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November 16, 2009

BY EMAIL & COURIER

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge St, Suite 2701
Toronto ON M4P 1E4

Dear Ms. Walli:

Board File No. EB-2009-0139
Toronto Hydro-Electric System Limited – 2010 Cost of Service Application
Interrogatories of Energy Probe

Pursuant to the Issues List Decision and Procedural Order No. 2, issued on November 10, 2009, attached please find two hard copies of the Interrogatories of Energy Probe Research Foundation (Energy Probe) in the EB 2009-0139 proceeding. An electronic version of this communication will be forwarded in PDF format.

Should you require additional information, please do not hesitate to contact me.

Yours truly,

David S. MacIntosh
Case Manager

cc: Glen Winn, Toronto Hydro-Electric System Limited (By email)
Mark Rodger, Borden Ladner Gervais LLP (By email)
Peter Faye, Counsel to Energy Probe (By email)
Intervenors of Record (By email)

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Ontario Energy Board

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

AND IN THE MATTER OF an Application by Toronto
Hydro-Electric System Limited for an order approving just
and reasonable rates and other charges for electricity
distribution to be effective May 1, 2010.

**INTERROGATORIES OF
ENERGY PROBE RESEARCH FOUNDATION
("ENERGY PROBE")**

November 16, 2009

**TORONTO HYDRO-ELECTRIC SYSTEM LIMITED
2010 RATES REBASING CASE
EB-2009-0139**

**ENERGY PROBE RESEARCH FOUNDATION
INTERROGATORIES**

Issue 1. GENERAL

- 1.1 Has Toronto Hydro responded appropriately to all relevant Board directions from previous proceedings?**

Interrogatory # 1

Toronto Hydro-Electric System Limited filed an application, dated March 16, 2009, with the Ontario Energy Board for approval of a draft rate order that would give effect to new rates as of May 1, 2009. On June 8, 2009, the Board issued its Decision and Order on Cost Awards in that proceeding.

- a) Is Toronto Hydro in compliance in respect of that Board Order?
- b) If the answer to a) above is yes, please advise the date that your cheque for \$2,314.56 was issued in payment and forwarded to Energy Probe Research Foundation.
- c) If the answer to a) above is no, please advise the steps the Applicant will now take to achieve compliance.

Issue 4. CAPITAL EXPENDITURES and RATE BASE

- 4.1 Are the amounts proposed for Rate Base appropriate?**

Interrogatory # 2

Ref: Exhibit D1, Tab 5, Schedule 1 Distribution Fixed Assets

Pages 1-2 describe Transformer Station component ownership. At line 28 on page 1 the following statement appears:

The level of THESL ownership of the low-voltage equipment varies from completely THESL-owned to completely HONI-owned.

- a) Please explain how ownership of low voltage equipment is decided.
- b) In the case of HONI owned LV equipment, who has operating control?
- c) Does HONI own any LV circuits feeding THESL distribution stations? If yes, who is responsible for responding to trouble call on those circuits?
- d) How is trouble call response coordinated between THESL and HONI for HONI owned LV station equipment?

4.2 Are the amounts proposed for 2010 Capital Expenditures appropriate including the specific Operational and Emerging Requirements categories?

Interrogatory # 3

Ref: Exhibit D1, Tab 8, Schedule 1 Sustaining Capital

Page 2 of this schedule refers to THESL's investigation of alternatives to replacement of direct buried cables. Lines 6-8 state that THESL explored alternatives but that the results were unsatisfactory. Please provide copies of any studies and/or reports on which the unsatisfactory assessment was based.

Interrogatory # 4

Ref: Exhibit D1, Tab 8, Schedule 9-1 Portfolio 1: Underground – Direct Buried

Table 1 on page 1 of this schedule shows projects 10846 and 10847, both cable replacement projects for feeder NAH9M23. The project detail sheets on pages 3-6 do not make clear what the difference between the two projects is. Please explain.

Interrogatory # 5

Ref: Exhibit D1, Tab 8, Schedule 9-1 Portfolio 1: Underground – Direct Buried

Pages 17-18 of this schedule show project 12244 to replace cable on circuit NA502M24.

- a) The estimated cost on page 17 is \$4,520,000 while on page 18 it is \$4,432,561. Please explain.
- b) In the justification section on page 18, the avoided CMO is shown as 343. Why is the expected improvement in CMO so low?

Interrogatory # 6

Ref: Exhibit D1, Tab 8, Schedule 9-1 Portfolio 1: Underground – Direct Buried

Pages 19-20 show project 12418 to replace cable on circuit SS46F2. The length of this circuit is shown as 208 m and the cost to replace is \$510,000. Please explain why the cost should be so high for a relatively short length of cable.

Interrogatory # 7

Ref: Exhibit D1, Tab 8, Schedule 9-1 Portfolio 1: Underground – Direct Buried

Pages 21-22 of the schedule show project 12441 to replace cable on circuit NT47M3.

- a) The total estimated cost of the project on page 21 is \$5,660,000 whereas on page 22 the total estimated cost is \$3,477,000. Please explain.**
- b) The reliability section of the justification shows steady improvement in both feeder and cable CI and CMO from 2006 to 2009. If the cable is in very bad condition, the opposite would be expected. Please comment.**

Interrogatory # 8

Ref: Exhibit D1, Tab 8, Schedule 9-1 Portfolio 1: Underground – Direct Buried

Pages 23-24 of the schedule show project 13062 to replace cable on circuit SS64F3. The project cost on page 23 is shown as \$930,000 while on page 24 it is shown as \$593,000. Please explain.

Interrogatory # 9

Ref: Exhibit D1, Tab 8, Schedule 9-1 Portfolio 1: Underground – Direct Buried

Pages 29-30 of the schedule show project 13123 to replace cable on NT63M12. The estimated cost on page 29 is \$6,540,000 while on page 30 it is \$4,041,000. Please explain.

Interrogatory # 10

Ref: Exhibit D1, Tab 8, Schedule 9-1 Portfolio 1: Underground – Direct Buried

Pages 33-34 of the schedule show project 13500 to replace cable on MG-F1/MG-F4. The justification section on page 34 shows this feeder ranking 378 on the worst performing feeder listing.

- a) Why is a feeder with ranking of 378 on the WPF listing a priority for cable replacement?**
- b) What is the equipment referenced in the Additional Justification section that failed causing the extensive outage to the area?**

Interrogatory # 11

Ref: Exhibit D1, Tab 8, Schedule 9-1 Portfolio 1: Underground – Direct Buried

Pages 38-39 of the schedule show project to replace cable on MG-F4 and move rear lot construction to the street.

- a) The ellipse number on page 38 is 16224 but the project is listed on the page 1 summary as 13505. Please advise the correct project number to use.**
- b) The estimated cost on page 38 is \$1,580,000 while on page 39 it is \$1,230,000. Please explain.**
- c) Is the present rear lot system currently overhead or underground?**

Interrogatory # 12

Ref: Exhibit D1, Tab 8, Schedule 9-1 Portfolio 1: Underground – Direct Buried

Pages 39-40 show project 14028 to replace cable on circuit NA47M17. In the justification section the Feeder CI and CMO are much higher than the primary cable CI and CMO over the period 2006 to 2008.

- a) Is part of this circuit overhead?**

- b) Please explain why the primary cable reliability statistics are significantly better than the feeder as a whole statistics.
- c) If the direct buried cable is not responsible for most of the CI and CMO why is THESL proposing to replace it,

Interrogatory # 13

Ref: Exhibit D1, Tab 8, Schedule 9-1 Portfolio 1: Underground – Direct Buried

Pages 41-42 of the schedule show project 15219. The description in the project summary is Cable Inject. The description on page 41 is that the cables will be replaced. Please clarify what the project consists of.

Interrogatory # 14

Ref: Exhibit D1, Tab 8, Schedule 9-1 Portfolio 1: Underground – Direct Buried

Pages 51-52 of the schedule show project 15539 to replace cables on circuit NT47M3. The estimated cost on page 51 is \$520,000 while on page 52 it is \$363,000. Please explain.

Interrogatory # 15

Ref: Exhibit D1, Tab 8, Schedule 10

Page 6 of this schedule shows the ten year plan for capital expenditures.

- a) Please explain the difference between the Sustaining Capital category and the Emerging Requirements category.
- b) Standardization appears to involve some replacement of aging equipment according to the details provided in D1 T9 S1 for handwell and cable standardization. Please explain how THESL decides when a replacement falls into Standardization capital as opposed to one of its underground categories in Sustaining Capital.
- c) Are different priorities assigned to Emerging Requirements capital compared to Sustaining Capital?

Interrogatory # 16

Ref: Exhibit D1, Tab 9, Schedule 1 Emerging Requirements

Page 1 discusses the rationale for replacing distribution system assets that are not up to current THESL design standards.

- a) Does the Electrical Safety Authority require distributors to replace distribution system components or designs that do not conform to current standards? If yes, please provide the reference(s) to ESA policies that require the replacement.**
- b) Lines 13-20 describe THESL's practice for selecting and prioritizing asset replacements that are judged obsolete. Please provide copies of any policies or practices describing the process in detail.**
- c) Are all legacy assets selected for replacement at the end of their service lives?**

Interrogatory # 17

Ref: Exhibit D1, Tab 9, Schedule 1 Emerging Requirements

Table 1 on page 2 shows the fund allocation between standardization programs. Handwell standardization and Cable standardization allocations are \$9.2M and \$5.2M respectively.

- a) Please confirm that these costs for handwell and street lighting cable standardization are included in the \$32.7 M proposed for 2010 under Standardization in the 10 year capital plan shown in Exhibit D1, Tab 8, Schedule 10, page 6.**
- b) If these amounts are included, please explain the apparent conflict with the statement made in Exhibit A1, Tab 1, Schedule 1, page 1, lines 16-20 that "cost consequences of the Streetlighting Applications have not been reflected in this Application".**

Interrogatory # 18

Ref: Exhibit D1, Tab 9, Schedule 1 Emerging Requirements

Lines 12-13 of page 2 in the Handwell Standardization discussion refer to “all the THESL-owned handwells currently installed”.

- a) Are there handwells owned by other agencies/customers that are accessible to the public and vulnerable to the kind of contact voltage problems experienced on the system during the level III emergency?**
- b) If yes, who is responsible for making sure that these handwells do not present a danger to the public?**

Interrogatory # 19

Ref: Exhibit D1, Tab 9, Schedule 1 Emerging Requirements

Page 2 describes THESL’s plans to deal with its 11,000 handwells.

- a) Line 13 refers to 1,000 handwells that will be completely replaced because they are “deemed to be high risk”. Please define “high risk” in this context.**
- b) Line 15 refers to 2,000 handwells that cannot be either entirely replaced or have their covers replaced. Please explain why complete replacement or cover replacement is not feasible for these locations.**

Interrogatory # 20

Ref: Exhibit D1, Tab 9, Schedule 1 Emerging Requirements

Lines 3-6 on page 5 refer to “future programs” involving handwells. If all handwells will be dealt with in the standardization process by 2010 as stated in these lines, what future programs for handwells does THESL anticipate will be necessary?

Interrogatory # 21

Ref: Exhibit D1, Tab 9, Schedule 1 Emerging Requirements

Table 2 on page 5 lists examples of outages in the Etobicoke area.

- a) For each of these examples please explain how the proposed switch and feeder lateral standardization program would reduce the number of customers interrupted and the duration of those interruptions.**
- b) In the Horner TS R30M4 outage, the cause is noted as a branch on the 3 phase primary. Why would it take 445 minutes to locate and remove the tree branch?**

Interrogatory # 22

Ref: Exhibit D1, Tab 9, Schedule 1 Emerging Requirements

Figure 4 on page 6 shows total customer interruptions in the Etobicoke Area.

- a) Please provide an expanded chart for Etobicoke showing total annual customer interruptions for the 10 years since amalgamation along with comparative charts for other districts/areas within the THESL system? How do these compare with THESL targets for total customer interruptions?**
- b) Please provide a chart showing annual SAIDI and SAIFI data for each of the districts and for the total THESL system for the ten years since amalgamation. How do these compare with THESL targets for total customer interruptions?**

Interrogatory # 23

Ref: Exhibit D1, Tab 9, Schedule 1 Emerging Requirements

Lines 4-8 on page 6 describe the rationale for proceeding with upgrades in the Etobicoke district now rather than as part of future sustaining capital programs.

- a) Why is it “becoming more difficult to support legacy installations” as referenced in 5?**
- b) What constitutes the “support” referred to?**

- c) When would sustaining capital programs ordinarily address the reliability concerns in Etobicoke if this proposed early effort is not approved by the Board?

Interrogatory # 24

Ref: Exhibit D1, Tab 9, Schedule 1 Emerging Requirements

Table 3 on page 7 shows the planned installations in the Etobicoke system.

- a) Does THESL own the overhead and/or underground feeders from Hydro One Transformers stations? Where are the ownership demarcation points?
- b) Please explain how the existing system in Etobicoke is sectionalized when a feeder interruption occurs.
- c) Please explain how the existing system in Etobicoke provides for load transfers when a feeder interruption occurs.

Interrogatory # 25

Ref: Exhibit D1, Tab 9, Schedule 1 Emerging Requirements

This program of Cable standardization on page 7 appears to involve replacement of street lighting cables that currently belong to a THESL affiliate.

- a) If THESL is unsuccessful in its applications to assume ownership of the street lighting system, how will the aging cables be dealt with?
- b) The evidence states that the initial 120 km of cable to be replaced will cost an estimated \$5.2 M. This is estimated to be approximately 24% of the streetlighting cable in Toronto. What is the estimated cost to replace the balance (76%) of the cable not covered by the 2010 proposal?

Interrogatory # 26

Ref: Exhibit D1, Tab 9, Schedule 1 Emerging Requirements

Replacement of submersible transformers with switched transformers is proposed on page 9 of Schedule 1.

- a) Of the approximately 9,000 submersible transformers referenced, how many will be replaced with switched transformers? Will all of these be completed in 2010?**
- b) If the program is multi year, how long will it take to complete?**
- c) The estimated cost for 2010 is \$1.9 M according to Table 7 in Exhibit D1, Tab 8, Schedule 9-7. If the program is multi year what will it ultimately cost?**

Interrogatory # 27

Ref: Exhibit D1, Tab 9, Schedule 1 Emerging Requirements

Replacement of submersible transformers is described on pages 9 and 10. At line 1 on page 10, it is noted that “the crew must remove the energized transformer elbows so that repairs can proceed” as an option to de-energizing the entire loop.

- a) Why is it not acceptable to remove energized elbows as an alternative to de-energizing the loop?**
- b) If removing the energized primary elbows on a faulted transformer is not an acceptable alternative, is it acceptable to de-energize the loop long enough to remove the elbows, then reenergize to restore power to customers upstream of the faulted transformer?**
- c) If the proposed sequence in b) is acceptable, please revise the estimates in Table 4 on page 12 to reflect the fact that customers on T1, T2 and T3 in the Legacy Installation illustration on page 11 would only be subject to a switching outage.**

- d) In the Legacy installation illustration on page 11, does a fault on T4 result in T5 also being interrupted? If yes, would lifting the feed through elbow on T3 be acceptable considering that it is not under load if both T4 and T5 are out of service?
- e) In the Standardized Installation illustration on page 11, does switch 2 open automatically when a fault is sensed on T4 or is a crew required to manually open the switch?

Interrogatory # 28

Ref: Exhibit D1, Tab 9, Schedule 1 Emerging Requirements

Pages 13 and 14 describe the rationale for replacing Completely Self Protected (CSP) transformers.

- a) How frequently do fuses blow in CSP transformers?
- b) What is the most frequent cause of the fuse blowing in CSP transformers?
- c) Does THESL maintain transformer loading history for CSP transformers to anticipate an overloaded condition?
- d) Would smart meter data more accurately predict an overloaded condition?
- e) Would replacement of potentially overloaded CSP transformers on a proactive basis reduce the number of fuse blowing incidents?
- f) What is the cost to replace a CSP transformer with the new standard?
- g) How much is the replacement program expected to cost?
- h) How many years will the program require for completion?

Interrogatory # 29

Ref: Exhibit D1, Tab 9, Schedule 1 Emerging Requirements

The reliability analysis for CSP vs. Standard Installation transformers in Table 5 on page 15 concludes that converting to a standard installation would improve reliability by 42% for this category of outage.

- a) How many CSP transformers (out of the total population of 4500) experience a blown fuse each year?**
- b) How many are installed on poles of sufficient size to accommodate a standard transformer?**
- c) The reliability analysis is on a per unit basis. What effect on overall SAIDI will the CSP transformers program have?**

Interrogatory # 30

**Ref: Exhibit D1, Tab 9, Schedule 2 Emerging Requirements
– Downtown Contingency Project**

Page 3 contains an illustration of what is referred to as a “high impact low probability event” that the contingency project will address.

- a) Please provide a list of these events by station for the past ten years including a description of the event, how many customers were interrupted and for how long.**
- b) What actions were taken by THESL in each of those events to eliminate the underlying vulnerability of the station to the causative factor?**
- c) In the areas of the City that employed an open loop design for the distribution system, how much load is typically transferable between stations? How does this compare with the amount of load transfer capability proposed in the downtown contingency project?**
- d) The 2010 cost for this downtown contingency plan is shown as \$31.3 M with an additional \$22 M required in 2011 to “complete the planned ties between stations”. What other elements of the downtown contingency plan will remain to be done once the planned ties are completed?**

Interrogatory # 31

**Ref: Exhibit D1, Tab 9, Schedule 3 Emerging Requirements
– Worst Performing Feeder (WPF) Program**

- a) How long has THESL been using the WPF method to evaluate feeder performance?**
- b) What has been the annual budget for this program over the period that it has been in operation?**
- c) What activities has the budget been spent on?**
- d) On page 4 of the schedule, at line 4, reference is made to a “30 percent improvement in interruption frequency on FESI-7 feeders in 2008. To what does THESL attribute the improvement?**

Interrogatory # 32

**Ref: Exhibit D1, Tab 9, Schedule 7 Emerging Requirements
– Secondary Safety Upgrade**

This schedule describes work required to ensure safety of the secondary system feeding the Street lighting system.

- a) Are the costs of this work included in the capital budget proposals for this application?**
- b) How does the secondary wire work proposed here differ from that proposed under Standardization?**
- c) Who presently owns the poles that are referred to in Table 1 on page 2?**