1-AMPCO-4

Ref: Exhibit 1, Tab 2, Schedule 2, Page 24

Preamble: THESL indicates that high level estimates can and do vary from the actual cost of the completed jobs even when the scope of the jobs remains unchanged between the initial planning and executions. This type of variance is an accepted part of project cost estimation generally and has specifically been recognized for cost estimation in the utility industry.

- a) For each segment, please provide the number of completed jobs where the scope of the job was unchanged.
- b) Please provide the number of jobs in part (a) where the variance in costs was within 10% of their forecasted cost.

**Toronto Hydro-Electric System Limited (THESL)
ICM True-Up Application
AMPCO Interrogatories**

1-AMPCO-5

Ref: Exhibit 1, Tab 2, Schedule 2, Page 27

Preamble: THESL indicates that analogous jobs were required during the ICM period to address urgent issues because it was most efficient to complete it in conjunction with other ICM jobs.

- a) Please provide the basis of THESL's understanding that money can be used for a different project.

1-AMPCO-6

Ref: EB-2012-0064, Phase 2 Settlement Agreement Filed 2013-12-18, Page 8 of 11

Preamble: The Settlement Agreement states, "Further, parties agree that THESL shall use its best efforts to track any assets taken out of service before the end of their useful lives associated with the completion of ICM work segments approved in Phase 2 of this proceeding."

- a) Please provide a summary of the number of assets by asset type taken out of service before the end of their useful lives.

2-AMPCO-1

Ref: Exhibit 2

- a) Please complete the attached spreadsheet (2-AMPCO-1) and provide the live excel version.

2-AMPCO-2

Ref: Exhibit 2

- a) For each ICM Segment, please provide the number of cost estimate errors and the \$ value of the cost estimate errors.

2-AMPCO-3

Ref: Exhibit 2

- a) Please complete the attached spreadsheet (2-AMPCO-3) and provide the live excel version.

Toronto Hydro-Electric System Limited (THESL)
ICM True-Up Application
AMPCO Interrogatories

AMPCO included asset types under each segment that were identified in EB-2012-0064 & EB-2015-0173. If THESL believes that different asset types would be more reflective of the work forecasted and completed, please adjust the asset types in part a) accordingly.

2-AMPCO-4

Ref: Exhibit 2

- a) Please provide THESL's Reactive Capital program budget and actuals for the years 2009 to 2015.
- b) Please provide a breakdown of THESL's Reactive Capital Asset Replacement Programs and corresponding asset types replaced. Provide the total number of asset units replaced by type under these programs for the years 2009 to 2015.

2-AMPCO-5

Ref: Exhibit 2, Tab 1, Schedule 1, Underground Infrastructure Segment

Preamble: The evidence (page 5) states that one job was cancelled and 12 other projects were deferred to the 2015-2019 period either in light of scheduling conflicts or to enable the attainment of other analogous jobs that were identified as more critical during the ICM period, and 18 priority jobs were added.

- a) Please provide a job number/title and forecasted ISA \$ for the 12 deferred jobs.
- b) Please identify which of the jobs in part a) were deferred to enable the attainment of other analogous jobs and why.

2-AMPCO-6

Ref: Exhibit 2, Tab 1, Schedule 1, Page 7, Underground Infrastructure Segment

Preamble: THESL indicates that the most frequent source of scope change due to a change in THESL's technical design standard related to secondary cables and secondary services that connect customers to the distribution system in neighbourhoods with underground distribution configurations.

- a) Please provide a list of other LDCs that THESL is aware that have also adopted the same or similar new technical standard for this work.

**Toronto Hydro-Electric System Limited (THESL)
ICM True-Up Application
AMPCO Interrogatories**

- b) Please explain why the additional costs related to implementation of this standard were not incorporated into the October 2012 evidence update given that the new standard was released in late 2011.
- c) Please provide the total cost variance due to a change in the technical standard.

2-AMPCO-7

Ref: Exhibit 2, Tab 1, Schedule 1, Page 9, Underground Infrastructure Segment

Preamble: THESL indicates that the some jobs as originally scoped have not gone over or under cost, but have expanded or retracted to address more or fewer assets in need of replacement.

- a) With respect to completed jobs, please provide the number of jobs where the assets replaced were more, less, or exactly the same as forecasted.
- b) Please provide the job numbers fort the jobs where the scope of work did not change.

2-AMPCO-8

Ref: Exhibit 2, Tab 1, Schedule 1, Appendix A, Underground Infrastructure Segment

- a) For each of the 18 jobs listed in Appendix A, please provide a map of the job area.
- b) For each of the 18 jobs listed in Appendix A, please provide the number of phases in each job.
- c) For each of the 18 jobs listed in Appendix A, please provide an Asset Replacement Table that lists the quantities of assets replaced.
- d) For each of the 18 jobs listed in Appendix A, please provide the historical reliability performance of the equipment.
- e) Please provide the total number of assets replaced that are at or beyond end of life.
- f) Please provide the total number of assets replaced that are in very poor, poor, fair, good and very good condition.

2-AMPCO-9

Ref: Exhibit 2, Tab 4, Schedule 1, Overhead Infrastructure Segment

Toronto Hydro-Electric System Limited (THESL)
ICM True-Up Application
AMPCO Interrogatories

Preamble: THESL indicates that out of 112 forecasted jobs, 5 jobs were deferred or cancelled and 10 jobs were added. Eight of the 10 added jobs were completed as urgent capital work.

- a) With respect to completed jobs, please provide the number of jobs where the assets replaced were more, less, or exactly the same as forecasted.
- b) Please provide the job numbers for the jobs where the scope of work did not change.
- c) Please explain why the 8 added jobs were not completed under THESL's Reactive Capital program.

2-AMPCO-10

Ref: Exhibit 2, Tab 4, Schedule 1, Appendix A, Overhead Infrastructure Segment

- a) For each of the 10 jobs, please provide outage frequency data and condition data related to justify the equipment to be replaced.

2-AMPCO-11

Ref: Exhibit 2, Tab 4, Schedule 1 Appendix A, Estimate EST26014_004

- a) Please confirm the number of poles replaced.
- b) Please explain the high average unit cost per pole.

2-AMPCO-12

Ref: Exhibit 2, Tab 5, Schedule 1, Appendix A, Box Construction

- a) For each of the analogous jobs, please provide the total number of assets addressed, the number of assets at or beyond useful life, the number of assets in poor or very condition and the circuit length.
- b) For each of the analogous jobs, please provide data on the deteriorating performance of the affected feeders.

2-AMPCO-13

Ref: Exhibit 2, Tab 6, Schedule 1, Page 6, Rear Lot Construction

**Toronto Hydro-Electric System Limited (THESL)
ICM True-Up Application
AMPCO Interrogatories**

Preamble: The Rear Lot Construction Segment has an ISA cost variance of \$7.2 million. THESL indicates that some jobs were expanded to address significantly more assets in need of replacement. In other cases, originally targeted assets were found to be in adequate condition and remained in service.

- a) For completed jobs, please provide the total number of assets forecasted for replacement, the actual number of assets replaced and the number of assets forecast for replacement that remained in service.

2-AMPCO-14

Ref: Exhibit 2, Tab 6, Schedule 1, Appendix A EST18240_003, Rear Lot Construction
Ref: EB-2012-0064 Tab 4 Schedule B6 Page 48-49

Preamble: At the first reference, THESL includes a cost of \$260,044.86 for an analogous job (Banbury/Larkfield) to convert aged and unreliable overhead rear lot distribution to the underground front yard distribution.

At the second reference, THESL discusses original ICM Rear Lot Conversion jobs at Banbury -Larkfield– Charnwood (E 12615, E12076) and states “These jobs represent the final phases for conversion of the area.”

- a) Please explain the need for the additional conversion work at Banbury/Larkfield as an analogous job.
- b) Please provide the final asset count by asset type installed and ISA amounts related to the original ICM jobs E12615 and E12076.

2-AMPCO-15

Ref: Exhibit 2, Tab 6, Schedule 1, Appendix A EST18240_003, Rear Lot Construction

- a) Please provide the asset count by asset type.

2-AMPCO-16

Ref: Exhibit 2, Tab 7, Schedule 1, Network Vaults and Roofs

- a) Page 3: Please confirm the number of forecasted jobs to address 50 vaults in poor or very poor condition.

**Toronto Hydro-Electric System Limited (THESL)
ICM True-Up Application
AMPCO Interrogatories**

- b) Page 4: Nine jobs were deferred and one was rescheduled for the 2015-2019 period. Has the work for the remaining 8 jobs been rescheduled? If not, why not?
- c) Page 4: On what basis were the 9 analogous more critical than the originally scheduled jobs.

2-AMPCO-17

Ref: Exhibit 2, Tab 7, Schedule 1, Pages 4 to 5, Network Vaults and Roofs

Preamble: THESL's proposed to undertake the following activities: Roof rebuild (15 vaults); Vault Rebuild (27); Vault decommissioning (8).

- a) Of the 19 completed jobs (out of 29 forecasted jobs), please confirm the number of roof rebuilds, vault rebuilds and vault decommissioning undertaken.
- b) Please provide the number of roof rebuilds, vault rebuilds and vault decommissioning undertaken under analogous jobs.
- c) Please provide the asset counts by asset type for other asset replacements under analogous jobs.

2-AMPCO-18

Ref: Exhibit 2, Tab 8, Schedule 1, Pages 4 to 7, Fibertop Network Units

Preamble: THESL indicates that 3 jobs were cancelled because the units were replaced reactively, either due to failure or imminent failure as assessed through regular network vault inspections. THESL also deferred 16 jobs to 2015 and added 17 analogous jobs that were identified as more critical or more opportune during the course of the ICM period.

- a) Please explain why the 17 added jobs were not replaced reactively.
- b) Please explain "more opportune".
- c) Please discuss how the analogous jobs were identified.
- d) On what basis were the 17 analogous more critical than the 16 originally scheduled jobs.
- e) Page 7: For each analogous job in Table 3, please provide the \$ and the number of units replaced.

**Toronto Hydro-Electric System Limited (THESL)
ICM True-Up Application
AMPCO Interrogatories**

2-AMPCO-19

Ref: EB-2012-0064 Tab 4 Schedule B10 Page 15

Ref: Exhibit 2, Tab 8, Schedule 1, Page 6, Fibertop Network Unit

Preamble: At the first reference THESL indicates the replacement cost of the Fibertop Network Unit with a standardized Submersible Network Unit is \$145,000(\$115,000 Material Cost and \$30,000 Labour Cost).

At the second reference, THESL indicates the average cost of completed jobs in the segment was \$183,000 and the average cost of analogous jobs was \$213,000.

- a) Please provide the material cost and labour costs separately for the \$183,000 and \$213,000 average costs.
- b) Please explain the increase in costs from the original estimate at reference 1.

2-AMPCO-20

Ref: EB-2012-0064 Tab 4 Schedule B11, Pages 4

Preamble: THESL indicates that 30 ATS and 6 RPB are to be replaced over the next 3 years. Figure 1 on page 4 provides the predicted ATS failures.

- a) Please update Figure 1 to show the number of ATS run to failure compared to proactively replaced.
- b) Please confirm the number of RPB replaced in the ICM period 2012-2014.

2-AMPCO-21

Ref: Exhibit 2, Tab 9, Schedule 1, Page 6 Automatic Transfer Switches (ATS) and Reverse Power Breakers (RPB)

Preamble: THESL indicates that 5 forecast jobs were cancelled as the work was performed on a reactive basis. THESL added one analogous job deemed critical to replace 2 ATS switches.

- a) Please explain why the analogous job was not undertaken on a reactive basis.

2-AMPCO-22

Ref: Exhibit 2, Tab 10, Schedule 1, Stations Power Transformer

**Toronto Hydro-Electric System Limited (THESL)
ICM True-Up Application
AMPCO Interrogatories**

Preamble: All of the original 10 forecasted jobs were completed or in progress by the end of 2014.

- a) Please explain why none of the transformers identified in the 5 added jobs were replaced reactively.
- b) Please explain why THESL believes the 5 added jobs qualify as ICM work.
- c) For the 5 added jobs, please provide the total number of transformers to be replaced and the which transformers are in poor, very poor and fair condition.
- d) For each transformer to be replaced, please provide the age, transformer leakage information (Y/N), and detailed DGA analysis/results.

2-AMPCO-23

Ref: Exhibit 2, Tab 11, Schedule 1, Stations Switchgear

- a) Please provide the forecast and actual asset count by asset type for this segment, excluding analogous jobs.
- b) Please provide the number of jobs deferred and the associated ISA \$.
- c) Page 5: Please explain how final commissioning and feeder transfer work following the replacement of certain switchgear qualifies as ICM work.
- d) Page 6: Please provide additional condition and reliability data to support the need to replace the 45 year old switchgear at Jane MS that needed to be replaced on a priority basis.

2-AMPCO-24

Ref: Exhibit 2, Tab 12, Schedule 1, Metering

- a) Please provide the forecasted and actual number of jobs.
- b) For the various types of meters, please provide the forecasted and actual quantities and forecasted and actual costs.

2-AMPCO-25

Ref: Exhibit 2, Tab 13, Schedule 1, Externally-Initiated Relocations

Preamble: THESL added 24 analogous jobs to this segment.

Toronto Hydro-Electric System Limited (THESL)
ICM True-Up Application
AMPCO Interrogatories

- a) Please provide the prior Board approval to support the addition of new jobs requested by 3rd parties to the ICM work under this segment.