September 25, 2012

VIA 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-2012-0136 Hydro One Networks
2013 Distribution Rates Application
Energy Probe – Interrogatories to Hydro One

Pursuant to the Procedural Order No. 2, issued September 6, 2012, attached please find the Interrogatories of Energy Probe Research Foundation (Energy Probe) to the Applicant in the EB-2012-0136 proceeding.

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

Yours truly,

David S. MacIntosh
Case Manager

cc: Anne-Marie Reilly, Hydro One Networks Inc. (By email)
Donald H. Rogers, Rogers Partners LLP (By email)
Roger Higgin, Consultant to Energy Probe (By email)
Peter T. Faye, Counsel to Energy Probe (By email)
Interested Parties (By email)

EB-2012-0136

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 Hydro One Networks Inc. for an order or orders approving just and reasonable rates and other charges for electricity distribution effective January 1, 2013.

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

September 25, 2012

HYDRO ONE NETWORKS INC.
2013 IRM DISTRIBUTION RATES ADJUSTMENT
EB-2012-0136

ENERGY PROBE RESEARCH FOUNDATION
INTERROGATORIES

IRM Methodology

Issue 1 Has Hydro One appropriately applied the IRM mechanism as specified by the Board?

1.0 Energy Probe # 1

Ref: Exhibit B, Tab 1, Schedule 1 – Threshold Test

a) Please provide a table showing 2010 and 2011 Actual inputs to the formula- Rate base, Revenue Requirement, Depreciation.

b) Please revise the Threshold calculation using 2011 Actuals as the base year inputs (except growth).

Incremental Capital Module/Rate Rider

Issue 2 Should the proposed capital projects be approved for ICM treatment?

2.0 Energy Probe # 2

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

a) Please describe the differences between Distribution Stations and Regulating Stations.

b) How many of each does Hydro One have in its system?

c) Is the age profile of Regulating Stations different from Distribution Stations?

d) Are the replacement criteria different for Distribution Stations compared to Regulating Stations?

e) Are the refurbishment and replacement costs different for Distribution Stations compared to Regulating Stations? Please provide typical costs of replacement for each of the two types of stations.

2.0 Energy Probe # 3

Ref: Exhibit B, Tab 2, Schedule 2, Page 6

Line 4 states that Hydro One has "1002 Distribution Stations" whereas Line 6 on Page 1 states that it has "1002 Distribution and Regulating Stations".

a) Are these terms used interchangeably?

b) If there are significant differences in the two types of stations please explain why they are treated the same in the evidence.

2.0 Energy Probe # 4

Ref: Exhibit B, Tab 2, Schedule 2, Page 10

Figures 4 and 5 show structural components requiring repair. Please describe the remediation necessary in these two examples.

2.0 Energy Probe # 5

Ref: Exhibit B, Tab 2, Schedule 2, Page 10

Figure 6 shows a cracked concrete foundation. The cracking appears to be limited to the surface layer of the concrete. Please comment on the structural integrity of this foundation and the danger of failure.

2.0 Energy Probe # 6

Ref: Exhibit B, Tab 2, Schedule 2, Page 18

Line 7 states that the operating spare complement is below the defined requirement. Please describe how the defined requirement is arrived at, what the complement currently is and what it should be at.

2.0 Energy Probe # 7

Ref: Exhibit B, Tab 2, Schedule 2, Page 18

a) Has Hydro One always had refurbished transformers in its operating spares inventory? If not, please explain when it started keeping refurbished transformers as operating spares.

b) Has it always used refurbished transformers to replace failed transformers? If not, please explain when it started using them and for what reason.

c) How many operating spares are deployed to a station in an average year? How many are refurbished units?

d) How many refurbished operating spares deployed to a station in the last 10 years, have required replacement within the 5-10 years noted in line 18.

e) What are the average costs for design, labour and equipment to replace a failed transformer? Are the costs the same whether the replacement unit is a new one or a refurbished one?

2.0 Energy Probe # 8

Ref: Exhibit B, Tab 2, Schedule 2, Page 18

a) Please provide a listing of operating spare transformers with age and condition for each.

b) What is the average cost of refurbishing a used distribution station transformer?

c) What is the average cost of purchasing a new transformer?

d) What has occurred to make operating spares an escalated issue requiring immediate attention rather than just a typical issue?

e) What will Hydro One do if the Board does not approve its proposal for replacing refurbished operating spares with new operating spares?

2.0 Energy Probe # 9

Ref: Exhibit B, Tab 2, Schedule 2, Page 25

Figure 16 on page 25 shows Major Distribution Station Transformer Failures over the past ten years.

a) What is the significance of the word "Major" in this figure? Are there also minor failures not shown in the figure? Please explain.

b) Did Hydro One analyze the spike in failures in 2009 to determine the causes of failure? If yes, please describe the findings.

c) If the data for 2009 is removed, the balance of the chart does not reveal any particular trend toward increasing failures. In fact, the last two years exhibit less failures than the average of the last ten years. Please comment.

2.0 Energy Probe # 10

Ref: Exhibit B, Tab 2, Schedule 2, Pages 25 - 26

What is the average cost to regasket a leaking transformer? Please show the costs of installing a temporary MUS and removing it separately from the cost to regasket.

2.0 Energy Probe # 11

Ref: Exhibit B, Tab 2, Schedule 2, Pages 25 - 26

What is the average cost to install noise barriers in a station?

2.0 Energy Probe # 12

Ref: Exhibit B, Tab 2, Schedule 2, Pages 25 - 26

a) How long has Hydro One been working on eliminating PCBs from its station equipment?

b) How many transformers older than 1985 are there in service?

c) **Does Hydro One have a program to sample oil in transformer bushings? If yes, please describe it along with the results so far on how many bushings have PCBs.**

d) **Is it necessary to replace the entire transformer if PCB is identified in the bushings or can just the bushings be replaced?**

2.0 Energy Probe # 13

Ref: Exhibit B, Tab 2, Schedule 3, Page 8

a) **Has Hydro One or its predecessor company Ontario Hydro experienced similar issues in the past with poles showing faster deterioration than expected? Please describe the past problems and how they were dealt with.**

b) **Does HONI have a quality assurance program in place to ensure that new poles purchased meet specifications? If yes, please describe the program and explain how it failed to identify the problem with treatment penetration. If not, please explain how HONI determines it is getting what it pays for.**

c) **Is the supplier of the defective poles providing any financial support for replacing them? If yes, please describe the contribution. If not, please explain why not.**

d) **Have other distributors experienced similar problems with CCA treated red pine poles? If yes, what are they doing about the problem? If not, please explain why not.**

Issue 3 Is Hydro One's proposal with respect to the capital contribution allocated to Hydro One Transmission appropriate?

3.0 Energy Probe # 14

Ref: Exhibit B, Tab 2, Schedule 1, Pages 1 - 2

a) **Please provide the economic evaluation referred to in Line 10 on Page 2 that underlies the $9.2 M capital contribution required of Hydro One Distribution for Commerce Way TS.**

b) **Please provide the load forecast of Hydro One Distribution for using its 50% share of the capacity of Commerce Way TS if it is not apparent in the economic evaluation referred to above.**

Issue 4 **Is Hydro One's proposal with respect to the treatment of the CIS project for 2013 and 2014 appropriate?**

4.0 Energy Probe # 15

Ref: **Exhibit B, Tab 3, Schedule 1, Pages 5 -7 and Tables 1& 2 Updated**

a) **Please provide the total costs (2013) to perform the annual customer meter reading and billing functions on a total cost and per customer basis:**
   i. **Under the Legacy CIS and**
   ii. **New CIS**

b) **Please provide the annual (2013) Costs of Service Order and Work Management:**
   i. **Under the legacy CIS and**
   ii. **New CIS**

c) **Please Provide forecast Credit and Collections Costs (2013)**
   i. **Under the legacy CIS**
   ii. **Under the new CIS**

4.0 Energy Probe # 16

Ref: **Exhibit B, Tab 3, Schedule 1, Table 3 Updated**

a) **Please complete Rows 8 and 9 for the Legacy CIS**

b) **Please explain why 2013 is now (Update) a year in which the legacy system and new CIS will run in series. What has changed since the original filing? Please explain in detail.**

c) **Please fill in Line 7 for 2009-2012 and explain in detail the Calculation underling the numbers on Line 7. In particular explain the jump in 2015.**

d) **Please undertake a levelized cost per customer calculation for the period 2013-2014. Explain in detail the assumptions used, delineate the differences in carrying costs and the overall coat to ratepayers on a "as spent" dollar and Net Present Value (NPV) basis.**

e) **Assume another scenario under which CIS costs per customer escalate at CPI and compare the three scenarios by way of Active Excel Spreadsheet Format:**

i. **As filed**
ii. **Levelized Cost per customer**
iii. **Levelized Cost per customer inflated at CPI**

Please list all assumptions

f) **Please compare the three scenarios on a total cost to ratepayers basis.**

g) **Please compare the distribution rate impacts 2011-2014 for each class**

4.0 Energy Probe # 17

Ref: Exhibit B, Tab 3, Page 16 &
Exhibit B, Tab 3, Schedule 1, Table 3 Updated-CIS Benefits

a) **Please expand on the details of the Benefits Realization Plan for the new CIS. If this is documented, please file a copy.**

b) **Please list all areas of the Business that will benefit from the new CIS and provide short descriptions/examples of these.**

c) **Please list by year and Functional Area the Quantitative Benefits that underlie the claimed benefit of $172 million over seven years for the new CIS.**

d) **Please quantify the benefit reductions that have been netted out from the net revenue requirement on Line 8 of the second reference.**

e) **How will actual benefits be tracked and how will these, together with variances from Plan, be reported to the Board and Ratepayers? Please provide detailed proposal(s)**

Issue 5 **Is Hydro One's proposal to calculate revenue requirement for all of the proposed ICM projects, except CIS, based on full year depreciation, appropriate? In the event that Hydro One files on a cost of service basis for 2014, is an adjustment required, and if so should a deferral account be set up at this time to capture any such adjustment?**

5.0 Energy Probe # 18

Ref: Exhibit B, Tab 1, Schedule 1, Table 3 &
Exhibit B, Tab 1, Schedule 2, Page 1

a) Please discuss in reference to the Board's Guidelines for ICM why the half year rule should not apply to the base year/starting point.

b) Please provide a schedule that uses the assumption that the half year rule was to apply for the base year using the actual base year Rate-base and Depreciation and calculating the annual revenue requirement for the three categories of CAPEX and associated rate riders, Compare to the "as filed "RR of $26 million and Rate riders.

c) Comment which approach is most appropriate from Hydro One's perspective and from a ratepayer's perspective.

5.0 Energy Probe # 19

Ref: Exhibit B, Tab 1, Schedule 2, Page 2 &
Exhibit B, Tab 2 Schedule 1, Table 3

a) Please provide an explanation as to why HONI has adopted the half year rule for CIS, given the fact that (per update) in 2013 both the legacy CIS system and new CIS will be operating.

b) Please provide a calculation of the impact (annual RR) of using this approach rather than the full year rule, using Table 3 in the second reference. Compare the ratepayer impacts from each approach.

5.0 Energy Probe # 20

Ref: Exhibit B, Tab 1, Schedule 2, Page 3

a) Please provide a summary schedule of the cost of Capital Parameters used for Calculation of the ICM revenue requirements.

b) Please provide the sensitivities of the 2013 ICM RR to each of LT debt, ST debt and Equity.

c) Conform that the 2014 ICM RR will be updated based on the Boards deemed rates for cost of capital components

Other Rate Riders and Adders

Issue 8 **Is Hydro One's proposed disposition of Group 1 Deferral and Variance Accounts appropriate?**

8.0 Energy Probe # 21

Ref: Exhibit E1, Tab 2, Schedule 1, Pages 4 and 5 and Table 1 &
Exhibit E1, Tab 2, Schedule 1, Attachment 4 &
Exhibit E1, Tab 3, Schedule 1, Table 1

a) **Please explain the $7.7 million Carrying Charge on the 1590 Account.**

b) **Please show the rate and Bill Impact of disposing the Group 1 Account balance in 2013 rather than 2013-2014 based on projected revenue requirements including rate riders.**

c) **What is the forecast for the 2013 and 2014 for account 1580 RSVA Wholesale Market Charge.?**

d) **If the forecast is for another large negative balance, why would splitting the 2011 1580 balance be appropriate?**

e) **Please provide a schedule that shows the recovery shares of the Group1 accounts by rate class.**

f) **Indicate where changes have been made what those changes are relative to the last approved disposition, and the effect on the disposition amounts.**

Issue 10 **Is Hydro One's proposed Smart Grid rate adder appropriate?**

10.0 Energy Probe # 22

Ref: Exhibit C, Tab 1, Schedule 1, Pages 2 - 4

This page refers to the new Distribution Management System ("DMS") that Hydro One has installed.

a) **When did this system become operational?**

b) **What was the installed cost of the system?**

c) **What is the upgrade referred to on Line 20 Page 4, how much will it cost and why is an upgrade necessary so soon after implementation of the original system?**

d) **How did Hydro One manage the distribution system without the DMS since the advent of distributed generation on its lines? Please describe the problems encountered before the new DMS was installed and how they were dealt with.**

10.0 Energy Probe # 23

Ref: Exhibit C, Tab 1, Schedule 1, Pages 5 - 6

Page 5 shows sustainment funding of $7.0 M required for new smart grid systems.

a) **Will this level of funding be required on an ongoing basis?**

b) **Is this funding entirely for the DMS or does it also support other new systems? If the latter please elaborate and quantify the part of the $7.0 M that will be devoted to other than the DMS.**

c) **Is the "extensive infrastructure (servers, networking devices, firewalls)" referred to in Lines 19-20 all installed or is more yet to be done? If the latter, please describe the work remaining and the estimated cost. Where is the capital cost included?**

d) **How many FTEs will be needed for the maintenance team referred to in Lines 22-23? Will this be an ongoing requirement for the life of the DMS system?**

e) **Line 11 on Page 6 refers to the "limited points of telemetry currently available". Please explain what the telemetry points are and what Hydro One's plans are to expand the number of points. How much will the expansion of telemetry points cost? Where is the cost included?**

10.0 Energy Probe # 24

Ref: Exhibit C, Tab 1, Schedule 1, Page 6

Lines 15-24 describe the expected transition to separation of OGCC operators into transmission and distribution.

a) **How many additional operators will be needed per line 23?**

b) **What is the estimated cost of these new operators?**

c) **Will a separate control room ultimately be needed for distribution operators? If yes, when does Hydro One expect it will be required?**

d) **Reference is made to other utilities with this separated control room structure. Was this done in response to distributed generation and smart grid demands at these other utilities or for some other reason? Please elaborate.**

10.0 Energy Probe # 25

Ref: Exhibit C, Tab 1, Schedule 1, Page 8

Table 3 lists Release 2 Smart Grid Capabilities.

a) **Identifying energy theft refers to current capability of manually analyzing energy use patterns. Since smart meters provide hourly data, can this manual analysis be better performed by computers using the smart meter data?**

b) **Please describe the proposed use of smart meters and localized line loss analysis referred to in the release 2 section. Will this proposal require additional telemetry on the system? If yes, please estimate the cost per feeder km. How will this be an improvement over the existing analysis system converted to computer analysis?**

c) **Increased energy efficiency refers to managing the voltage along a feeder so that all customers are receiving power at the low end of the acceptable voltage range. Please explain how this will be accomplished in light of inherent I^2R losses of feeders.**

10.0 Energy Probe # 26

Ref: Exhibit C, Tab 1, Schedule 1, Page 11

Table 4 shows Smart Grid Studies.

a) **The last study on Page 11 and the first study on Page 12 appear to be very similar. Please explain the differences.**

b) **The Clean Energy Initiatives study on Page 11 mentions that it is sponsored by Pollution Probe and the Center for Clean Energy. What is Hydro One's role in this study? How much is it contributing in comparison to the other sponsors?**

c) **Page 14 refers to sharing the information gained from studies with other distributors. Are the other distributors contributing to the cost of these studies? If yes, please elaborate. If no, please explain why Hydro One customers should pay the entire cost and other distributor customers get benefits from the studies.**

Final Step of Rate Harmonization Plan

Issue 12 **Is Hydro One's proposal to implement the final adjustments of the Harmonization Plan in accordance with the Board's directions?**

12.0 Energy Probe # 27

Ref: **Exhibit E1, Tab 1, Schedule 1, Page 1 &**
Exhibit E1, Tab 3, Schedule 1, Page 2, Table 1

a) **Why is Hydro one proposing to eliminate the Low Use Secondary Service in 2013 with a bill impact of 9.07% rather than doing this over 2013 and 2014?**

b) **Please estimate the change in Revenue Requirement and the LUSS Bill impacts of a two year transition**

Density Study

Issue 13 **Is Hydro One's proposal for the implementation of the Density Study findings appropriate?**

13.0 Energy Probe # 28

Ref: **Exhibit E2, Tab2, Schedule 2 and Schedule 3, Pages 1-9 (updated)**

a) **Please clarify whether the proposed rates for 2013 are as proposed in Schedule 2 or Hydro One will implement the density study based rates in Schedule 3?**

b) **Please provide a consolidated set of Rate schedules with columns for Pre and Post Density study rates**

c) **Please Provide Bill comparisons between Base rates, Proposed 2013/2014 rates pre and post density study.**

d) **Please comment on the conclusion of LSE PNXA (page 48) that more work is required before implementing new density based rates.**

e) **What is HONI's plan for density based rates going forward? Please provide details.**

13.0 Energy Probe # 29

Ref: **Exhibit D, Tab 1, Schedule 1, Attachment 1, Pages 10-13, Figures 3-7**

a) **Please Provide the Regression Model specifications for each of the OM&A and OM&A plus capital proxy formulae.**

b) **Please populate each model formula with best fit data for illustrative purposes. List all parameter definitions and sources of input assumptions.**

c) **Please explain what parameters were tested other than the four listed on page 10 provide the parameter estimates and T Statistic.**

d) **Discuss why these other variables were dropped from the regression e.g. low T-statistic or other reasons**

e) **Were runs done using Total OM&A rather than the direct OM&A? If so, provide information on the effect of including/excluding the Total OM&A**

f) **Why is the Time variable at/below the T statistic threshold of 1.96 in the cases with customers per square kilometre (fig 4 and 6)? Please discuss. Was a lagged variable examined?**

g) **Please explain how the 95% confidence levels High and Low were derived. What other statistical tests were applied and what were the results?**

13.0 Energy Probe # 30

Ref: **Exhibit D, Tab1, Schedule 1, Page 23 Attachment 1**

a) **In examining the location of service centres relative to driving distance/time did LEI/PNXA find examples where location of centres was not optimal? If so, please provide a list of these.**

b) **Please discuss the significance and use of the IRNS and IRS parameters in the direct assignment analysis and also whether these variables were tested in the models.**

c) **What is the relationship between Service Quality SAIDI, SAIFI etc. and Density?**

i. **Was this examined in the study?**
ii. **Is there an inverse relationship between density and service quality?**

Please discuss whether this is/is not a significant omission.

d) **Please provide System Wide Average SAIDI, SAIFI and any other reported SQIs for existing Density classifications. The Last 10 years data will suffice.**

e) **Please provide an analysis of the Relationship between Service Quality and Density. If appropriate, use the three High/Medium/Low density groups used by LEI/PXNA. Please provide the result as Graphical presentation.**

f) **If the above responses and analyses indicate that service quality is lower in medium and low density areas relative to High density urban, has HIONI considered how this should be compensated for?**

13.0 Energy Probe # 31

Ref: **Exhibit D, Tab 1, Schedule 1, Attachment 1, Pages 32-33 and Figures 23, 24 and 25 & Exhibit A, Page 92, LEI/PNXA Stakeholder Presentation**

a) **Please provide the density demarcation points for each of the existing classes based on both customers per km2 and per line circuit km.**

b) **Please provide Tables Similar to the Slide Deck page 5 from the Stakeholder Presentation that shows the with and w/o $/customer per month by Class. Add the Weighting Ratios:**

i. **Current CAM**
ii. **Proposed post Density Study**

c) **Did LEI/PNXA attempt to fit exponential function(s) to the data in figures 24 and 25? If not why not?**

13.0 Energy Probe # 32

Ref: Exhibit D, Tab1, Schedule1 Attachment 1 Page 38 and 41 and Figures 26 and 29

a) **Please map the Direct Assignment Results in Figure 29 to the CAM rate class density ratios in Figure 26.**

b) **Please discuss whether the Direct Assignment results indicate that changes are/are not required to the CAM on a rate class basis and if so, how should this be done.**

c) **It is unclear what HONI's response to the Density Study is for 2013/14 rates. Please provide a detailed response to plans actions arising from the study.**