**Ontario Energy Board**
P.O. Box 2319
27th. Floor
2300 Yonge Street
Toronto ON M4P 1E4
Telephone: 416- 481-1967
Facsimile: 416- 440-7656
Toll free: 1-888-632-6273

**Commission de l'Énergie de l'Ontario**
C.P. 2319
27e étage
2300, rue Yonge
Toronto ON M4P 1E4
Téléphone; 416- 481-1967
Télécopieur: 416- 440-7656
Numéro sans frais: 1-888-632-6273

Ontario

**BY E-MAIL**

September 14, 2012

Attention: Ms. Kirsten Walli, Board Secretary

Dear Ms. Walli:

**Re: Toronto Hydro-Electric System Limited**
**Application for 2012, 2013 and 2014 Distribution Rates**
**Board File Number EB-2012-0064**

In accordance with Procedural Order No.2 issued on August 22, 2012, please find attached the Board staff interrogatories on the referenced application filed by Toronto Hydro-Electric System Limited.

*Original Signed By*

Martin Davies
Project Advisor, Applications & Regulatory Audit

Attachment

cc: Parties to EB-2012-0064 proceeding

# Board Staff Interrogatories
# 2012, 2013 and 2014 IRM Rate Adjustments
# IRM Rate Adjustments and ICM Rate Adders
# Toronto Hydro-Electric System Limited ("THESL")
# EB-2012-0064

## *1. Incentive Regulatory Mechanism ("IRM) Schedules and Models*

*1.1 Are the IRM Model filings by THESL, including the tax sharing proposal for 2012, in accordance with the Board's requirements and, if not, are any proposed departures adequately justified?*

**1.1-Staff-1**

Ref: T3/S C1.1/p. 7 2012 IRM 3 Model and T3/S A/p.3

In the first reference THESL has provided a variable rate rider charge of $0.00008 for foregone revenues for the GS < 50 kW class.

In the second reference, which is THESL's current tariff sheet, a credit charge of the same amount is shown.

Please explain this apparent discrepancy.

**1.1-Staff-2**

Ref: T3/S C1.1 2012 IRM 3 Model /pp. 20-21

Please reconcile the closing 2010 balance in account 1521 shown on p. 21 of the above reference with the closing balance for December 31, 2012 provided in THESL's RRR 2.1.1 filing and provide any necessary explanations. Please include an explanation of the credit of $3,050,473 shown on page 20 of the above reference.

**1.1-Staff-3**

Ref: T3/S D/p. 3 2012 RTSR Workform

A section of the above reference is reproduced below:

| Rate Class | Unit | RTSR - Network | RTSR - Connection |
|---|---|---|---|
| Residential | kWh | $ 0.0070 | $ 0.0051 |
| Residential Urban | kWh | $ 0.0070 | $ 0.0051 |
| General Service Less Than 50 kW | kWh | $ 0.0068 | $ 0.0046 |
| General Service 50 to 999 kW | kW | $ 2.4351 | $ 1.7630 |
| General Service 1,000 to 4,999 kW | kW | $ 2.3527 | $ 1.7613 |
| Large Use | kW | $ 2.6820 | $ 1.9567 |
| Street Lighting | kW | $ 2.1658 | $ 2.1022 |
| Unmetered Scattered Load | kWh | $ 0.0043 | $ 0.0032 |

On Sheet 3 of the RTSR Workform, THESL has provided the current Network and combined Line and Connection Retail Transmission Rate charges for each class. Board staff notes that the Retail Transmission Rate charges for some of its classes (e.g. GS 50 kW to 999 kW, Large Use, etc.) are billed on a per 30 day basis.

Please provide a description of the difference between how the per 30 day volumetric rate riders are applied to customers in these classes compared to customers in classes such as Residential.

**1.1-Staff-4**

Ref: T3/S D/p. 4 2012 RTSR Workform

A section of the above referenced page is reproduced below:

| | Rate Class | Unit | Non-Loss Adjusted Metered kWh | Non-Loss Adjusted Metered kW | Applicable Loss Factor |
|---|---|---|---|---|---|
| 27 | Residential | kWh | 5,105,974,275 | - | 1.0376 |
| 28 | Residential Urban | kWh | 99,791,184 | - | 1.0376 |
| 29 | General Service Less Than 50 kW | kWh | 2,095,343,918 | - | 1.0376 |
| 30 | General Service 50 to 999 kW | kW | 10,189,051,346 | 26,712,248 | |
| 31 | General Service 1,000 to 4,999 kW | kW | 4,828,382,733 | 10,972,419 | |
| 32 | Large Use | kW | 2,263,227,585 | 5,267,224 | |
| 33 | Street Lighting | kW | 112,727,603 | 321,995 | |
| 34 | Unmetered Scattered Load | kWh | 52,097,299 | - | 1.0376 |

Board staff is unable to reconcile the metered kWh and metered kW data provided in the above with the values provided in THESL's RRR 2.1.5 filing for year-end December 31, 2010. Please provide a reconciliation and if any corrections are necessary, please state what they are.

**1.1-Staff-5**

Ref: T3/S D/p. 5 2012 RTSR Workform

A section of the above reference is reproduced below:

| Hydro One Sub-Transmission Rate Rider 6A | Unit | Effective January 1, 2010 | Effective January 1, 2011 | Effective January 1, 2012 |
|---|---|---|---|---|
| Rate Description | | Rate | Rate | Rate |
| RSVA Transmission network – 4714 – which affects 1584 | kW | $ 0.0470 | $ 0.0470 | $ 0.0470 |
| RSVA Transmission connection – 4716 – which affects 158 | kW | -$ 0.0250 | -$ 0.0250 | -$ 0.0250 |
| RSVA LV – 4750 – which affects 1550 | kW | $ 0.0580 | $ 0.0580 | $ 0.0580 |
| RARA 1 – 2252 – which affects 1590 | kW | -$ 0.0750 | -$ 0.0750 | -$ 0.0750 |
| Hydro One Sub-Transmission Rate Rider 6A | kW | $ 0.0050 | $ 0.0050 | $ 0.0050 |
| | | Historical 2010 | Current 2011 | Forecast 2012 |
| Low Voltage Switchgear Credit | $ | - 8,169,997 | - 8,411,016 | 8,732,452 |

Board staff notes that the Hydro One Sub-Transmission Rate Rider 6A included in the above table expired on January 31, 2011.

a) Please provide an updated version of the RTSR model that reflects the expiry date of Rate Rider 6A.

b) Please provide supporting evidence for the Low Voltage Switchgear Credits shown in the above table, including an explanation as to why the switchgear credits are negative in 2010 and 2011 and positive in 2012.

**1.1-Staff-6**

Ref: T3/S E1/p. 3 2012 IRM 3 Tax Savings Workform

Please confirm that the number of connections provided in the above reference is correct and provide supporting evidence for them.

**1.1-Staff-7**

Ref: T3/S E1/p. 5 2012 IRM 3 Tax Savings Workform and EB-2010-0142 Draft Rate Order App. A/p.5

In the first reference, THESL has provided a tax rate of 28.14%. The second provided a Board approved tax rate of 28.25%.

Please provide an explanation for the use of different tax rates.

**1.1-Staff-8**

Ref: T4/S E1.1/p. 6 Incremental Capital Workform

On Sheet B1.4 “Re-Based Rev Req”, THESL has provided the revenue requirement parameters from its last cost of service application (EB-2010-0142).

a) Please file a copy of the page or pages from the relevant Revenue Requirement Work Form from which these numbers were derived. Please clearly identify the date on which this material was originally filed.
b) Please confirm that the entries on Sheet B1.4 of the present application are in conformity with the material provided in part a, or if there are any differences, please provide an explanation.

**1.1-Staff-9**

Ref: T4/S E1.1/p. 7 Incremental Capital Workform

A section of the above reference is reproduced below.

| Rate Class | Fixed Metric | Vol Metric | Billed Customers or Connections A | Billed kWh B | Billed kW C |
|---|---|---|---|---|---|
| Residential | Customer | kWh | 591,496 | 5,105,974,275 | 0 |
| Residential Urban | Customer | kWh | 24,898 | 99,791,184 | 0 |
| General Service Less Than 50 kW | Customer | kWh | 65,799 | 2,095,343,918 | 0 |
| General Service 50 to 999 kW | Customer | kW | 12,873 | 10,189,051,346 | 26,712,248 |
| General Service 1,000 to 4,999 kW | Customer | kW | 509 | 4,828,382,733 | 10,972,419 |
| Large Use | Customer | kW | 47 | 2,263,227,585 | 5,267,224 |
| Street Lighting | Connection | kW | 162,964 | 112,727,603 | 321,995 |
| Unmetered Scattered Load | Connection | kWh | 1,107 | 52,097,299 | 0 |
| Unmetered Scattered Load | Connection | kWh | 12,159 | 0 | 0 |

Please confirm that these entries are in conformity with the values provided in THESL's December 31, 2010 RRR 2.1.5 filing. If any are not, please state what they are and provide an explanation.

**1.1-Staff-10**

Ref: T2/p. 14 and *Chapter 3 of the Filing Requirements For Electricity Transmission and Distribution Applications,* p 10

In the first reference, THESL begins its discussion as to how its application meets the criteria established by the Board in the Filing Requirements.

One of the requirements outlined in the second reference is "A description of the actions the distributor will take in the event the Board does not approve the application." in reference to ICM requests.

Please provide this information.

*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-Staff-11**

Ref: T1/p.5 and T2/p. 4

In the first reference, it is stated that THESL is proposing that:

"the OEB approve forgone revenue rate riders as its (sic) did in THESL's 2011 rates case (EB-2011-0144), to allow THESL an opportunity to recover the incremental revenue approved by the Board for the period between when rates became interim (June 1, 2012 on THESL's proposal) and when new rates are implemented (at the conclusion of this proceeding)"

In the second reference, THESL makes the following statement:

"THESL proposes specifically that any revenue deficit arising from an effective date for 2012 rates after May 1, 2012 be included in the reconciliation upon rebasing."

Please reconcile these two statements and include further clarification of the second statement.

**1.4-Staff-12**

Ref: T2/p.6

It is stated that:

"In this application THESL proposes a period of three years overall, with each distinct year (2012 through 2014) being severable, and with each year having distinct distribution rates."

Please state whether given the severability referenced above the Board could choose to approve only the first year of THESL's proposal and, if so, what the implications would be. If not, please explain, why not.

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

**1.3-Staff-13**

Ref: T2/p. 3

It is stated that:

"THESL proposes that the Board recognize in 2012 distribution rates the Board-approved, actual year-end ratebase of 2011, which is materially larger than the average ratebase upon which 2011 rates were set."

Please state whether there are any circumstances specific to THESL that would justify a departure from the Board's established practices regarding the half-year rule.

**1.3-Staff-14**

Ref: T2/p. 3 and 6 and *Submissions on the General Issues and the Discussion Papers from the School Energy Coalition* (EB-2010-0377/EB-2010-0378/EB-2010-0379/EB-2011-0043/p. 11

In the first reference on page 3, THESL makes a proposal that the Board recognize in 2012 distribution rates the Board approved, actual year-end ratebase of 2011, which is materially larger than the average ratebase upon which 2011 rates were set.

On page 6 of the first reference, THESL states that "In summary, the operation of the half-year rule in THESL's circumstances would result in a permanent loss of approximately $37.9 million dollars over the balance of the IRM term, unless remedied by the Board."

In the second reference, SEC made the following comments on the half-year rule issue:

"The problem of capital funding under IRM is a difficult one. At a simplistic level, utilities argue that the only funding in rates for new capital is the depreciation on the existing assets, but new assets cost more than old ones because of inflation. The term Capital Expenditures in Excess of Depreciation (CEEDs) has been coined to express this. These same utilities argue that the half year rule in the rebasing years builds in a further shortfall that is not recoverable under IRM.

This basic argument is simply wrong. On the CEEDs issue, the argument fails to reflect the fact that while new assets do indeed cost more than old assets, the annual cost of old assets (when depreciation, cost of capital, and related PILs is totalled) is going down every year because the undepreciated capital cost is dropping, and the depreciation provision is going up annually as new assets are included."

SEC follows this argument with an example illustrating its argument.

Please provide THESL's comments on the views expressed by SEC and the example provided to illustrate it.

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

## *2. Incremental Capital Module ("ICM")*

*2.1 Is THESL's application of the ICM criteria appropriate?*

### 2.1-Staff-15

Ref: T2/p. 23, Table 3 and EB-2011-0144 Exh S1/T1/S1

The first reference shows that for 2012 THESL's EB-2011-0144 rebasing application had total capital requests of $590.0 million in contrast to the $448.7 million of capital requests that THESL is making in the current application.

The second reference is to Undertaking No. J2.1 from the EB-2011-0144 proceeding in which THESL was asked to provide a full list of projects that would be eligible for the incremental capital module and their dollar values. THESL responded that for 2012 a total of $86.6 million of projects consisting of the Bremner Station and HONI Contributions would be eligible.

Please explain why THESL now believes that a much greater number of its projects would be eligible for the incremental capital module.

### 2.1-Staff-16

Ref: T2/p.6 and T2/pp. 23-24

In the first reference, it is stated when discussing the capital projects that THESL is proposing for approval in the current application that:

"The projects and annual amount of ICM funding sought in THESL's application represent the level of capital funding that THESL requires in order to conduct a capital program that is expected to maintain the current levels of safety and reliability of its distribution system in a predictable and cost-effective manner."

In the second reference, which is THESL's discussion of the comparison between its cost of service and IRM/ICM applications and the differences between the larger capital program for which approval was sought in that application and the smaller one in the present application, THESL states that:

"Projects of this kind were proposed by THESL in the EB-2011-0144 proceeding. THESL believes that the projects proposed there were prudent, necessary for the long term management and sustainment of the distribution system, and in the public interest."

Please reconcile these two statements.

**2.1-Staff-17**

Ref: T2/pp. 14-15, T4/Sch A/App 1, T2/p. 7 and *Chapter 3 of the Filing Requirements For Electricity Transmission and Distribution Applications,* p 10

In the first reference, THESL states that it "has carefully reviewed the ICM Material and has sought to address and meet the Board's criteria for consideration and acceptability of projects."

The second reference entitled "Summary of Capital Program" shows that THESL has defined for the purposes of this application, three annual ICM 'projects,' one each for the years 2012, 2013 and 2014 respectively.

In the third reference, THESL states that:

"To this end, THESL files with this application a separate standard ICM model and separate projects for each of the three years. As discussed in greater detail below, the specific projects set out in the application generally span the whole three year period and are generally constituted of individual jobs. While for each year, THESL proposes a slate of jobs comprising each project, the structure of THESL's capital plan is such that the character of the jobs and the projects remains constant over the aggregate three-year period."

The final reference which is the Board's IRM Filing Requirements related to ICM modules appears to take the view that a capital project is an individual project e.g. the requirement that applicants seeking an ICM approval provide "Calculation of the revenue requirement associated with each proposed incremental non-discretionary capital project."

a) Please explain why THESL believes that the portfolio approach to capital projects which it is using in this application is appropriate and consistent with Board's Filing Requirements
b) Please provide a table illustrating the difference in revenue requirement impacts for the 2012 to 2017 period in the event that the 2012 proposed capital level of $448.74 million was approved under two different assumptions: (1) THESL's proposal that this amount be approved through the ICM mechanism and (2) the impacts that would have arisen had this amount been approved through a cost-of-service mechanism. Please include all necessary explanations.

**2.1-Staff-18**

Ref: T2/p. 14 and *Chapter 3 of the Filing Requirements For Electricity Transmission and Distribution Applications,* p 8

In the first reference, THESL states that it "has carefully reviewed the ICM Material and has sought to address and meet the Board's criteria for consideration and acceptability of projects."

In the second reference, it is stated that "A distributor applying for recovery of incremental capital should calculate the maximum allowable capital amount by taking the difference between the 2013 total non-discretionary capital expenditure and the materiality threshold." Please provide this calculation for each of the years 2012, 2013 and 2014.

**2.1-Staff-19**

Ref: T2/pp. 16-17

In its discussion of the "Need" criteria for the projects it is proposing, THESL states that "Generally, projects are essential and non-discretionary on the basis that they are required by one or more of the following:"

One of the listed criteria is described as "A material increase in cost (beyond the time value of money), if the project is necessary but undertaken at a later time." An example is cited of a project to install four ducts one at a time having a substantially larger cost than the current cost to install four ducts at one time.

It is concluded that: "In this light the project to install the ductwork for all four feeders at one time becomes non-discretionary because it would be imprudent to install the ductwork separately for each feeder."

Please describe the characteristics of a project that would not be considered non-discretionary under the outlined approach.

**2.1-Staff-20**

Ref: T2/p. 18

It is stated that:

"For a number of projects for which THESL seeks ICM funding, need is supported by consideration of worker and/or public safety. For some projects, the current residual safety risk of certain equipment is a major driver for why the proposed project is needed."

a) Please state whether this criterion was quantified in THESL's determination of projects to be included in the ICM and if so, how. If not please explain how it was incorporated.
b) Please state for which projects this consideration was a major driver.

**2.1-Staff-21**

Ref: T2/pp. 19-20

On these pages, prudence is defined as follows:

"…the achievement of or approach to the lowest reasonable life cycle cost consistent with all other constraints, including for example safety of equipment, compliance with standards including accepted standards of good utility practice, public acceptability and the reliability and adequacy of the distribution system."

Please state how this definition was determined.

**2.1-Staff-22**

Ref: T2/p. 22

It is stated that:

"THESL also understands that the true-up process will account for the actual timing of jobs, and that a variance in job timing would not, by itself, cause any job to become ineligible for inclusion in the calculation of the actual revenue requirements associated with the ICM."

a) Please state the basis for this understanding.

b) Please state how THESL defines "a variance in job timing."

*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-Staff-23**

Ref: T2/p. 2

It is stated that:

"The specific projects THESL includes within the ICM reflect the minimum amount of infrastructure renewal THESL must undertake over the next three years to maintain current overall levels of system safety and reliability."

Please comment on whether or not there have been any significant changes in THESL's service quality and reliability statistics in the time since the filing of the EB-2011-0144 application.

**2.2-Staff-24**

Ref: T2/p.7

It is stated that "the specific projects set out in the application generally span the whole three year period and are generally constituted of individual jobs."

Subsequently in the same reference, it is stated that:

"However, as explained below, the timing of each job within the different projects may vary from the forecast, in order to allow for contingencies that arise when undertaking such a large and widespread construction program. For example, a specific job within a project could be delayed due to unforeseeable external factors such as changes in the infrastructure plans of the City or other utilities, or permitting issues. In such cases, THESL would be required to advance another job in order to manage and optimize work flow and avoid a situation of underutilized resources."

Please state whether or not such delays could lead to additional projects rather than jobs within projects being substituted and, if so, what THESL would see the implications of incorporating additional projects as being.

**2.2-Staff-25**

Ref: T2/p. 10

It is stated that:

"The costs of the ICM projects proposed in this Application are estimated based on the existing contracts between THESL and its contractors. However, the availability of this pricing may be contingent on both the level and predictability of the work that THESL can offer to those contractors."

a) Please expand on what is meant by "the level and predictability of the work" in the above statement.
b) Do THESL's arrangements with its contractors contain any 'out' clauses related to the referenced contingencies? If yes, please state what they are.
c) In the event THESL was unable to obtain from its contractors the pricing which it has assumed in this application, what actions would it envisage taking?

**2.2-Staff-26**

Ref.: T4/S A/App. 1 and *Filing Requirements for Electricity Transmission and Distribution Applications,* June 28, 2012, Ch. 3

On page 8 of Chapter 3 of the Filing Requirements, it is stated that:

> "A distributor applying for recovery of incremental capital should calculate the eligible incremental capital amount by taking the difference between the 2012 total non-discretionary capital expenditure and the materiality threshold."[emphasis added].

The first reference is to the "Summary of the Capital Program provided by THESL which is a table listing the various projects that make up THESL's requests in the present application:

a) Please state the definition of 'non-discretionary' that THESL is using for the purposes of this application. If the definition includes more than one factor, please provide at least one example for each factor from this application.
b) Please provide a priority ranking for each of the projects listed in this table from Schedule Number B1 to B22 from "1" for most important to "22" for least important.
c) For each of the years 2012 to 2014, please break down the amounts in this table into assets that will be in service in the year in question versus those which will be in service in subsequent years.
d) Please state how much of the capital program outlined in this table was not included in the capital program proposed by THESL in the EB-2011-0144 application.
e) Please state how much of the capital program proposed in this application was not included in the capital program proposed by THESL in the EB-2010-0142 application.

**2.2-Staff-27**

Ref.: T2/App. 4, T4/S B11/pp.22-23 and T4/S B16/pp. 10-11

The first reference explains in detail the theoretical constructs of the "Feeder Investment Model" ("FIM"), and the theoretical constructs of the Model for the "Cost of Ownership" ("COO").

The second reference discusses an outage cost based on $30 per customer per interruption and $15 per kWh interrupted.

The third reference discusses an outage cost based on $30/kW outage event cost and $15 per kWh outage duration cost.

a) Please explain the apparent differences between the basis of the two referenced customer interruption costs.
b) Please clarify whether or not a fixed set of referenced customer interruption costs are used for all customer interruptions in all the FIM and COO type business case evaluations, and if so please provide that fixed set.
c) Please provide supporting evidence/calculations justifying this cost.

**2.2-Staff-28**

Ref: T4/S B1/p.197 and pp. 2-3

Table 1 of the first reference provides "Avoided Estimated Risk Cost for Underground Infrastructure Segment." and shows an "Avoided Estimated Risk Cost" of $230 million for this segment.

Table 1 of the second reference provides a list of jobs to be executed in 2012, 2013 and 2014.

In order to have an illustrative example of THESL's approach so that this methodology may be more clearly understood, please provide further detailed information, as suggested in the tables below for each of the projects in Table 1 of the second reference, related to the calculation of the "Avoided Estimated Risk Cost" using the Underground Infrastructure Segment.

Should THESL believe changes to these tables are necessary, please make any such changes and provide a detailed explanation of them. Please specify any discount rates used.

(millions)

| # | Job Title | Conditional probability of Failure ($ 000) | Direct Costs ($ 000) | Indirect Costs ($ 000) | | Total Net Present Value in 2012 for Cost of Replacing Equipment in 2015 ($ 000) |
|---|---|---|---|---|---|---|
| | | | | Cost of Customer Interruptions ($ 000) | Other Indirect Costs ($ 000) | |
| 1 | Underground Rehab. Of Feeder NY80M29 | | | | | |
| 2 | Underground Rehab. Of Feeder SCNAR26M34 | | | | | |
| Etc. . . . | | | | | | |
| **Present Value of Project Net Cost in 2015** | | | | | | **$354** |

| # | Job Title | Value of Sacrificed Assets | Value of Excess Risk Assets | Concurrent Intervention Benefits | Net Project Benefit | Project Net Cost 2012 |
|---|---|---|---|---|---|---|
| 1 | Underground Rehab. Of Feeder NY80M29 | | | | | |
| 2 | Underground Rehab. Of Feeder | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | SCNAR26M34 | | | | | |
| Etc.<br>.<br>.<br>. | | | | | | |
| **Project Net Cost in 2012** | | | | | | **$124** |

**2.2-Staff-29**

Ref.: T4/S B1/pp. 2-3/Table 1

Please recast Table 1, in an MS-Excel format (with formulas) to be structured as shown below, by adding the requested information in the additional column for each of the jobs shown in the referenced Table:

| Job # | Job Title | Year<br><br>Original In-Service | Year(s) for Work Job Completion | Estimated. Cost | No. of Submersible Transformers | Cable Length Km | Historical Reliability Performance 2009 | | Historical Reliability Performance 2010 | | Historical Reliability Performance 2011 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | CI | CHI | CI | CHI | CI | CHI |
| | | | | | | | | | | | | |

**2.2-Staff-30**

Ref: T4/S B1/pp. 2-3/Table 1,T4/S B1/p. 9/lines 1 – 6 and T4/Sch D1 Kinectrics Inc. Report *Toronto Hydro-Electric System Limited 2012 Asset Condition Assessment Audit*, May 7, 2012/pp. 42-43.

Table 1 in the first reference includes jobs which in some cases include replacement of submersible transformers with the total number appearing to exceed 600.

In the second reference, it is stated that:

> "To achieve maximum job cost-effectiveness, THESL proposes that replacement of air-insulated distribution switchgear is to be completed alongside replacement of direct buried cable in the same job area. Also, where cost-effective, THESL proposes that non-standard submersible transformers will be replaced with new standard submersible transformers and air-insulated vault-installed switchgear will be replaced with SF6-insulated vault-installed switchgear as a part of these jobs." [emphasis added]

In the third reference at Table 10-2 it is indicated that more than 97% of the population of 9249 units are in either "Good" or "Very Good" condition and only 2% are in "Poor" Condition.

a) For each of the 34 jobs that include submersible transformer replacements, please provide reliability indices for these submersible transformers. If available also provide where applicable for each of the noted jobs, the submersible transformer contribution to the feeder historical performance re: the two Reliability Metrics - Customer Interruptions (Cumulative) and Customer Hours Interruption (Cumulative).
b) Please provide estimated costs of the total number of new submersible transformers for the 34 jobs noted in the first reference.
c) Please provide a list of the jobs that would not be negatively impacted in terms of reliability to end use customers, if the existing submersible transformers associated with each of these jobs, were not replaced.

**2.2-Staff-31**

Ref: T4/S B1/Section II – Description of Work

Section II of this Schedule provides a "Description of Work" for each of the 34 jobs included. This includes for each of the projects evidence with regard to the Historical Reliability Performance, for each of the 34 jobs. This incorporates in tabular forms, Reliability Metrics results for 3 years (2009, 2010, and 2011) of the Feeder Customer Interruptions ("CI") (Cumulative) and Feeder Customer Hours Interruptions ("CHI") (Cumulative)

As the trend over the 3-year period (2009-2011) is often unclear, additional historical reliability performance information would likely clarify that trend.

a) Please provide a recast of the 34 tables, one for each of the jobs noted, by adding in each table, the Feeder CI and Feeder CHI for the years 2006, 2007, and 2008.
b) For each Job and for each year (2006 to 2011), please provide, where applicable, the contribution to the Feeder CI and Feeder CHI, of:
   - the Primary Cable
   - the Air-insulated Pad-mounted Switchgear
   - the Air-insulated Vault-installed Switchgear;
   - Submersible Transformers.

**2.2-Staff-32**

Ref: T4/S B1/pp. 2-3/Table 1 and T4/S B1/p. 111/l 22 - 27

In the second reference it is stated that prior to 1990, XLPE cable manufacturing processes did not have sufficiently strict quality controls to keep out impurities from the insulation system and provide reliable sealing of the insulation system to prevent moisture ingress. It is also indicated that due to these defects, early vintage XLPE cables are more prone to water treeing and high rates of premature failure than newer generation XLPE cables.

a) Please indicate which of the 34 Jobs listed in the first reference has cables installed prior to 1990, and are thus from the early vintage XLPE cables that were prone to premature failures.
b) Of the Jobs identified in response to Question a) above, please identify all jobs where one or more portions of the original early vintage XLPE cables was replaced with newer tree-retardant XLPE cable (TR-XLPE), and for each such job, the year during which such replacements occurred.

**2.2-Staff-33**

Ref: T4/S B1/pp. 2-3/Table 1, T4/S B1/p. 123 and Kinectrics Inc.Report *Toronto Hydro-Electric System Limited 2012 Asset Condition Assessment Audit,* May 7, 2012/pp. 61-62.

In the second reference, it is stated that:

> "THESL recently determined that a batch of air-insulated pad-mounted switches manufactured between 2004 and 2008 have potentially defective mechanical springs, which can result in another serious air-insulated pad-mounted switch failure mode."

In the third reference it is indicated at Table 19-2 that 99% of the Pad-mounted switches of the population of 793 units are in either "Fair", "Good" or "Very Good" condition and only 0.75% are in "Poor" Condition.

a) Please state how many air insulated pad-mounted switches THESL purchased between 2004 and 2008 that have potential defective mechanical springs.
b) Please state whether or not THESL has a special program to replace those potentially defective air insulated pad-mounted switches.
c) Please provide a list of the Jobs from the 34 Jobs listed in the first reference that have potentially defective air insulated pad-mounted switches.
d) Please comment on the view that of the 34 jobs listed in the first reference, only those jobs with original in-service date between 2004 and 2008 would have potentially defective air-insulated pad-mounted switches.

**2.2-Staff-34**

Ref: T4/S B1/p. 130/Table 1 and T4/S B1/pp.2-3/Table 1

The first reference lists 13 cables as examples of direct buried cable failures that caused significant outages.

a) Please indicate which of the 13 cables that failed are included in the list of 34 jobs listed in the second reference.

b) Please state whether or not any of the 13 cables listed in the first reference experienced a second failure after the repair was completed. If so, please provide information in each case including the Feeder identification, the year of failure recurrence, the cost of repair, outage duration, and SAIDI contribution.

**2.2-Staff-35**

Ref: T4/S B 2/App. A/pp. 30 - 32

The above reference provides detailed calculations for PILC Piece-outs and Leakers Segment.

It is stated that:

> "An outage impact is calculated using 3200 kVA for 1 hour.
>
> Outage impact= ($30/kVA)(3,200kVA) + ($15/kVA*h)(3,200kVA*1h) =$480,000
>
> […] taking the average age of the population of PILC cables, and multiplying the (probability of having a piece-out leaker) x (impact), a risk cost is calculated. This risk is taken from the average age until the population is 100 years old, and done for each cable chamber visited containing a piece out leaker. Finally, the present value in 2012 dollars is taken.
>
> The present value of de-energizing until the cable is 100 years old is $3.0M per chamber. It is assumed that a given load cannot be transferred to another feeder because the standby feeder would also run in the cable chamber where work is happening, and be de-energized. Given 1,301 chambers are visited a year, this number is **$3 Billion** if all feeders are de-energized each time a worker is required to enter a chamber."

a) Please provide a detailed explanation as to how the risk cost referenced in the first paragraph is calculated.
b) Please provide a similar explanation for the present value of de-energizing discussed in the second paragraph

Please ensure that the explanations provided include: (1) the equation for the conditional probability of "not having a new PILC cable" , (2) the resulting frequency and duration based on the assumption stated on page 30 of THESL's evidence of "the risk taken from the average age of PILC cable of 28 years" until the population is 100 years old," (3) outage impact and (4) the details of the present value evaluation including the discount rate used of de-energizing until the cable is 100 years old, which would show the amount quoted of $3.0M per chamber.

**2.2-Staff-36**

Ref: T4/S B2/p. 1, p. 10, p.15, p. 19, p. 26

At page 1 of the reference, it is indicated that THESL has approximately 1,305 kilometers of PILC cables;

The two tables, Table 2 at page 10 and Table 3 at page 15, of the reference do not include the length of cables that will be replaced.

At page 19 of the reference it is stated that "Currently there are 91 identified cable chambers that are severely congested…"

At page 26 of the reference it is stated that "In 2011, there were 28,576 cable chambers and vaults entered by THESL workers".

a) Please provide a recast of both Tables 2 and Table 3, noted above, adding in each the length of cable for each "Job" in kilometre which is proposed for replacement.
b) Please provide the total number of Chambers and total number of Vaults that THESL has on its system that have PILC cables.
c) Please state whether or not THESL has a plan for replacement of the total 1,305 kilometres of PILC cables? If yes, please provide a copy of such a plan outlining the amount of cables to be replaced each of the years in that plan.

**2.2-Staff-37**

Ref: T4/S B 3/pp. 1 – 14

At the reference, on page 1, lines 14 – 28, it is indicated that:

- of the approximately 11,700 handwells on the THESL system, by 2011, 5,600 existing units were replaced by new non-conducting units;
- these 5,600 units were concentrated in the downtown core because that is where both the number of handwells and the potential exposure to contact voltage are greatest;
- for the remaining handwells (4,900 units, as stated on page 13), THESL will target for replacement first the downtown core, and then North York, East York, Etobicoke, and Scarborough.

On pages 9 – 10, Figures 6 & 7 indicate that there have been marked improvements since 2009 in terms of "Historical Contact Voltage Hits identified by Mobile Surveying" (Figure 6), and "Average Level of Contact Voltage Detected"(Figure 7).

On pages 11 – 12, Tables 1 and 2 indicate marked reduction in the "Number of Energized Handwells" (Table 1) and that the "Contact Voltage Incidents on Handwells (2011)" (Table 2) were within the priority area targeted by THESL for handwell

replacement before it replaces handwells in North York, East York, Etobicoke, and Scarborough.

a) Please provide the number of handwells and the cost for units that still need replacement located in the downtown core.
b) Please provide a recast of Table 3 on page 14 assuming THESL's implementation of the handwell replacement and their costs is spread over a longer period of six years (2012 – 2017), instead of three years. In providing this recast, the number and cost of handwells in 2012 and 2013 should include those identified in the response to part a) above.
c) Please state how the experience gained from the early phases of the handwell Replacement program has been incorporated into the current (and future) programs.

**2.2-Staff-38**

Ref: T 4/S B 4 and Kinectrics Inc.Report *Toronto Hydro-Electric System Limited 2012 Asset Condition Assessment Audit,* May 7, 2012

At the first reference at page 40 it is indicated that there are approximately 2,200 Completely Self-Protected (CSP) Transformers, and on page 42, that THESL plans to replace 35 CSP transformers with standard non-CSP transformers as part of conversion and rehabilitation work from 2012 to 2014. The same page also appears to suggest that THESL intends to replace all 2,200 CSP transformers between 2012 and 2014.

At page 58 of the first reference in regard to "Porcelain Overhead Switches", it is indicated that there are 8,774 manual in-line switch locations, 7,442 porcelain SMD-20 switch locations, and 1,200 manual ganged switch locations. At page 67 it is indicated that of the 8774 in-line disconnect switches, 1629 are over 50 years old, and 25 are over 60 years old – both categories need to be changed urgently and the units over 60 years old need to be replaced in 2012. On page 77, Option (a), is to replace in-line disconnect and manual air-break gang-operated switches in 238 locations in 2012, 547 in 2013 and 114 in 2014. On page 81, THESL is proposing to replace 400 porcelain insulators yearly in each of 2012, 2013, and 2014.

At the second reference in regard to "Section 16 Three Phase Overhead Gang (Rem.) Switches ", in Table 16-1, for a population of 263 and a sample size of about 52%, it is reported in Table 16-2 that the switches conditions approximately are 30% "Very Good" condition, 63% in "Good" condition and 7% in "Fair" condition.

At the second reference in regard to "Section 17 Three Phase Overhead Gang (Man.) Switches ", in Table 17-1, for a population of 1069 and a sample size of about 6%, it is reported in Table 17-2 that the switches conditions approximately are 39% "Very Good" condition, 56% in "Good" condition and 5% in "Fair" condition.

a) Please provide the cost (labour and equipment) of installing a standard transformer for each CSP transformer replaced.

b) Please explain why THESL cannot modify the CSP design by simply having an external fuse installed outside of each CSP transformer, and solid connect the terminals inside to bypass the internal fuse. Please comment on the view that the proposed modification can be implemented on units that are still in good condition regardless of age, in order to effect savings.

c) It is understood that THESL uses three" Single-Phase Switches" to form Three Phase Overhead Gang Switches. Please indicate how many of the 8774 in-line disconnect switches reported at the first reference, are installed as single phase switches installed on laterals.

d) Please comment on the view that the condition of the single phase switches would not be any different than those reported at the second reference at sections 16 and 17.

e) Please comment on the view that age is not a determinant for replacing switches, but rather the condition assessment of such switches

f) Please indicate how many "Three Phase Overhead Gang (Man.) Switches " and how many "Three Phase Overhead Gang (Rem.) Switches " are intended to be replaced in the 238 locations in 2012, 547 in 2013 and 114 in 2014 as reported on pages 76-77 of the first reference under Option (a).

**2.2-Staff-39**

Ref: T4/S B 5 and IEEE *Guide for the Interpretation of Gases Generated in Oil-Immersed Transformers* – IEEE Std C57.104-1991, Recognized as an American National Standard (ANSI) /pages 10, 11 and 13

At the first reference, the results of the Dissolved Gas Analysis (DGA) are shown for some of the transformers at various MSs.

a) Given the requirements set out at the second reference, please state the operating procedures followed by THESL to ensure continued reliable performance by the noted transformers.

b) Please comment on the view that transformers with long service usually show gases, and as long as proper procedures are followed per the ANSI standard noted in the second reference, and the levels of various gases are within prescribed limits, eventual failures are not imminent, and replacement is not needed unless deterioration is noticed where a transformer is classed as either Condition 3 or Condition 4.

c) In regard to Transformer TR3 at College MS, and the DGA results that were reported at page 35, please provide an update in regard to any further testing that THESL may have undertaken, since December 15, 2009, given the unusual change in the Hydrogen (PPM), and THESL's comment that "large changes in DGA readings can be caused by contamination during oil sampling".

d) Please comment on the view that of the investments outlined in this segment, consisting of 9 projects, only one conversion project involving Hazelwood MS is in need of urgent attention, as the DGA results for transformer TR1 indicate "condition 3" status, and the transformer TR2's DGA results show a very high ratio of CO2 : CO.

.

**2.2-Staff-40**

Ref: T 4/S B 6

Section V "Description of the Work" lists nine distinct areas that are designated for Rear Lot Construction.

The evidence at the first reference indicates that for six of the areas civil construction for all lots within the six areas are completed, these being: (1) Rexdale Colony Park, (2) Banbury – Larkfield – Chestwood, (3) Livingston Guildwood, (4) Rathburn, (5) Silverstone, and (6) Lawrence Leslie. For the Forest Hill area, it is stated that half of the civil construction has been completed.

a) Please state why THESL views the Rear Lot Construction in these nine areas as non-discretionary.
b) Please provide the costs incurred in 2011 for completing the civil construction referenced above.
c) Please provide the costs for any other materials already spent or contractually committed that are related to the referenced nine areas.

**2.2-Staff-41**

Ref: T 4/S B 7/pp. 1-2

At the above reference, THESL discusses defective SMD-20 switches and states that:

> "There are 5,226 defective SMD-20 switches installed on 2,553 locations (many locations are on three phase systems and incorporate three defective SMD-20 switch installations) identified to require replacement on the THESL system and this segment targets replacing all of them over the next three years with "new design" SMD-20 switches."

THESL indicates that it has confirmed through testing that the manufacturer has remedied the defect in its new design, but that it has confirmed that the SMD-20 switches installed during the period of 2006 to 2011 are defective. THESL further indicates that it is in discussion with the manufacturer to determine the level of compensation that can be recovered.

a) Please state the total 2006 to 2011 expenditure by THESL on the defective SMD-20 switches.
b) Please state the magnitude of the compensation THESL is seeking from the manufacturer. Please include a discussion as to whether or not THESL is seeking compensation to cover the labour costs to it of removing and installing the new version of the switches.
c) Please state whether or not the manufacturer has provided to date any compensation to THESL in regard to the defective switches? If so please provide the amounts and the terms of the settlement.
d) Please discuss the extent to which other utilities have experienced similar problems with the SMD-20 switches and what actions they are taking to remedy the problem.

**2.2-Staff-42**

Ref: T 4/S B 8/pp. 1-2, p. 17 and Kinectrics Inc. Report *Toronto Hydro-Electric System Limited 2012 Asset Condition Assessment Audit,* May 7, 2012/pp. 59-60/ Tables 18-1 and 18-2

At the first reference it is indicated that the SCADA-Mate R1 switches have been identified as a safety risk to THESL crews due to two recorded incidents in June 2008 and three in April 2011. It is further indicated that to remedy this situation, THESL proposes spending $8.35 million in the 2012-2014 period to replace the 48% of existing SCADA-Mate R1 switches that are located in areas where there is an increased failure probability for these switches.

At the second reference, Table 1 appears to show a total of 318 SCADA-Mate R1 switches on THESL's system.

The third reference, which is the Kinetrics report, appears to show in Table 18-1 that there are a total of 767 of these switches in THESL's system and in Table 18-2 it is indicated that 98 % of the switches are in either "Good" or "Very Good" condition, and about 2% in "Fair" condition.

a) Please provide explanation for the variance in the total population between the two figures in the two noted references, and to the indication that there are no SCADA-Mate Switches in "Poor" or "Very Poor" condition.
b) Please state whether or not the manufacturer has provided to date any compensation to THESL in regard to the defective SCADA-Mate R1 Switches? If so please provide the amounts and the terms of the settlement.
c) Please provide information of the demographics of the noted defective SCADA-Mate R1 Switches.
d) Please state whether or not THESL is aware of any research that has been done on SCADA- Mate switch failures and what measures other utilities have taken in these circumstances.

**2.2-Staff-43**

Ref: T 4/S B 10/pp. 9-14

On page 9 of the above reference, it is noted that: "According to THESL records, there have been 18 vault fires in the past ten years, many of which were directly traced back to Fibertop Network Units as the root cause." The following pages outline four major incidents that have arisen as a result of this problem.

a) Please provide a description of the increased preventative maintenance and the change in the maintenance cycle used to minimize the build-up of contaminants in the last 10 years on all the noted network vaults.
b) Please state how many of the 240 Fibertop Network Units were installed with Asbestos-Insulated Lead-Covered (AILC) secondary cables, and whether or not they are concentrated in certain locations on the system or spread over many areas.
c) In the event that the proposed segment work were to be delayed, please discuss any additional measures that THESL would use to minimize the noted risks.

**2.2-Staff-44**

Ref: T 4/S B 11 and Kinectrics Inc. Report *Toronto Hydro-Electric System Limited 2012 Asset Condition Assessment Audit*, May 7, 2012/pp. 48-49.

At the first reference on page 1, THESL indicated that it proposes to replace 30 ATS assets and 6 RPB assets. There appears to be no assessment by the Kinectrics report on the RPB units in the THESL system.

a) Please indicate whether THESL had previously identified the need to replace ATS units and RPB units in either its EB-2011-0144 or EB-2010-0142 applications. If not, please explain why not.

b) Please confirm that according to Tables 2 and 3 at pages 6-7 of the first reference the 30 identified locations for ATS replacement, and all 6 location for RPB replacement, require replacement in each case of the vault equipment including the distribution transformers.

c) Please state whether or not THESL has a long term plan to deal with the remaining ATS units and RPB units on the system and, if so, what it is.

**2.2-Staff-45**

Ref: T 4/S B 12, and *The Duval Triangle DGA Diagnostic Method*, available from Delta-X Research Inc, P.O. Box 42083, 2200 Oak Bay Avenue, Victoria BC Canada V8R 6T4Tel: (250) 592-2998 and website: www.deltaxresearch.com

At pages 1-7 of the first reference, THESL is proposing to replace 12 power transformers ranging in size between a small unit of (3-4 MVA) and a large unit (12-15 MVA), and varying in age between 36 years and 84 years.

At pages 10 – 32 of the same first reference, THESL presents the results of visual inspection for oil leaks as well as the results of the Dissolved Gas Analysis (DGA) for all 12 transformers, and THESL's interpretation of the DGA results, especially the "Duval" Triangle DGA Diagnostic".

At the second reference, it is indicated that the Duval method is only applicable when the gas concentrations are fairly high compared to the allowed limits and rate of gas production is increasing rapidly. Furthermore it is also indicated that using the Duval method at low concentration leads to wrong conclusions.

On page 10, of the first reference it is stated that the Ellesmere White Abbey MS had reached the end of its operating life and that the risk of transformer oil leakage poses a potential environmental risk with high consequence costs. On pages 15 and 16, the Scarborough Golf Club MS is discussed and a similar conclusion is reached.

On pages 11 through 14, of the first reference the Thistletown MS, transformer TR1 and TR2 are discussed and THESL concludes that both transformers should be replaced based on its Duval Triangle analysis.

On pages 24 through 26, of the first reference, the Blaketon MS – TR1 is discussed and THESL concludes that it should be replaced.

On pages 28 through 32, of the first reference, the Norseman MS and Underwriter Crouse MS' are discussed and it is concluded that they both should be replaced. Among the reasons cited for the replacement of Norseman is the existence of some sludge deposits in the transformer and for Underwriter Crouse the existence of high moisture content.

a) Please state whether or not in THESL's view the age of a transformer alone would provide sufficient justification for its replacement. If yes, please explain why.
b) Please state whether or not THESL's staff investigated the nature of the oil leaks in the Ellesmere White Abbey and Scarborough Golf Club MS', and if yes, please provide a brief summary of the results of the investigation.
c) Regarding the Thistletown MS, please state whether or not the gas concentration in the two transformers was high compared to the allowed limits and if the rate of gas production was increasing rapidly. Please state whether or not in THESL's view in the absence of these two conditions, the Duval method would be applicable and if so, why in light of the evidence in the second reference where it is indicated that using the Duval method at low gas concentration leads to wrong conclusions.
d) Regarding the Blaketon MS, in addition to the issue of applying the Duval method at low gas concentration which leads to wrong conclusions, please explain why THESL concluded that this transformer is "Condition 3" given the results shown in Table 10 on page 23 and the levels of "Dissolved Key Gas Concentration

Limits in Parts Per Million" for Conditions 1 to 4 outlined in Table 15 of Appendix 2, which might suggest gas levels closer to "Condition 1"

e) Regarding the Norseman and Underwriter Crouse MS', please state whether or not in THESL's view, sludge deposits and high moisture content are treatable conditions. If not, please explain why not. If THESL would consider them as treatable conditions, please explain why these two transformers would need to be replaced.

**2.2-Staff-46**

Ref: T 4/S B 13.1

At page 1 of this reference, it is indicated that there are 199 switchgears across 170 Municipal Substations of which THESL is proposing to replace 15 switchgears located in 12 Municipal substations.

On page 4 of this reference, it is indicated that 4 of the 12 Municipal Stations have additional operational problems posing risks to operating personnel due to circuit breakers in these substations having auto re-closure problems.

a) Please provide data on how many oil circuit breakers failed catastrophically over the last 10 years, and of these how many were over 50 years old. For each incident, please provide the year, location and name of the MS.
b) Please provide data in tabular or graph form showing the demographics of the reported 199 switchgears in the 170 Municipal Substations.
c) Please confirm that the remaining 8 stations of the 12 cited above do not have oil circuit breakers that have auto-reclose problems.
d) Please state whether or not there are auto-reclose problems in any of the remaining 199 switchgears.

**2.2-Staff-47**

Ref: T 4/S B 13.1/pp. 2-3

Table 1 of the above reference lists the job cost estimates for the switchgears in the 12 stations. The cost per switch gear varies from $0.82 million for the replacement at "Lawrence Golf", and $5.09 million for the "Leslie MS" replacement.

a) Please provide an explanation for the variance in costs cited above.
b) Please state whether or not there is more than one manufacturer providing the equipment.
c) Please provide the name of the manufacturer or manufacturers that THESL is planning to purchase the switchgear from.
d) Please provide historical cost information on completed switch gear replacements in the last five years along with a description of the jobs and indicate the similarity of each (scope, equipment..etc) to a corresponding proposed switchgear replacement listed in Table 1, page 2 of the reference.

**2.2-Staff-48**

Ref: T 4/S B 13.1 and Kinectrics Inc. Report *Toronto Hydro-Electric System Limited 2012 Asset Condition Assessment Audit*, May 7, 2012/pp. 31-32

At the first reference on page 3, it is stated in part that:

> "The switchgear employ obsolete technology, such as non arc-resistance design, oil circuit breakers and mechanical relays. Non arc-resistant switchgear does not have the ability to channel the energy released during an internal arc fault in ways that minimize the potential injury to personnel and damage to equipment in the surrounding area, including damaging the entire substation."

At the second reference at page 31, in Table 5-1, it is indicated that the total population of oil circuit breakers in 2011 is 371 and in 2012 is 398. Table 5-2 shows that over 90 percent of all the oil circuit breakers are either in fair shape (83.75%) or in good shape (7.5%).

a) Please state whether the oil circuit breakers cited in the first reference are included in the oil circuit breakers cited in the second reference.
b) If the answer to a) above is affirmative:

   (i) please explain the reason for the increase of 27 oil circuit breakers in the total population of the oil circuit breakers in 2012 (398) over the population in 2011(371), and
   (ii) please state why given that over 90% of all the oil circuit breakers are in fair or good shape, such breakers cannot be expected to continue to function well subject to performing regular maintenance as required by good utility practice.

**2.2-Staff-49**

Ref: T 4/S B 13.2

On page 10, it is stated that for the Carlaw TS that switchgear had been purchased in 2011.

a) Please provide the name of the manufacturer that provided the switchgear for Carlaw TS in 2011, and the actual cost paid for that switchgear.
b) Please state whether there were any other manufacturers providing switchgear meeting THESL's specifications that bid on the job. If yes, please provide a summary of the reasons for selection of the winning manufacturer.

c) Please provide the year, location and costs for similar class switchgear jobs completed in the last 10 years for THESL.

**2.2-Staff-50**

Ref: T 4/S B 13.2 and Kinectrics Inc. Report *Toronto Hydro-Electric System Limited 2012 Asset Condition Assessment Audit*, May 7, 2012/pp. 31-32.

At the first reference at page 18, Table 8 lists five transformer substations with spare capacity and it is stated when discussing the circuit breakers for these stations that:

> "In addition to being non-arc resistant design, the existing circuit breakers that are fitted in these switchgear are of air blast type (with the exception of Duplex), and are obsolete."

At the second reference on page 27-28 under Section 3. "Air Blast Circuit Breakers" , it is indicated that there are 292 Air Blast Circuit Breakers in 2012, Table 3-2 from this section shows for 2012 a decrease the Poor Category from the 2011 level and an increase in the Fair Category in 2012 over the 2011 level.

a) Please provide data in a tabular or a graph form showing the demographics of the 292 Air Blast Breakers reported at the second reference.
b) Please state how many of the Air Blast Breakers that are categorized as "Poor" in the second reference are in service in the five transformer stations noted above.
c) If there are any Air Blast Breakers reported in response to b) above, please state what additional measures are needed to improve their performance.

**2.2-Staff-51**

Ref: T 4/S B 14 and Kinectrics Inc. Report *Toronto Hydro-Electric System Limited 2012 Asset Condition Assessment Audit*, May 7, 2012

At the first reference on page 1, it is indicated that 21 oil circuit breakers (27.6 kV) mounted outdoors are to be replaced with vacuum circuit breakers at a cost of $3.83 million. On page 4, table 2 lists the circuit breakers to be replaced.

At the second reference at pages 33-34, it is indicated that 78% of the Oil KSO Breakers are either in "Fair" or "Good" condition.

a) Please indicate which of the Oil KSO Circuit Breakers in Table 2, as referenced above, is either in "Fair" or "Good" condition.
b) If THESL is replacing KOSO Oil Circuit Breakers that are in "Fair" or "Good" conditions, please explain its rationale for doing so.

**2.2-Staff-52**

Ref: T 4/S B 15

On page 1 of the above reference, it is indicated that station control and communication work proposed for 2012, 2013, and 2014 would cost $4.6 M, and consist of $2.1M for improving SONET system and $2.5M for replacing / installing SCADA RTU.

Table 2 of the above reference lists five planned SCADA RTUs Replacing/Installing planned jobs.

On page 2 of the above reference, it is stated that:

> "The SONET fibre optic communication system is normally designed as a redundant ring system between station assets and the Control Centre, but some segments lack redundancy and as these fibre optic lines age or are damaged by adjacent construction, there is a risk of a complete SONET system failure."

On pages 5-9 of the above reference, six planned jobs are outlined.

a) Please state when the issues of "aging" or "damage during construction" discussed above were detected and the extent to which they were a factor in proposing the six jobs referenced above.
b) Please provide information on projects similar to the six planned jobs referenced above completed in the last five years involving SONET System Redundancy/Upgrading providing for each historical job its cost and location.
c) Please provide similar information to b) for the Replacing/Installing SCADA RTUs jobs referenced above.
d) Please state whether the need to improve the SONET system and replace/install SCADA RTUs had been identified by THESL in either the EB-2011-0144, or EB-2010-142 applications to the Board. If not, please explain why not.

**2.2-Staff-53**

Ref: T 4/S B 16

This section discusses downtown station load transfers. On page 2 of the above reference, THESL states that:

> "Downtown Toronto, representing approximately one-third of THESL's total customers and load, utilizes a radial design for the distribution system that lacks ties between stations. The design provides quick restoration times for common failure modes, but does not provide back-up for some low probability high impact events such as partial or complete station failure."

On page 1 of the reference, it is indicated that the Dufferin-Bridgman feeder tie work was largely completed in 2011, but that about 17% would remain for 2012

a) Please discuss the extent to which the low probability high impact events discussed in the first reference could be addressed in the immediate and short term by more effective approaches such as: (1) improving existing infrastructure, (2) construction of a new 115 kV station, or other alternatives.
b) Please state whether or not the noted Dufferin-Bridgeman feeder tie-work had originally been planned for 2011 and whether or not it was included in the capital program proposed for approval in the EB-2010-0142 proceeding. If yes:

    (i) Please provide the cost estimates for the total job in EB-2010-0142 for the Dufferin-Bridgeman feeder tie work.
    (ii) Please explain the reasons and circumstances that caused the delay in completing the work in 2011.

**2.2-Staff-54**

Ref: T 4/S B 17/ pp. 9-38

At pages 9-10 of the above reference, it is indicated that there is an immediate need (i.e. by 2014) for 72 MVA of capacity and that by 2017 there is a need for 144 MVA of capacity.

At page 37 of the above reference, Table 13 shows Phase 1 of Bremner completed in 2014 and Esplanade completed in 2016.

At page 14 of the above reference, Esplanade is shown as providing an additional capacity of 216 MVA.

a) Please confirm that Esplanade would be able to meet the "Short-terms need" of 144 MW identified as needed by 2017.
b) Please state how likely it is in THESL's view that Bremner would be able to meet the identified 2014 immediate need of 72 MVA.

**2.2-Staff-55**

Ref: T 4/S B 17/App. 3/p. 28 and T 4/S. B 17/App. 5

At the first reference, it is stated in part that:

> "The Bremner station, unlike other HONI and THESL stations, <u>will include gas-insulated transformers and breakers, thereby eliminating the need for oil containment equipment and enclosures</u>. [emphasis added]

At the second reference, Option B is discussed and it is stated that "of all the alternatives examined, this Option B was deemed most feasible from a constructability standpoint, given the aforementioned design constraints":

a) Please state the impact on the costs of the Bremner station of including gas-insulated transformers and breakers in place of oil containment equipment and enclosures.
b) Given that Option B is mainly built above grade, please discuss whether or not the station could be built to accommodate oil filled Power Transformers with appropriate containment equipment and whether this would reduce the costs of this option.
c) Please provide a cost comparison for a gas-filled single transformer rated 144 MVA 115 kV/13.8 kV-13.8kV versus a single transformer with identical capacity and configuration, but oil-filled (OFAF) design.
d) Please recast Table 2 of Appendix 5 "Comparison of Costs for Options", assuming for Option B that power transformers, each rated 144 MVA with oil filled (OFAF) design, as referenced in c) above are used in place of gas-insulated transformers.

**2.2-Staff-56**

Ref: T 4/S. B 17/App. 5/Sch. 3, T 4/S. B 17/App.6 and T 4/S. B 17/App. 5

At the first reference, the noted IBI report discusses Option B, which is a viable option from a construction point of view, but is rejected by the IBI Report. The Report in its conclusions on page iv of the first reference states that:

> "The entirely above grade Option B is completely incompatible with the heritage attributes and character of the adjacent roundhouse, a designated National Historic Site, the intent and spirit of heritage conservation in the PPS and City of Toronto Official Plan and contravenes many of the most significant principles in the Union Station Heritage Conservation District Plan and Guidelines.
>
> We find it would be very difficult to get positive acceptance of this option by the City of Toronto approval agency or the heritage community or do we expect that the Planning / Urban Design arm of the City of Toronto would support Option B."

At the second reference, the THESL-commissioned IBI Report made an assessment of Option A for the Bremner TS.

At the third reference in Section 2.0, under Site Approvals, the steps taken to obtain "Site Approvals" were taken for Option A (THESL's preferred Option) where it is stated that:

> "As a result of the site's heritage designation, the municipal and provincial site planning authorities require a detailed assessment of potential heritage impacts to the site, by way of a Heritage Impact Assessment (HIA) document. The detailed HIA has been included as Appendix 6 to this ICM.

> Municipally, the heritage impact is reviewed by the Heritage Preservation Services department at the City of Toronto. Provincially, the heritage impact is documented and reviewed as part of the Class Environmental Assessment for Minor Transmission Facilities. Both authorities would ultimately have to sign off on the HIA in order for the project to proceed to the construction phase. The status of this signoff is captured in Appendix 8 to this document"

Please indicate the reasons for not requesting that IBI include in its Report cited at Appendix 6 of the second reference, assessment of Option B since it is the next best option to option A.

**2.2-Staff-57**

Ref: T4/S. B18/pp. 14-29

In the above reference, 10 projects are discussed that will require capital contributions to Hydro One Networks Inc. In THESL's discussion of each of these projects, it is stated that if funding for THESL's capital contributions is not available, THESL expects that Hydro One will not carry out the engineering study needed to determine project feasibility and the required capital contribution.

Please state whether or not in THESL's view the Transmission System Code would permit Hydro One to condition its feasibility studies on the receipt of a capital contribution to perform such a study and, if so, please specify the relevant section or subsection.

**2.2-Staff-58**

Ref: T 4/S. B 18

At subsection 1.2.2 at page 4 of the reference, the Leaside-Birch project is discussed and THESL's capital contribution is stated as consisting of $17.6 million in 2012 and $15.28 million in 2013.

a) Please indicate the amount of capital contribution paid to Hydro One by THESL prior to 2012
b) Please provide an update on the status of progress of HONI's work in this project.

**2.2-Staff-59**

Ref: T 4/S. B 19

In this section, THESL's feeder automation program is discussed and it is noted on page 3 that by deploying feeder automation on the referenced feeders that a potential

reliability savings of 50% for customer interruptions and 43% for customer hours interrupted can be achieved.

Please provide information on the extent to which THESL presently uses, or is anticipating using approaches to address high incidences of faults to improve feeder reliability, such as: (1) live line washing;(2) inspections and replacement of defective insulators; (3) measures to install animal guards where incidents of animal caused faults were detected, and (4) installation of tree resistant contact conductors (Hendricks) to address the referenced reliability concerns.

**2.2-Staff-60**

Ref: T 4/S B19/pp. 123-124

On these pages, business case evaluations for six feeder automation target area projects are presented. The "Option Benefit/Cost Ratio" statistics for these projects appear to be quite high ranging from 71.67 times to 188.94 times.

Please explain why THESL believes these statistics are reasonable. In so doing, please provide an illustration as to how the "Project Cost Allocated ($)" and "Project Net Benefit" are calculated for one of the projects.

**2.2-Staff-61**

Ref: T 4/S B19/p.1, T 4/S. B 19/p. 8 and T4/S B19/pp. 123-124

In the first reference it is indicated that when discussing Feeder Automation (FA) that it is an effective solution to mitigate impact outages to non-affected customers. It is also stated that the quickest alternative restoration method, remote operation of a SCADA switch by a system controller, takes approximately 30 minutes.

The second reference deals with operating controls when an FA is not used and states that: there is an outage that, as part of the procedure used:

> "As part of this procedure, power system controllers must also individually analyze each feeder to verify the loading requirements and compare this to the feeders' supply capacity to ensure that any potential load transfers do not damage feeder assets from overloading. All told, these activities usually require about 30 minutes if all operable switches are remotely controlled."

a) Please state the basis for THESL's belief that 30 minutes is required for the activities discussed in the above two references.
b) With respect to the third reference, please re-run the "Project Net Benefit" and "Option Benefit/Cost Ratios" for the six proposed locations using restoration times of 5 minutes for non-affected customers for cases where

SCADA –enabled switches are used without FA, instead of the 30 minutes assumed, and present the results by recasting Tables D.1, to D 6.

**2.2-Staff-62**

Ref: T4/S. B20/pp. 1- 3

The table on page 3 of the reference indicates a total of $22.9 million of metering expenses will be incurred from 2012-2014. About 71% of the total is for metering expenses related to Wholesale Metering Market Settlement Compliance ("WMMSC") and the remainder is for seal expiring meters.

Page 1 of the reference indicates that the 2012-2014 replacements are needed in order to remain in compliance with the IESO Market Rules and Measurement Canada requirements.

Page 3 indicates that the proposed WMMSC replacements are necessary to complete full meter upgrades at all applicable delivery points by 2021 in accordance with THESL's IESO approved proposal.

a) Please explain how the proposed capital expenditures shown in the table on page 3 of the reference were arrived at, including appropriate cost breakdowns.
b) Please provide copies of:
   - the Measurements Canada requirements that relate to the replacement of WMMSC meters;
   - the IESO Market Rules that relate to the replacement of WMMSC meters; and
   - THESL's IESO approved proposal to complete full meter upgrades at all applicable delivery points by 2021.
c) Please state the estimated total cost of all the WMMSC replacements needed from 2012-2021.
d) Please describe THESL's process for determining which replacements would be carried out in 2012-2014 and which would be deferred beyond 2014.

**2.2-Staff-63**

Ref: T4/S B21

This section of the evidence discusses externally-initiated plant relocations and expansions. Tables 1 to 3 provide cost estimates for specific projects

On pages 1 and 2, as part of the discussion of "Waterfront Toronto and GO Metrolinx", it is stated that "THESL endeavours to relocate its existing facilities on a 'like for like' basis, so as to facilitate keeping the capacity of the electrical distribution system intact."

a) Please explain how the proposed capital expenditures shown in Tables 1-3 were arrived at, including appropriate cost breakdowns, the source, and method of determination.
b) Please explain THESL's rationale for the statement quoted above about relocating existing facilities on a 'like for like' basis, including how this approach would take into account future requirements.
c) Please state whether or not the proposed Waterfront Revitalization jobs and costs end in 2014. If not, please provide the estimated total cost of the Waterfront Revitalization jobs and the expected year by year costs beyond 2014.

**2.2-Staff-64**

Ref. T4/S B22/pp. 7-8

Table 2 of the above reference provides THESL's proposed expenditures for Grid Analytics of $1.2M, $1.2M and $0.6M for 2012, 2013 and 2014, respectively for a total THESL expenditure of $3.0M.

a) Please indicate the costs incurred by THESL and the timing for installation of the transformer monitors and the power line monitors to date.
b) Are there any additional transformer monitors and power line monitors planned for installation in 2012 and beyond? If so, please indicate the number of units, expected costs and timing for these installations.
c) Please provide the ongoing operation, maintenance and administration costs associated with the Grid Analytics segment of the Grid Solutions Project.
d) What staffing levels and costs are required for the ongoing operation, maintenance and administration functions associated with the Grid Analytics segment of the Grid Solutions Project?

**2.2-Staff-65**

Ref. T4/S B22/pp. 13-22

In the above reference Community Energy Systems (CES) are discussed.

Table 4 on page 16 shows the market value of each CES system (amounting to $2.33M) and then calculates a Benefit/Cost ratio using the "Market Value of Two CES Systems" as the Benefit and THESL's proposed expenditure of $1.80 million as the cost. This analysis appears to compare the total cost of the project (excluding THESL's portion of the cost) to THESL's portion of the cost to arrive at a Benefit/Cost ratio.

a) Please provide the cost to date and the expected total cost of THESL's first CES system planned for 2013.
b) Please provide an estimate of the annual economic benefits associated operating the two CES systems planned for 2013, based on the benefits listed on page 17 of the reference.
c) Please provide the Benefit/Cost ratio, and/or the pay-back period for the two CES systems planned for 2013 based on:

(i) THESL's cost of the two CES systems planned for 2013 and the benefits determined in (b) above; and
(ii) The total cost of the two CES systems planned for 2013 and the benefits determined in (b) above

Please specify the key assumptions made in the above analysis.

**2.2-Staff-66**

Ref. T4/S B22/pp. 25-29

Table 5 of the above reference provides THESL's proposed expenditures for the Solutions Development Centre (SDC) totaling $2.16 million for the 2012 to 2014 period.

a) Please describe the make-up of the SDC segment of the Grid Solution project (e.g in terms of type of facility, level of staffing etc).
b) Please provide the ongoing operation, maintenance and administration costs associated with the SDC.
c) Please state whether or not there are any additional capital expenditures beyond 2014 associated with the SDC. If so, please indicate expected year by year expenditures over a 5-year period beyond 2014.

**2.2-Staff-67**

Ref. T4/S C1/p. 2

The above reference indicates that Engineering Capital consists of the labour costs of engineers, technologists, design technicians and power system controllers for engineering, design and planning work that they perform on distribution assets that are put in service. These costs are estimated at $9.5M per year for 2012-2014.

a) Please explain why the proposed engineering capital costs are not assigned to the associated distribution system assets or projects to which the work pertains.
b) Please explain how the proposed $9.5M per year for 2012-2014 for Engineering Capital was arrived at, including appropriate cost breakdowns.

**2.2-Staff-68**

Ref. T4/S C1/pp. 3-4

Table 3 on page 5 of the reference provides THESL's proposed expenditures for Worst Performing Feeder (WPF) of $6.10M, $24.50M and $24.50M for 2012, 2013 and 2014, respectively for a total WPF expenditure of $55.1M.

Please explain how the proposed WPF expenditures shown in Table 3 of the reference were arrived at, including appropriate cost breakdowns.

**2.2-Staff-69**

Ref. T4/S C1/pp. 5-6

Table 4 on page 6 of the reference provides THESL's proposed expenditures for Customer Connections (net of Customer Contributions) of $25.8M, $30.00M and $30.00M for 2012, 2013 and 2014, respectively for a total expenditure of $85.8M.

Please explain how the proposed customer connection expenditures shown in Table 4 of the reference were arrived at, including appropriate cost breakdowns.

**2.2-Staff-70**

Ref. T4/S C1/pp. 6-7

Table 5 on page 6 of the reference provides THESL's proposed Reactive Capital expenditures of $27.70M, $31.90M and $32.70M for 2012, 2013 and 2014, respectively for a total expenditure of $92.3M.

Please explain how the proposed Reactive Capital expenditures shown in Table 5 of the reference were arrived at, including appropriate cost breakdowns.

**2.2-Staff-71**

Ref. T4/S C1/pp. 7-9

The proposed capital expenditures for each of these groups is given in Table 6 on page 9 of the reference which indicates expenditures of $52.60M, $25.70M and $24.90M for 2012, 2013 and 2014, respectively for a total expenditure of $103.2M.

Please explain how the proposed capital expenditures shown in Table 6 of the reference were arrived at, including appropriate cost breakdowns.

**2.2-Staff-72**

Ref. T4/S C2/pp. 1-5

Page 1 of the reference indicates that the Information Technology (IT) Capital Portfolio for 2012-2014 consists of required hardware asset replacements, application upgrades and 2011 carryover projects that need to be completed. Table 1 provides a summary of projects and costs for the IT capital portfolio and indicates expenditures of $15.00M per year for a total expenditure of $45M in the 3-year period 2012-2014. The highest cost project in the group is the "Information Technology Hardware Asset Replacement" project with proposed expenditures of $21.7M over the 3-year period.

Please provide a description of the main IT hardware assets, by groups, that are in need of replacement during 2012-2014 and indicate age, condition or other reasons for replacement at this time.

**2.2-Staff-73**

Ref. T4/S C3/pp. 1-2

Page 1 of the reference states that THESL's Fleet is currently composed of 749 motor vehicles, including cars, pickups, bucket trucks and other vehicles (such as sweepers, backhoes and forklifts). Table 1 shows the various vehicle types, number of replacements and capital expenditures for each of 2012, 2013 and 2014. Based on Table1, the numbers of vehicles proposed for replacement are 21, 14 and 9 in 2012, 2013 and 2014 respectively at a cost of $2.00M per year.

a) Please add a column to Table 1 to indicate the total number of vehicles in THESL's fleet for each of the vehicle categories listed.
b) Please state whether or not the numbers of vehicle replacements proposed for 2012-2014 (average of 11 replacements peer year) typical of the number of replacements in the last 5 years. Please explain.

**2.2-Staff-74**

Ref. T4/S C4/pp. 1-6

Table 1, on page 2 of the reference, shows the proposed capital expenditures for buildings and facilities of $5.00M per year for each of 2012, 2013 and 2014 for a total expenditure of $15.00M.

Please provide THESL's capital expenditures on buildings and facilities over the last 5 years (2007-2011) and provide explanations of the change if these expenditures significantly different from the proposed 2012-2014 proposed expenditures.

*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-Staff-75**

Ref: T2/p. 3 and 9

In the first reference, THESL states that:

"THESL proposes ICM projects for a three-year period, severable into three successive one-year rate periods, each with its own ICM rate adder."

In the second reference, THESL justifies its proposed approach on the basis that:

"It is not possible for THESL to conduct this overall process effectively and effectively and efficiently without a long term planning horizon of at least 24 to 36 months. Without assurance of funding, THESL cannot enter into stable arrangements with contractors or plan for stability of its own workforce; it cannot plan customer

engagement activities around its construction program; and it cannot obtain permits for or coordinate its construction programs with the municipality or other utilities."

a) Please state whether there are any circumstances specific to THESL that would justify a departure from the Board's established practices regarding the approval of ICM projects on a year-by-year basis.
b) Given that THESL is the only distributor to date to have requested a three-year approval of this kind, please state whether or not THESL has had any discussions with other distributors in terms of how they deal with the issues referenced above. If yes, please state the results. If not, please explain why not and why THESL believes that other distributors appear able to manage these factors in the absence of three-year rate approvals.

*2.4 Is THESL's proposal for an alternative to the standard treatment of the calculation of the ICM threshold together with the Board's practice of exempting certain ICM-approved capital expenditures from the application of the half year rule appropriate?*

**2.4-Staff-76**

Ref: T2/pp. 10-11

It is stated that:

"In this application, THESL follows the standard Board-approved approach for the calculation of ICM revenue requirements and rate adders. THESL also offers for the consideration of the Board an alternative to the standard treatment of the ICM threshold, and the practice of exempting ICM-approved capital expenditures from the application of the half-year rule, except in the year immediately preceding rebasing. THESL observes that this alternative approach provides for rate mitigation as it could result in lower cumulative revenue requirements over the three proposed years."

a) Please state whether or not THESL's use of the word "could" in the above reference implies that THESL believes there are circumstances wherein the adoption of THESL's proposal by the Board might result in higher revenue requirements. If so, please explain what such circumstances would be. If not, please clarify the use of this term.
b) Please state whether there are any circumstances specific to THESL that would justify a departure from the Board's established practices regarding the ICM.

**2.4-Staff-77**

Ref: T2/p. 11

The second part of THESL's proposed modification discussed in the preceding interrogatory is stated as:

"The ICM rate adders would be calculated for each year based on the average incremental ICM investment in that year (i.e., the approved ICM expenditure above the modified ICM threshold), calculated using the half year rule."

a) Please state the impact of the proposed use of the half year rule when calculating the rate adders on the anticipated surplus or deficit returned to or recovered from customers in 2015 upon rebasing relative to the standard methodology.
b) Please expand Table 1 incorporating additional years to demonstrate the comparative impacts of the standard and alternative methodologies once rebasing has occurred and in subsequent years.

**2.4-Staff-78**

Ref: T2/p. 11 and *Chapter 3 of the Filing Requirements For Electricity Transmission and Distribution Applications,* p 8, Section 2.2.3

It is stated in the first reference that:

"Under the Board's standard ICM model, THESL understands that funding is available for approved projects over the calculated materiality threshold. In years that do not immediately precede rebasing, the half-year rule is used in calculating the ICM adder so as to avoid creating a structural deficiency."

The second reference states that:

"The Board's general guidance on the application of the half-year rule is provided in the Supplemental Report. In this report the Board determined that the half-year rule should not apply so as not build a deficiency for the subsequent years of the IRM plan term. In a subsequent decision with respect to the application of the half-year rule in the context of an ICM, the Board decided that the half-year rule would apply in the final year of the IRM plan term (EB-2010-0130, Guelph Hydro Electric Systems Inc., Decision and Order, p. 15). The Board has adopted this as a clarification to the policy on ICM."

Please clarify whether or not in THESL's view its understanding quoted in the first reference is in conformity with the Board policy outlined in the second reference.

**2.4-Staff-79**

Ref: T2/p. 12

It is stated that:

"Under the assumptions noted above and in the explanatory notes to the revised Appendix 3, THESL has calculated that if the approved ICM amount under the Standard Approach for 2012 and 2013 combined exceeds $228.2 million, then the standard ICM model would produce a windfall (i.e surplus revenue requirement), which THESL does

not seek and would regard as an unintended outcome. The derivation of this amount is given in the revised Appendix 3 to this Manager's Summary."

a) With respect to the windfall referenced above, please specify the amount that THESL is referring to and why THESL believes that this amount is a windfall.
b) Please state whether or not THESL is arguing that there is a limitation in the Board's ICM model, or whether there is instead something specific to THESL's application that is causing the model to produce results which THESL believes the Board would not consider appropriate. In either case, please provide a detailed explanation.

**2.4-Staff-80**

Ref: T2/p. 13, Table 1 and T2/App.3

The first reference shows a total 2012 to 2014 revenue requirement difference between the standard methodology and THESL's proposed alternative methodology of $27.7 million.

It is unclear how the tables presented in Appendix 3 relate to Table 1 as the $27.7 million total difference does not appear to be replicated in Appendix 3.

a) Please reconcile the numbers in Table 1 of the first reference with Appendix 3.
b) Please provide a breakdown of the $27.7 million revenue requirement difference shown in Table 1 between the two modifications proposed by THESL which underlie this proposal (i.e. the removal of the dead band factor and calculation of the ICM rate adders using the half year rule.)

## *3. Deferral and Variance Accounts*

### *3.1 Is the proposed final disposition of the PILs Deferral Account 1562 appropriate, including the proposed rate riders?*

**3.1-Staff-81**

Ref: T5 PILs Recovery Worksheets

Please explain how THESL determined the PILs amounts associated with unbilled revenue accrual as at April 30, 2006 and how this was included in the various Excel worksheets.

**3.1-Staff-82**

Ref: T5 SIMPIL Models 2001 – 2005:

With respect to taxable capital gains and gains on disposals of fixed assets, THESL included its fixed assets in the calculation of rate base for the 2000-2001 application. The Board approved the rate base for use in the determination of distribution rates. THESL continued to receive the return on these assets from ratepayers even though it may have disposed of assets during the period 2001 through 2005.

In the 2005 SIMPIL model, the variances caused by taxable capital gains and gains on disposal of fixed assets that THESL input on sheet TAXREC2 are greater than the materiality threshold and true up to ratepayers on sheet TAXCALC rows 107 and 118.

Please explain why in THESL's view these variances should true up to ratepayers, or if THESL is not of this view, please move the fixed asset transactions to the SIMPIL model sheet TAXREC3 and update the PILs continuity schedule and final balance for disposition.

**3.1-Staff-83**

Ref: T5:

THESL has shown additions and deductions for scientific research expenses. When taken as a deduction in one year some amount has been added back to taxable income in the following year.

a) Please explain the treatment for income taxes and why the items should true up to the shareholder.

b) Please state whether or not ratepayers benefit from these investments and if so what the benefit was.

c) The 2005 adjustments for scientific research expenses were greater than the materiality threshold and trued up to ratepayers in sheet TAXCALC rows 107 and 118 in the 2005 SIMPIL model. Please explain why these adjustments should true up to ratepayers.

**3.1-Staff-84**

Ref: T5:

With respect to actual and deemed interest expense for tax years 2001 to 2005 for true-up calculations, when the actual interest expense, as reflected in the financial statements and tax returns, exceeds the maximum deemed interest amount approved by the Board, the excess amount is subject to a claw-back penalty and is shown in the TAXCALC worksheet as an extra deduction in the true-up calculations.

a) Please provide a table for the years 2001 to 2005 that shows all of the components of interest expense and the amount associated with each type of interest. For each year, please balance the numbers in the table to the financial statements, to the tax returns and to the amounts used in SIMPIL sheet

TAXCALC for the interest true-up calculations.

b) Please state whether or not THESL had interest expense related to other than debt that is disclosed as interest expense in its financial statements.

c) Please state whether or not THESL netted interest income against interest expense in deriving the amount it shows as actual interest expense in the SIMPIL models. If yes, please provide details to what the interest income relates and explain why interest income and expense should be netted to reduce the interest expense used in the true-up calculations.

d) The Board has decided in a number of recent decisions that interest expense used to calculate the interest claw-back variance should not include interest on customer deposits (Hydro One Brampton, EB-2011-0174, December 22, 2011. Kingston Hydro, EB-2011-0178, April 19, 2012. Innisfil Hydro, EB-2011-0176, April 19, 2012.) Please redo the interest true-up calculations excluding interest expense on customer security deposits. If THESL chooses not to redo the calculations, please explain why.

e) Please state whether or not THESL included interest income on customer security deposits in the disclosed amount of interest expense in its financial statements and tax returns.

f) The Board has decided in a number of recent decisions (Burlington Hydro, EB-2011-015, March 20, 2012. Kitchener-Wilmot Hydro, EB-2011-0179, April 4, 2012. Thunder Bay Hydro Electricity Distribution Inc., EB-2011-0197, April 4, 2012) that that prudential costs are interest expense and should be included in the interest claw-back variance calculations. Please state whether or not THESL incurred interest expense or standby fees or charges on IESO or other prudentials. Please provide a table that lists all of the prudential costs by year for 2001-2005 with the amounts by type of charge for letters or lines of credit whether shown as interest expense or as OM&A.

g) Please state whether or not THESL included interest carrying charges on regulatory assets or liabilities in interest expense.

h) Please state whether or not THESL included the amortization of debt issue costs, debt discounts or debt premiums in interest expense.

i) Please state whether or not THESL deducted capitalized interest in deriving the interest expense disclosed in its financial statements. If yes, did THESL add back the capitalized interest to the actual interest expense amount for purposes of the interest true-up calculations? Please explain.

j) If any revisions are made, please file the revised SIMPIL models and update the PILs continuity schedule and final balance for disposition in active Excel format.

**3.1-Staff-85**

Ref: T5:

The federal large corporation tax (LCT) was repealed retroactively in 2006 with effect from January 1, 2006. However, both the 2005 and 2006 rates contained LCT since the repeal was issued after the Board's decisions were issued. Distributors have to account for the refund to ratepayers and were instructed to use both PILs account 1562 and account 1592 for this purpose.

a) Did THESL include the repeal of the large corporations tax (LCT) in account 1562 for the period January 1, 2006 to April 30, 2006 in accordance with FAQ July 2007?

b) If the answer is no, did THESL record the LCT amount related to this period in account 1592?

c) Please state whether or not THESL has requested disposition of account 1592 since May 1, 2006, and whether or not the balance included the LCT amount related to the period January 1, 2006 to April 30, 2006.

**3.1-Staff-86**

Ref: T5:

Please confirm that all tax years from 2001 to 2005 are now statute-barred.

*3.2 Is the proposed final disposition of all remaining Deferral and Variance Accounts (i.e. the Group 1 Accounts as well as the Special Purpose Charge Variance Account 1521) appropriate, including the proposed rate riders?*

No interrogatories

## *4. Implementation*

*4.1 Has THESL appropriately complied with the Final Order Regarding Suite Metering Issues dated April 26, 2012 in EB-2010-0142 including its use of the name "Competitive Sector Multi-Unit Residential" for the new Quadlogic class?*

No interrogatories

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

No interrogatories