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February 28, 2014

*via RESS e-filing – signed original to follow by courier*

Ms. Kirsten Walli  
Board Secretary  
Ontario Energy Board  
PO Box 2319  
2300 Yonge Street, 27<sup>th</sup> floor  
Toronto, ON M4P 1E4

Dear Ms. Walli:

**Re: Toronto Hydro-Electric System Limited (“THESL”)  
Application for an Order pursuant to Section 29 of the *Ontario Energy Board Act, 1998*  
 (“Wireless Forbearance Application”) – Interrogatory Responses  
OEB No. EB-2013-0234**

THESL received interrogatories on its Wireless Forbearance Application from Consumers Council of Canada, Vulnerable Energy Consumers Coalition, School Energy Coalition and Energy Probe Research Foundation. Enclosed are two sets of THESL’s responses to these interrogatories. Also provided is an Excel version of the Cost Allocation Model as part of THESL’s response to Energy Probe Interrogatory 20.

Please address all questions or comments to me.

Yours truly,

*[original signed by]*

**Rob Barrass**

Lead Regulatory Counsel, Regulatory Affairs

encl.

cc: Intervenor of Record for EB-2013-0234  
Robert B. Warren, WeirFoulds LLP  
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February 28, 2014

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File 15441

Kirsten Walli  
Board Secretary  
Ontario Energy Board  
Suite 2701  
2300 Yonge Street  
Toronto ON M4P 1E4

Dear Ms Walli:

**Re: EB-2013-0234**

We are counsel to Toronto Hydro-Electric System Limited ("THESL") in this matter.

By this letter we are requesting that, pursuant to Rule 10.01 of the Board's *Rules of Practice and Procedure*, the Board keep confidential the interrogatory responses listed below,

By way of overview, THESL has requested that the Board make a determination, pursuant to section 29 of the *Ontario Energy Board Act, 1998*, to refrain from regulating the terms, conditions and rates for the attachment of wireless telecommunications devices, ("wireless attachments") to THESL's utility poles. If the application is granted, THESL will be offering access to its poles for wireless attachments in a competitive market. In that market, public disclosure of information about THESL's costs and revenues would put it at a competitive disadvantage. In addition, operating in a competitive market would require THESL to deal with clients, and potential clients, on terms of confidentiality as to the identities of the clients, the attachments they seek, the terms of the attachments, the locations of the attachments, the revenues earned from the attachments, and so forth. Requiring the public disclosure of information in those categories would prejudice the interests of those clients, and would in the process prejudice THESL's competitive position.

THESL is, accordingly, requesting that responses to interrogatories seeking information of the nature outlined in the preceding paragraph, kept confidential. Below, we outline the specific nature of the confidential information, as well as the harm that disclosure would cause THESL. Our respectful submission is that while public disclosure of this information will harm THESL (as detailed below), confidential treatment of this minimal information results in no harm to the public interest. Should THESL's request for confidential treatment be granted, the OEB will continue to have unrestrained access to it for the purposes of decision-making, and upon execution of the relevant declaration and undertaking, intervenors are free to review, examine and make arguments regarding this information.

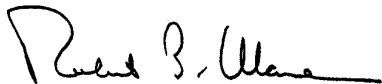
The specific interrogatories are:

1. Consumers Council of Canada 3, 5, 6(a) and 16, Vulnerable Energy Consumers Coalition 12 and 15, and School Energy Coalition 6a and Energy Probe 18 all ask for information about THESL's costs for wireless attachments. Disclosing information about those costs would prejudice THESL's ability to compete in a competitive market. Were competitors, and potential competitors, aware of THESL's costs they would be able to price their services below those costs, effectively precluding THESL from being able to compete. No business in the competitive market is required to disclose its costs.
2. OEB Staff 21 asks for the location of the poles for which there are wireless attachments. The location of the poles is confidential business information of THESL's clients. Disclosing the information would be prejudicial to those clients. It would also be prejudicial to THESL, in that clients would be unwilling to do business with THESL if their confidential information were at risk of being exposed.
3. OEB Staff 22 asks for copies of the agreements between THESL and wireless attachers. The terms of those agreements are confidential. Disclosing the agreements would prejudice THESL and the parties to the agreements.
4. School Energy Coalition 7 asks for the annual revenue from wireless attachments for the years 2008-2013. The revenue in those years includes revenue derived under a contract with a confidentiality requirement. Disclosing that information publicly would constitute a breach of the contract, would expose THESL to the risk of a claim for damages for breach of the contract, and would prejudice THESL's ability to compete in the market.

By separate letter, THESL is filing copies of the responses to which this request applies, in accordance with the OEB's *Rules of Practice and Procedure* and its *Practice Direction on Confidential Filings*. You will note that the copies filed do not include responses to all of the interrogatories listed above. That is because some of the interrogatories are included only by reference in the copies being filed, and so there is no need to file them confidentially.

Yours truly,

**WeirFoulds LLP**



Robert B. Warren

RBW/dh

cc: All Parties

cc: THESL Attention: R. Barrass and A. Klein

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 1:**

2 **Reference(s):** **Pre-Filed Evidence of THESL, page 2, paragraph 13**

3

4 **ISSUE(S):** **1**

5

6 THESL states:

7 “Since the date of the Board’s Preliminary Decision and Order in EB-2011-0120 there  
8 have been 19 permit applications, from two providers, for wireless attachments on  
9 THESL and THESI’s poles. To date, one permit has been issued. Of those applications,  
10 18 are for cellular services on 18 THESL poles. The remaining application contemplates  
11 WiFi attachments on 2 THESL poles.”

12

- 13 a) Please describe the permitting process and the significance of holding a permit.
- 14 b) Beyond obtaining a permit, what is required for a wireless provider to attach to one or  
15 more THESL distribution poles?
- 16 c) What costs are associated with each of the requirements enumerated in (b)?
- 17 d) Are wireless providers required to fulfill all of the requirements in (b) by using  
18 THESL to do the work or it is possible for the providers to do the work necessary to  
19 fulfill the requirements themselves?
- 20 e) How many permit applications for wireless attachments to THESL and THESI poles,  
21 for which a permit has not yet been granted or been declined, have been made before  
22 and since the Board’s Preliminary Decision and Order in EB-2011-0120 and from  
23 which parties? Of those permit applications, how many attachments provide WiFi  
24 services and how many provide cellular services?



## RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES

**RESPONSE:**

a) THESL's general practice with respect to the permitting process is as follows:

- The party seeking an attachment submits an application, which usually consists of a cover letter, a plan ("the construction drawings and instructions that are prepared for the construction of new or modified distribution system that have been reviewed and approved by a professional engineer"<sup>1</sup>), and an engineer's report. The applicant will propose make-ready work<sup>2</sup> in the plan if the existing field conditions, or the addition of the proposed attachment, do not satisfy the requirements of Ontario Regulation 22/04 (Electrical Distribution Safety) or THESL's construction standards. The engineer's report provides the supporting technical information that is not typically contained in the plan including calculations, pole loading analysis, and any assumptions made by the professional engineer.
- Upon receipt of a complete application, THESL reviews the documentation submitted to assess whether the proposed plan complies with the requirements of Ontario Regulation 22/04 (Electrical Distribution Safety) and conforms to THESL's construction standards.
- After the application is reviewed, THESL conducts a field inspection to verify that the information provided in the application is consistent with the conditions in the field. If the application contains a proposal for any make-ready work, THESL also conducts a preliminary assessment of the feasibility of that work.
- Upon a satisfactory review of the application and field inspection, a permit is

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<sup>1</sup> ESA Guideline for Third Party Attachments, online:  
<[http://www.esasafe.com/assets/files/esaeds/pdf/ALL/Guideline\\_for\\_Third\\_Party\\_Attachments.pdf](http://www.esasafe.com/assets/files/esaeds/pdf/ALL/Guideline_for_Third_Party_Attachments.pdf)> at 7.

<sup>2</sup> Make-ready work consists of any changes, alterations, rearrangements, or repairs of the attachments or poles and other plant of THESL, or any other user, to accommodate the attachments of the applicant.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 granted to the applicant. The permit may be conditional upon the completion of  
2 any THESL make-ready work. A cost estimate to complete THESL make-ready  
3 work is prepared by THESL and provided to the applicant for approval.

- 4 • The applicant will approve the cost estimate by providing THESL with a purchase  
5 order. THESL will then proceed with completing the make-ready work and a  
6 granted permit will subsequently be issued to the applicant.

7  
8 A permit demonstrates that THESL has reviewed the application, conducted a field  
9 inspection, and completed any THESL make-ready work required to satisfy Ontario  
10 Regulation 22/04 and THESL's construction standards. Once the permit has been  
11 granted, the applicant can proceed to carry out any work that it requires to install the  
12 attachment. Upon completion of the applicant's installation, THESL's general  
13 practice, is to inspect the work in accordance with its construction verification  
14 program to ensure consistency with the approved plans.

15  
16 b) In addition to obtaining a permit, a wireless provider seeking to attach to THESL's  
17 poles is required to:

- 18 • execute a licensed occupancy agreement, which governs the terms and  
19 conditions associated with a permit;
- 20 • undergo a technical assessment to develop the construction standard per  
21 Section 7 of Ontario Regulation 22/04, should one not exist for the proposed  
22 attachment;
- 23 • notify residents in proximity to the proposed attachment(s), facilitate a public  
24 consultation for identifying any public concerns relating to the attachments,  
25 and resolve such concerns prior to installation of the wireless attachments on  
26 THESL's poles; and

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

- 1           • maintain insurance two policies (one for comprehensive general liability and  
2           property damage, and another for automobile liability) to cover the risk of loss  
3           or damage resulting from the proposed attachments.  
4
- 5   c) The costs associated with the first two requirements outlined above vary depending  
6       on the nature of the attachment, the proposed installation method, and any impacts of  
7       the attachment(s) on THESL or other third party equipment. As a result, THESL  
8       cannot quantify these costs on a generic basis. As the public consultation process is  
9       undertaken by the wireless provider, THESL does not have visibility into the costs  
10      associated with the third requirement. Similarly, THESL does not have any  
11      information about the costs associated with maintaining the insurance policies  
12      described under the fourth requirement.  
13
- 14   d) With the exception of THESL make-ready work, wireless providers are required to  
15      fulfill all of the requirements themselves. THESL expects to perform the make-ready  
16      work as proposed by the wireless provider.  
17
- 18   e) Since the Board's Preliminary Decision and Order in EB-2011-0120, four permit  
19      applications for wireless attachments to THESL and THESI poles have not been  
20      granted or have been declined. These permit applications cover five attachments, all  
21      of which provide cellular services. The identity of the specific applicants has been  
22      filed confidentially under the OEB's *Rules of Practice and Procedure* and its *Practice*  
23      *Direction on Confidential Filings*.  
24

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

- 1        There are no applications for wireless attachments to THESL and THESI poles that
- 2        have not been granted or have been declined that predate the Board's Preliminary
- 3        Decision and Order in EB-2011-0120.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 2:**

2 **Reference(s):** **Evidence of Dr. Jackson, Section 4.1.4, page 26**

3

4 **ISSUE(S):** **1**

5

6 The biggest challenges to providing wireless service are providing adequate coverage and  
7 capacity. Large cells are used for widespread and affordable coverage; improved  
8 technology, additional spectrum, and smaller cells are used to expand capacity.

9

10 With respect to addressing different users in different scenarios, are there new service  
11 offerings that might make greater use of pole-attached wireless equipment? As an  
12 example, what are your views on the impacts of machine-to-machine traffic which uses  
13 more wireless equipment / sensors?

14

15 **RESPONSE:**

16 Dr. Jackson's response is as follows:

17 I am not aware of any specific offering or application that would make greater use of  
18 pole-attached-wireless equipment. I believe that the bulk of machine-to-machine traffic  
19 will originate indoors. Heating systems, refrigerators, vending machines, and most  
20 electrical appliances are more often located indoors than outside. A category of machine-  
21 to-machine communications that will depend on outdoor access points is the  
22 communications that will underlie vehicle-to-vehicle and vehicle-to-infrastructure  
23 communications in intelligent transportation systems. However, as I understand the  
24 current proposals for such systems, the vehicle-to-infrastructure communications  
25 contemplate a communications infrastructure that is integrated with the other highway

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

- 1 infrastructure such as active signs, traffic lights, and traffic-monitoring cameras that
- 2 require electric power and, in many cases, connections to communications networks.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 **INTERROGATORY 1:**

2 **Reference(s):** **Notice of Application**

3

4 **ISSUE(S):** **1**

5

6 THESL is seeking an order that the Board refrain from regulating the terms, conditions  
7 and rates for the attachment of wireless telecommunications devices, or wireless  
8 attachments. Please define what is meant by, “wireless telecommunications devices” for  
9 the purposes of this application. If wireless technology changes going forward, how does  
10 it impact the relief requested in this application? Is this application based on specific  
11 technology? If not, why not? If so, what is that technology? Please explain.

12

13 **RESPONSE:**

14 THESL conceives of “wireless telecommunications devices” (defined as “wireless  
15 attachments” in the Notice of Application) as consisting of that equipment that is used to  
16 provide wireless services. Dr. Church’s evidence defines “wireless services” as  
17 involving “the provision of network coverage and capacity to consumers who wish to  
18 make voice calls and consume data services ranging from Internet downloads to simple  
19 SMS text messaging, from a multiplicity of locations.”<sup>1</sup>

20

21 The modern wireless systems that provide wireless services are complex and comprised  
22 of a multitude of technologies. This is part of the reason that THESL has filed the  
23 evidence of Dr. Jackson, which describes the structure of modern wireless systems in his  
24 report in THESL’s pre-filed evidence.<sup>2</sup>

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<sup>1</sup> The Expert Report of Dr. Jeffrey Church, page 32.

<sup>2</sup> See section 3.2 of the Expert Report of Dr. Robert Jackson, beginning on page 4.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1

2 Dr. Jackson's evidence reports on the challenges that wireless network operators face or  
3 are likely to face in providing high-speed wireless voice and data services in densely  
4 populated urban areas, and specifically the technologies they use or are likely to use to  
5 meet such challenges. His analysis is an important factor in Dr. Church's analysis of the  
6 relevant market(s).

7

8 If the technology that wireless service providers use to provide wireless service to their  
9 customers changes so fundamentally that Dr. Jackson's analysis no longer applies, that  
10 could affect Dr. Church's conclusions regarding the relevant market(s), which in turn  
11 could affect the OEB's determination as to whether there is sufficient competition to  
12 protect the public interest. However, THESL has asked Dr. Jackson to consider the  
13 probable future challenges faced by wireless service providers, as well as the  
14 technologies they would likely use to address those challenges. As a result, THESL  
15 believes that the OEB may reach its conclusion in this proceeding with confidence that  
16 the experts' analysis will apply to the relevant market(s) for the foreseeable future. And,  
17 as THESL notes elsewhere in these interrogatories, if the underlying facts on which the  
18 OEB bases its decision in this proceeding should change, then it is possible for the OEB  
19 to revisit the issue of forbearance on its own motion or on the motion of other parties.



## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 **INTERROGATORY 2:**

2 **Reference(s):** Pre-Filed Evidence of THESL, p. 2

3

4 **ISSUE(S):** 1

5

6 The evidence filed on June 14, 2013, indicates that at that time there were wireless  
7 attachments on 130 of THESL's poles, and 61 of THESI's poles. Of the wireless  
8 attachments on THESL's poles 128 are for WiFi services, and 2 are for cellular services.  
9 Of the wireless attachments on THESI's poles, 52 are for WiFi services and 9 are for  
10 cellular services. Please provide an update, indicating the number and type of pole  
11 attachments currently in place for both THESL and THESI. Please explain what specific  
12 technologies in terms of wireless telecommunications devices are currently attached to  
13 THESL and THESI poles.

14

15 **RESPONSE:**

16 As of February 14, 2014:

Attachments	THESL	THESI	Total
WiFi Nodes	128	52	180
4G Cellular Antennas	9	11	20
Total	137	63	200

17 The only wireless technologies that are currently attached to THESL and THESI poles  
18 are WiFi nodes and 4G cellular antennas.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 **INTERROGATORY 3:**

2 **Reference(s):** **Pre-Filed Evidence of THESL, p. 2**

3

4 **ISSUE(S):** **1**

5

6 Does THESL currently have applications for pole attachments from wireless service  
7 providers? If so, does THESL expect to facilitate those attachments? If not, why not? If  
8 so, at what price?

9

10 **RESPONSE:**

11 Yes, THESL currently has applications for pole attachments from a wireless service  
12 provider. THESL expects to facilitate these attachments. The price at which THESL  
13 expects to facilitate the attachments has been filed confidentially with the OEB in  
14 accordance with the OEB's *Rules of Practice and Procedure* and the OEB's *Practice*  
15 *Direction on Confidential Filings*.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 **INTERROGATORY 4:**

2 **Reference(s):** Pre-Filed Evidence of THESL, p. 2

3

4 **ISSUE(S):** 1

5

6 Please provide a copy of THESL's current policy regarding wireless attachments. Under  
7 what specific conditions does THESL deny access to its poles? Please explain the extent  
8 to which safety, reliability and operational concerns impact THESL's decisions to allow  
9 for wireless attachments to its poles.

10

11 **RESPONSE:**

12 THESL does not have a written policy regarding wireless attachments.

13

14 THESL may deny access to its poles if the addition/installation of the attachment fails to  
15 satisfy the requirements of Ontario Regulation 22/04 (Electrical Distribution Safety) or  
16 THESL's construction standards.

17

18 Safety, reliability and operational considerations are central to THESL's decisions to  
19 allow wireless attachments to its poles. For example, before it approves a wireless  
20 attachment on its pole, THESL's practice is to confirm that the structures (poles, guy, and  
21 anchors) have adequate strength to support all imposed loads.<sup>1</sup> If the structures cannot  
22 withstand the imposed loads, THESL will not allow the wireless attachment because a  
23 pole that is "overloaded" is at a greater risk of breaking. For this reason, overloaded  
24 structures present a potential safety risk, and could result in power outages.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 To protect the safety of the public, THESL's practice is to require that the attachment  
2 satisfies minimum clearances from the ground/roadway. THESL also requires that  
3 attachments maintain minimum clearances from energized conductors, in order to  
4 minimize the potential risk to field crews.<sup>2</sup> In addition, THESL requires that the  
5 attachment not conflict with THESL's ability to operate or maintain THESL-owned  
6 equipment. THESL must be able to properly operate, access, or replace the equipment  
7 (e.g., switches and transformers) on its poles.

---

<sup>1</sup> O. Reg. 22/04, at s. 5.

<sup>2</sup> O. Reg. 22/04, at s. 5.

## RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES

1 **INTERROGATORY 5:**

2 **Reference(s):** **Pre-Filed Evidence of THESL, p. 2**

3

4 **ISSUE(S): 1**

5

6 For each year since THESL and THESI have been allowing for wireless attachments on  
7 poles, please indicate how many attachments were made in each year. When was the  
8 most recent attachment made? Please indicate what THESI's charges for wireless pole  
9 rentals.

10

11 **RESPONSE:**

12 Prior to 2012, THESL did not track the installation dates of telecommunications  
13 attachments. Based on the information available, the table below provides the  
14 approximate number of attachments in each year. The most recent attachment was made  
15 on January 16, 2014.

Year	THESL	THESI	
	Number of Attachments	Number of Attachments	Rental Rate
2006	33	90	\$22.35
2007	26	31	\$22.35
2008	0	0	-
2009	105 <sup>1</sup>	0	-
2010		0	-
2011	0	0	-
2012	2	9	Filed Confidentially*
2013	7	1	
2014	0	1	

<sup>1</sup> THESL is unable to determine how many attachments were made in 2009 and 2010, respectively.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

- 1     \*The rental rate for THESI wireless attachments in 2012-2014 has been filed
- 2     confidentially with the OEB, in accordance with the OEB's *Rules of Practice and*
- 3     *Procedure* and the OEB's *Practice Direction on Confidential Filings*.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 1:**

2 **Reference(s):**           **Evidence of Dr. Church**

3

4 **ISSUE(S):**    **1**

5

6 At paragraph 96, Dr. Church states:

7 “The purpose of outdoor small cell and outdoor DAS deployments is to enhance the  
8 provision of wireless services by improving the capacity and coverage of the cellular  
9 wireless networks used to provide those downstream wireless services.”

10

11 Is Dr. Church aware of any wireless service providers who rely entirely on small cell and  
12 distributed antenna systems, without also operating a traditional macrocell network?

13

14 **RESPONSE:**

15 This question is better addressed to THESL’s industry expert, Dr. Jackson.

16

17 Dr. Jackson is not aware of any service provider using modern wireless standards  
18 (CDMA2000, WCDMA, WiMAX, or LTE) that operates a system that is exclusively  
19 small cell or DAS.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 2:**

2 **Reference(s):**           **Evidence of Dr. Church**

3

4 **ISSUE(S):**    **1**

5

6 At paragraph 101, Dr. Church states:

7 “A basic but easily appreciated difficulty with continuing to deploy cell towers and  
8 obtrusive antennas arises from civic opposition to such deployment on largely aesthetic  
9 grounds (although there are also concerns about radiation levels from cellular facilities)  
10 ... footnote omitted”

11

12 a) Does Dr. Church anticipate that concerns regarding radiation levels would also apply  
13 to antennas used in small cell and distributed antenna systems?

14 b) Does Dr. Church anticipate that antennas associated with small cell and distributed  
15 antenna systems might give rise to any aesthetic concerns, albeit less than with  
16 traditional towers or masts?

17

18 **RESPONSE:**

19 a) Dr. Church declines to speculate on whether such concerns will or will not arise: this  
20 is outside of his area of expertise. If such a concern arises, then what matters is how  
21 it influences the trade-off between the deployment of small cell and DAS systems  
22 mounted on poles relative to other network deployments that also may give rise to  
23 concerns over radiation.

24

25 b) Please refer to the response in part a), above.



## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 3:**

2 **Reference(s):** **Evidence of Dr. Church**

3

4 **ISSUE(S):** **1**

5

6 At paragraph 107, Dr. Church states:

7 “In the future, wireless networks might utilise utility poles, but likely only in the context  
8 of particular technologies (DAS and small cells) that will be part of a series of solutions  
9 that wireless service providers use to meet capacity and coverage challenges.”

10

11 a) Would Dr. Church include Wi-Fi deployment in this list of technologies?

12 b) Does the deployment of Wi-Fi also require deployment of antennas?

13

14 **RESPONSE:**

15 a) Dr. Church agrees that off-loading to Wi-Fi does, and will, play an important role in  
16 alleviating capacity problems on cellular wireless networks. He notes, however, that  
17 most Wi-Fi offloading will, and does, take place in indoors locations.<sup>1</sup>

18

19 b) Dr. Jackson, the technical expert for THESL in this matter, confirms that Wi-Fi  
20 deployment requires deployment of antennas.

---

<sup>1</sup> Cisco Systems’ Visual Networking Index publication says the following, “Much mobile data activity takes place within users’ homes. For users with fixed broadband and Wi-Fi access points at home, or for users served by operator-owned femtocells and picocells, a sizable proportion of traffic generated by mobile and portable devices is offloaded from the mobile network onto the fixed network.”

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 4:**

2 **Reference(s):** **Evidence of Dr. Jackson**

3

4 **ISSUE(S):** **1**

5

6 At page 24 of his evidence, Dr. Jackson states:

7 “Radio waves tend to travel in straight lines-so providing coverage in small valleys or  
8 behind hills may require building extra cells to fill in coverage.”

9

10 Please comment on the effects of attaching antennas on the sides of residential one and  
11 two-story houses, below roof level. Please include the consequences on coverage areas,  
12 interference, and power require

13

14 **RESPONSE:**

15 Dr. Jackson’s response is as follows:

16 For the wireless technologies of interest in this proceeding, it is generally the case that the  
17 lower an antenna is mounted, the more restricted its coverage. An antenna mounted three  
18 meters above the ground will behave much the same whether it is mounted on a house, an  
19 apartment building, or a utility pole.

20

21 The environmental factor that is most likely to affect coverage would the presence or  
22 absence of vegetation, particularly dense vegetation such as row of tall spruce trees.  
23 Along with the reduction in coverage from lower antennas comes a reduction in the  
24 extent to which a transmitter interferes with the operation of other base stations.

25

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

- 1 The total power required to operate a small cell mounted on the outside of a house would  
2 be a few watts. The radiated radio-frequency (RF) signal would only be a fraction of  
3 that, probably in the range of one-tenth of a watt to one watt.<sup>1</sup>

---

<sup>1</sup> But, for an exception to this power level see <http://www.thinksmallcell.com/Opinion/nsn-s-new-lte-small-cell-designed-to-densify-urban-mobile-networks.html>, which describes a recently announced NSN small cell. This article characterizes the unit's power saying, "The relatively high RF power of 5 Watts means it's at the top end of what might be termed a small cell."

## **RESPONSES TO SCHOOL ENERGY COALITION INTERROGATORIES**

1 **INTERROGATORY 1:**

2 **Reference(s):**           **Tab 4, Expert Report of Charles Jackson**

3

4 **ISSUE(S):**    **1**

5

6 What is Mr. Jackson's view of the current and likely future state of modern wireless  
7 networks as it related to the current and future demand for attachments to THESL polls  
8 [sic] of wireless telecommunication attachments?

9

10 **RESPONSE:**

11 Dr. Jackson's response is as follows:

12 This is a difficult question to answer briefly as the bulk of my report addresses aspects of  
13 wireless technology related to this question. I think the entirety of the report expresses  
14 my view regarding the current and likely future state of modern wireless networks as that  
15 state relates to antenna placement. I did not provide any economic analysis in that report  
16 and did not address the question of demand for pole attachments.

## **RESPONSES TO SCHOOL ENERGY COALITION INTERROGATORIES**

1 **INTERROGATORY 2:**

2 **Reference(s):**           **none provided**

3

4 **ISSUE(S):**    **1**

5

6 What impact does Mr. Jackson believe the February 5, 2014 announcement by Industry  
7 Canada that it is changing its Antenna Tower Siting Policy will have on the future  
8 demand for attachments to THESL polls of wireless telecommunication attachments.

9

10 **RESPONSE:**

11 Dr. Jackson's response is as follows:

12 I did not address economic issues such as demand for attachments in my report. That  
13 said, I note that mounting a base station's antenna system (or, in the case of small cells,  
14 mounting the entire base station) on an existing structure is often less costly and can be  
15 accomplished more quickly than building a new structure and mounting the equipment on  
16 the new structure. Relatedly, in many locations, existing structures block the  
17 construction of a new tower. Thus, it seems to me that this policy will not change a  
18 service provider's decision calculus with regard to using a new tower or an existing  
19 structure.

## **RESPONSES TO SCHOOL ENERGY COALITION INTERROGATORIES**

1 **INTERROGATORY 3:**

2 **Reference(s):**           **none provided**

3

4 **ISSUE(S):**    **1**

5

6 Since the filing of the application Public Mobile has been acquired by Telus, what effect  
7 will this have on the future demand for attachments to THESL polls of wireless  
8 telecommunication attachments?

9

10 **RESPONSE:**

11 THESL does not know what effect the acquisition of Public Mobile by Telus will have on  
12 future demand.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 **INTERROGATORY 1:**

2 **Reference(s):** **BRG Report (Dr. Church) Page 6, Para 18, & Appendix**  
3 **Table 2**

4  
5 **ISSUE(S): 1**

6  
7 *Downstream Product Market Definition:* The relevant downstream market is a wireless  
8 service that meets both nomadic and mobile demand by users in Toronto, with an  
9 emphasis on high speed data transmission. Wireless services in the relevant market are  
10 likely to utilize Long Term Evolution (“LTE”) technology to deliver increasingly high  
11 speed data transmission services, aimed at supporting the needs of smartphone and tablet  
12 users.

13

14 a) Please explain the differences between LTE and 4G Networks and based on their  
15 differences, what is the outlook for penetration of each and secondly the market for  
16 attachments/connections.

17 b) Please update Appendix Table 2 for most recent data. Please include information on  
18 4G networks if available.

19

20 **RESPONSE:**

21 a) LTE technology is an example of a 4G technology. Because 3G and 4G have been  
22 appropriated by marketing departments, it is preferable to refer to wireless networks  
23 by the technology of deployment. This more accurately capture the speed and  
24 capacity differences implied by different generations.

25

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1       The most recent data on LTE coverage in Canada is found in the Communications  
2       Monitoring Report 2013 published by the CRTC.<sup>1</sup>

3

4       The nature of the wireless technology does not impact on the demand for attachments  
5       and connections to poles.

6

7       b) An updated table is attached as Appendix A.

---

<sup>1</sup> Communications Monitoring Report 2013, available online:  
<<http://www.crtc.gc.ca/eng/publications/reports/policymonitoring/2013/cmr2013.pdf>> at pp. 166 and 177.



**Table 2: Comparison of Ontario/Toronto with Quebec/Montreal**

	Ontario/Toronto	Montreal/Quebec
Market share of entrant service providers (2012) <sup>1</sup>	6%	10%
Smartphone penetration (2012) <sup>2</sup>	54%	41%
Total cellular phone penetration (2012) <sup>3</sup>	80%	67%
LTE coverage (% of population) <sup>4</sup>	78%	70%
Public Mobile "Talk + Text" plan <sup>5</sup>	Unlimited provincial calls, unlimited texts for \$25 pm, unlimited long distance.	Unlimited provincial calls, unlimited texts for \$25 pm, unlimited long distance.
Public Mobile "Talk, Text + Data" plan <sup>6</sup>	Unlimited provincial calling and text, 3G data for \$30 p.m.	Unlimited provincial calling and text, 3G data for \$35 p.m.

<sup>1</sup> CTRC, *Communications Monitoring Report 2013*, Table 5.5.5.

<sup>2</sup> CTRC, *Communications Monitoring Report 2013*, Figure 6.2.17. (Respondents: Canadian 18+)

<sup>3</sup> CTRC, *Communications Monitoring Report 2013*, Table 5.5.10.

<sup>4</sup> CTRC, *Communications Monitoring Report 2013*, Table 5.5.10.

<sup>5</sup> <http://www.publicmobile.ca/pmconsumer/plans?lang=en>. Data retrieved February 19th, 2014.

<sup>6</sup> <http://www.publicmobile.ca/pmconsumer/plans?lang=en>. Data retrieved February 19th, 2014.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 3:**

2 **Reference(s):**           **none provided**

3

4 **ISSUE(S):**    **2**

5

6 For the attachments that do exist, does THESL / THESI provide, or allow access to, a  
7 power supply (regardless of what rate they may charge).

8

9 **RESPONSE:**

10 THESL provides access to a power supply for the existing attachments that require a  
11 power supply, whether these attachments exist on THESL or THESI's poles.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES, ISSUE 2**

1 **INTERROGATORY 4:**

2 **Reference(s):** **none provided**

3

4 **ISSUE(S):** **2**

5

6 In the context of any possible reciprocal arrangements that exist between THESL /  
7 THESI and existing telecommunication service providers, are there any other attachment  
8 arrangements that do not fall into the numbers provided above?

9

10 **RESPONSE:**

11 THESL has reciprocal arrangements for pole occupancy with Bell Canada and Hydro  
12 One Networks Incorporated ("HONI"). Under these agreements, Bell and HONI are  
13 licensed occupants on THESL poles and vice versa.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 5:**

2 **Reference(s):** **Evidence of Dr. Church, Pages 75-76, paragraph 200**

3

4 **ISSUE(S): 2b**

5

6 Public Mobile also had plans to use 730 DAS nodes to meet the needs of its Toronto area  
7 customers for a four-to-five year time period. It originally intended to use THESL poles  
8 for 90% of those nodes but claims that it was thwarted by THESL's refusal to  
9 accommodate wireless attachments.

10

11 a) In paragraph 200, it is unclear what the situation with Public Mobile was in relation to  
12 pole attachments. Did Public Mobile make requests to use poles and was denied, or  
13 were no applications ever made?

14 b) Was there a reasonable effort by THESL to accommodate these requests?

15 c) What is the typical time taken by THESL to respond to a request for attachment?

16

17 **RESPONSE:**

18 a) THESL has no record of Public Mobile submitting application requests for permits.  
19 However, THESL did receive permit application requests from DAScom, which is a  
20 member company of the Canadian Distributed Antenna Systems Coalition  
21 ("CANDAS") along with Public Mobile and ExteNet.

22

23 b) Yes. THESL issued 372 permits to DAScom in 2009 and 2010, collectively.

24

25 c) The typical time taken by THESL to respond to a request for attachment in 2013 was  
26 12 days. For greater clarity, this is counted from the day THESL received the

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

- 1 application to the day THESL provided a response (i.e., declined, granted, or
- 2 conditionally granted) to the applicant. Please refer to THESL's response to OEB
- 3 Staff interrogatory 1a (Tab A, Schedule 1-1, part a) for additional details regarding
- 4 THESL's permitting process.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

**INTERROGATORY 6:**

**Reference(s):**           **Evidence of Dr. Jackson, Section 4.1.1, page 24**

**ISSUE(S):**    **2b**

Radio waves tend to travel in straight lines—so providing coverage in small valleys or behind hills may require building extra cells to fill in coverage. Also, radio waves weaken as they penetrate buildings or foliage.

In the context of the propagation of radio waves, are there scenarios where the use of a pole attachment might be preferable to a wall-based attachment point? In other words, aren't siting choices very much determined by the nature of the traffic and the services being used?

**RESPONSE:**

Dr. Jackson's response is as follows:

As I noted in my report, "[n]o doubt there will be a few locations, such as a stretch of road with no other structures, where utility poles will be the best location for a small cell site."<sup>1</sup>

Siting choices depend on the nature of the traffic and the services being used. Siting choices also depend on the availability of electric power and backhaul facilities and the relative cost of various alternatives. A location that requires the installation of fiber or

---

<sup>1</sup> Expert Report of Charles L. Jackson, page 2.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

- 1 microwave for a backhaul link is less desirable than one that does not, all other things
- 2 being equal.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 7:**

2 **Reference(s):** Evidence of Dr. Jackson, Section 6, page 28

3

4 **ISSUE(S):** 2b

5

6 But, if a carrier wants to offer a Wi-Fi-like service, there is no point in paying for  
7 licenced spectrum – unlicensed spectrum provides acceptable service and is free.

8

9 As mentioned, the use of Wi-Fi hotspots may provide acceptable service, and is free to  
10 use by prospective service providers. THESL evidence has shown that the majority of  
11 existing pole attachments are in fact for the provision of Wi-Fi services. With that in  
12 mind, specific to wi-fi provision, discuss the relative merits of pole attachments vs.  
13 building side attachments in the case where outdoor attachment is desirable.

14

15 **RESPONSE:**

16 The response of Dr. Jackson is as follows:

17 With regard to Wi-Fi, pole attachments would be most desirable for entities such as cable  
18 operators that have easy access to a backhaul connection. Cable networks provide both  
19 backhaul connections and electric power to pole-mounted Wi-Fi access points. In  
20 contrast, if a Tim Hortons wants to provide Wi-Fi coverage in the parking lot, an access  
21 point located on the side of the building would probably be preferable to one mounted on  
22 a utility pole.



## RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES

1 **INTERROGATORY 8:**

2 **Reference(s):** **Evidence of Dr. Church, Page 19, paragraph 22**

3

4 **ISSUE(S):** **2c**

5

6 Wireless service providers can often substitute to alternative inputs rather than use small  
7 cells and DAS to augment the capacity and coverage of their networks outdoor. For  
8 instance, wireless service providers can mitigate the demands on their wireless networks  
9 by offloading traffic to fixed line networks using femtocells and Wi-Fi, *and using data*  
10 *management practices such as pricing, traffic shaping, and data compression.*

11 Wireless service providers can also increase the capacity of their wireless networks by,  
12 for example, *acquiring more spectrum*, splitting macrocells, adopting technology that  
13 economizes on spectrum, and sharing spectrum and cell sites, perhaps by roaming.

14

15 a) Given the scarcity of spectrum as a general notion, would the lack of spectrum  
16 change this argument with regards to substitution?

17 b) The techniques of traffic shaping and data compression can have adverse effects on  
18 the performance of services making use of wireless networks. What is the impact of  
19 this in the context of the selection of a substitution to small cells and DAS?

20

21 **RESPONSE:**

22 a) All resources are scarce. The specific focus going forward is how to accommodate  
23 growth in demand, growth in demand for data transmission in particular. The 700  
24 MHz auction, the upcoming 2500 MHz auction, and utilization of existing 2500 MHz

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 holdings of Bell and Rogers for LTE,<sup>1</sup> as well as ongoing policy efforts to re-farm  
2 spectrum all indicate that spectrum can be augmented, but at a cost. The relative cost  
3 of acquiring more spectrum or any other input determines the rate (opportunity cost)  
4 at which wireless providers are able to substitute inputs, but does not indicate  
5 anything about their willingness to do so.

6  
7 As discussed in Dr. Church's Evidence, if spectrum were or became relatively more  
8 scarce, then wireless service providers could still turn to other methods such as cell  
9 splitting, off-loading to fixed-line networks, deployment of outdoor and indoor small  
10 cells, and accelerated deployment of more spectrally efficient technology, as well as  
11 techniques to manage traffic such as pricing, traffic shaping and compression.

12  
13 Spectrum scarcity likely does not have much of an impact on demand for pole access.  
14 This is because of the specific role that pole access might play in the deployment of  
15 DAS and small cells to provide outdoor coverage.

16  
17 Minimizing the cost of providing universal coverage and mobility involves a mix of  
18 technologies and the use of pole access in that mix is limited because of its costs and  
19 characteristics.<sup>2</sup> This is supported by the nature of the deployment by the three main  
20 providers of wireless services (Rogers, Telus, and Bell). They have been able to  
21 substitute other inputs for pole access. The evidence on pole usage suggests that  
22 direct substitution to other inputs is easy (i.e., the elasticity of substitution very large).

---

<sup>1</sup> Bell and Rogers both have significant holdings of 2500 MHz spectrum. Such spectrum is well suited for providing capacity in dense urban areas. It is also the spectrum band being used by European operators to provide LTE coverage at the moment. This utilization by many European operators creates incentives for handset makers to manufacture handsets compatible with this spectrum band. See Footnote 96 of Dr. Church's Report for evidence that Rogers is using this band.

<sup>2</sup> See Dr. Church's Evidence at paras. 109-110.

## RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES

1

2 The possibility of mounting small cells and DAS deployment on poles is  
3 economically relevant in particular circumstances, as summarized in Dr. Church's  
4 Evidence at paragraph 141. But in those circumstances pole siting likely has cost  
5 disadvantages (power and backhaul availability) relative to other siting alternatives  
6 and there may be other combinations of inputs that provide coverage and capacity.<sup>3</sup>

7

8 b) Traffic-shaping and data compression do not necessarily have adverse effects on the  
9 end-user experience of all end-users. With respect to traffic shaping, this practice  
10 could result in an increased quality of service for many users, as opposed to an  
11 unmanaged network in which a small proportion of users are able to impose large  
12 costs on all other users.

13

14 Data compression, as Dr. Church understands it, refers to practices such as putting  
15 video and audio files into standard compressed formats, which can be done without  
16 any reduction in the user's service experience.<sup>7</sup> Another example of "compression" is  
17 technology that compresses the "header fields" in packets of VoIP data. These fields  
18 often take up much more bandwidth than is required for a high-quality voice call, so  
19 compressing the amount of space required by these fields would not affect end-user  
20 experiences.<sup>8</sup>

21

---

<sup>3</sup> *Ibid.* at para. 142.

<sup>7</sup> For example, Telus Mobility engages in video optimization on its LTE network, and claims that more than 500 operators around the world have similar policies. Telus says that "User experiences with these providers show that users enjoy the benefits of optimization, including faster video loading, less buffering and stalls, lower data usage, less network congestion and no noticeable reduction in image quality." See [http://mobility.telus.com/en/ON/stand\\_alone/optimization.shtml](http://mobility.telus.com/en/ON/stand_alone/optimization.shtml).

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 As explained by Dr. Church at paragraph 113 of his Evidence, the problem faced by a  
2 wireless provider in designing its network involves first determining the cost  
3 minimizing network architecture (mix of inputs) for a given quality of service  
4 (“network performance”). It then assesses the marginal benefits and costs of  
5 increasing its network performance or quality of service. The potential role of pole  
6 access appears to be very limited in the design of wireless networks (refer to the  
7 response in part a), above) and it seems unlikely that even if a wireless service  
8 provider wanted to increase its quality of service by avoiding traffic shaping or data  
9 compression its first choice would be to increase outdoor deployment of DAS or  
10 small cells mounted on poles – given the other alternatives identified in the Dr.  
11 Church’s and Dr. Jackson’s evidence.

---

<sup>8</sup> See S. Lawson, (2012), “11 Ways around using more spectrum for mobile data,” *Computer World*, August 16th, 2012.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1     **INTERROGATORY 9:**

2     **Reference(s):**                     **Evidence of Dr. Church, Page 46, paragraph 122**

3

4     **ISSUE(S):**     **2c**

5

6     For example, wireless service providers can engage in traffic-shaping where they can de-  
7     prioritise certain interactions (e.g., transfer of very large files from sites using Bit  
8     Torrent) that impose disproportionate burdens on the network at certain hours

9

10    In CRTC 2009-657, the policy determining appropriateness of so-called traffic  
11    management practices, clearly articulates that the first priority should be to increase  
12    capacity in networks, not undertake traffic-shaping. While not directly aimed at wireless  
13    networks, but principle would be the same. In the absence of the traffic-shaping option,  
14    is it your view that the need for pole attachments would increase?

15

16    **RESPONSE:**

17    Please refer to Dr. Church's response to OEB Staff interrogatory 8, parts a and b (Tab B,  
18    Schedule 1-8) for why it is unlikely that a ban on traffic shaping would materially affect  
19    the demand for pole access.

20

21    CRTC 2009-657 and the subsequent CRTC decision 2010-445 do not set out any bright  
22    lines for what constitutes a forbidden traffic management practice, and the discussion in  
23    CRTC 2009-657 recognizes that wireless networks face unique constraints. The CRTC's  
24    approach to traffic management practices applied to retail services is a complaint-based  
25    approach, and does not sanction all traffic management practices by any means, unless

## RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES

1 they are “unreasonable.”<sup>1,2</sup> What is reasonable or unreasonable in the context of a  
2 wireless network may be different than what is reasonable or unreasonable in the context  
3 of a fixed broadband network. More generally, there has been widespread regulatory  
4 recognition that wireless networks have very different characteristics as compared to  
5 wired networks – most notably, capacity is shared between users in a cell, capacity within  
6 a cell area might be radically differently utilized at different times of day, and that the  
7 number of users and total capacity demanded within a cell can change rapidly, as users  
8 wander in and out of cell areas.

9  
10 In the United States, the FCC implemented the Open Internet order in 2010, but  
11 recognized that what constituted “reasonable traffic management practices” in the context  
12 of wireless networks was very different than in the case of wired networks. For example,  
13 the FCC noted that “...the reasonable network management definition takes into account  
14 the particular network architecture and technology of the broadband Internet access  
15 service. Thus, in determining whether a network management practice is reasonable, the  
16 Commission will consider technical, operational, and other differences between wireless  
17 and other broadband Internet access platforms, including differences relating to efficient

---

<sup>1</sup> Some practices that noticeably degrade time-sensitive Internet traffic may require prior CRTC approval before being implemented.

<sup>2</sup> Many wireless operators (and even fixed line operators) in Canada maintain traffic management policies. For example, see Telus’ Video Optimization Policy (cited previously), Wind Mobile’s Internet Management Policy at <http://www.windmobile.ca/docs/default-source/default-document-library/internet-management-policy.pdf?sfvrsn=6>. Bell says (for fixed-line Internet) that while it does not currently need to use traffic shaping, it will (where necessary) use network management tools in the future to ensure an excellent customer experience. See [http://service.sympatico.ca/index.cfm?method=content.view&content\\_id=12119](http://service.sympatico.ca/index.cfm?method=content.view&content_id=12119). With specific respect to wireless, Bell’s website says “Bell considers that data usage in excess of 25GB per billing cycle is disproportionate and excessive for network management purposes. Customers whose wireless usage exceeds this threshold may, in Bell’s sole discretion, have their Services suspended, disconnected, changed or restricted, including having data speeds reduced to as low as 16 kbps.” See [https://www.bell.ca/Bell\\_Mobility\\_Terms\\_of\\_service#Speed](https://www.bell.ca/Bell_Mobility_Terms_of_service#Speed).

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 use of spectrum. We anticipate that conditions in mobile broadband networks may  
2 necessitate network management practices that would not be necessary in most fixed  
3 networks, but conclude that our definition of reasonable network management is flexible  
4 enough to accommodate such differences.”<sup>3</sup>

5  
6 Dr. Jackson has written on this issue. He observes that prioritization in wireless can  
7 increase capacity and a system full of voice traffic will still have substantial capacity for  
8 lower-priority data traffic. If regulatory policy were to require all packets to be treated  
9 the same, the either (1) voice quality would fall substantially or (2) capacity would fall by  
10 about 30%.<sup>4</sup>

---

<sup>3</sup> See FCC, *Report and Order in FCC 10-201*, December 23, 2010, at 103.

<sup>4</sup> See See Jackson, Charles L. (2011) "Wireless Efficiency Versus Net Neutrality," Federal Communications Law Journal: Vol. 63: Iss. 2, Article 6, online:  
<<http://www.repository.law.indiana.edu/fclj/vol63/iss2/6/>>

## RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES

1 **INTERROGATORY 10:**

2 **Reference(s):** **Evidence of Dr. Church, Page 51, paragraph 135**

3

4 **ISSUE(S):** **2c**

5

6 Consistent with multiple providers of fibre, the CRTC determined in 2008 that the market  
7 for wholesale fibre-based transport and access services was competitive, and thus phased  
8 out essential facilities regulation applied to these services. One can only reasonably  
9 expect the Toronto market for supply of such services to be the most competitive in  
10 Canada.

11

12 Although access to fibre infrastructure is important in some cases, new classes of  
13 technologies may rely on wireless transport options (e.g. microwave links) to serve  
14 wireless attachments. In a scenario with increased reliance on these types of equipment,  
15 would THESL still maintain that pole access is not a needed input?

16

17 **RESPONSE:**

18 Dr. Church's understanding is that poles are *never a needed input* for the provision of  
19 wireless services. Instead the design of wireless networks and provision of service can  
20 be, and is presently done, without pole access. The issue is whether circumstances in the  
21 future might change that would result in pole access for wireless attachments providing a  
22 widespread cost or quality advantage that would increase demand by wireless services for  
23 pole access for wireless attachments.

24

25 This requires technological developments that change the economic attractiveness of  
26 using poles as a siting alternative for outdoor DAS and small cells, as well as the extent



## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 to which these developments influence demand for outdoor DAS and small cells. Even if  
2 the ability to deploy microwave links conferred a substantial cost advantage on poles  
3 relative to other siting facilities, it would at best increase the number of situations in  
4 which poles were economically preferred to other siting alternatives for particular  
5 deployment situations in which outdoor DAS and small cell deployments were  
6 implemented.

7  
8 Given the prevalence of fibre and power in buildings, as well as the other advantages in  
9 terms of effectiveness, it seems very unlikely that developments in microwave  
10 technology would result in pole mounted provision of small cells and DAS being utilized  
11 for indoor coverage. Instead, the focus should remain on the use of poles to provide  
12 outdoor coverage relative to other alternatives, including deployment of DAS and small  
13 cells mounted indoors and macrocell deployment. As noted in Dr. Church's Evidence at  
14 paragraph 22 substitution need not be direct: "The substitution might be circuitous:  
15 outdoor capacity and coverage in a particular geographic area can be enhanced by  
16 reallocating macrocell capacity away from providing indoor usage by installing DAS and  
17 small cells indoors." Additional evidence found subsequent to the preparation of Dr.  
18 Church's Evidence estimates that if small cells could just absorb in-building traffic  
19 generated at venues such as train stations, shopping malls, and entertainment venues, the  
20 total traffic carried by the macrocell network would decline by 32%.<sup>1</sup>

21  
22 Dr. Jackson observes that affordable backhaul is a difficult issue and is one of the  
23 problems for small cells. Utility poles may or may not have convenient access to  
24 backhaul connections. Firms are working on improved microwave technologies that can

---

<sup>1</sup> See Analysys Mason, "3G and 4G Small Cells Create Big Challenges for MNOs", available at  
<http://www.analysysmason.com/About-Us/News/Insight/small-cells-big-challenges-Mar2013/>.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1    operate over non-line-of-sight paths. There is also work going on regarding the use of  
2    wireless frequencies themselves for backhaul. That said, setting up a microwave  
3    connection from a roof top on a ten-story building is likely to be considerably easier than  
4    setting one up from twenty feet above the ground. The low antenna site could be blocked  
5    by trees or buildings. The antenna site on the rooftop would be less likely to be so  
6    blocked. However, any decent-sized building in Toronto, probably has fiber to the  
7    building or other reasonable high-speed wired access.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 5:**

2 **Reference(s):**           **Evidence of Dr. Jackson**

3

4 **ISSUE(S):**    **2**

5

6 At page 29, Dr. Jackson lists several advantages of placing small cells on or inside  
7 buildings. For each of these advantages, please explain the extent to which the advantage  
8 would apply to small cells placed on or inside residential houses, with a view to  
9 providing outdoor coverage.

10

11 **RESPONSE:**

12 Dr. Jackson's response is as follows:

13 On page 29, of my report I state:

14 "Putting small cells on or inside buildings has several advantages:

- 15 • Most buildings today have high-speed Internet connections that  
16 can be used for backhaul from the cell site to the switching  
17 center.
- 18 • Buildings are wired for electrical power.
- 19 • Buildings often provide easy access to base stations for service  
20 or replacement. (In contrast, servicing equipment on a utility  
21 pole requires sending a truck to the site and staff trained in  
22 operation of a bucket truck or pole climbing as well as trained  
23 on safety procedures for working on poles.)
- 24 • Small cells within buildings provide better in-building  
25 coverage.

## RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES

- Equipment inside buildings is protected against extremes of temperature and weather.”

Most or all of these advantages apply to small cells placed inside residences. Obviously, most residences provide electric power and the inside areas are protected against extreme temperatures and exposure to rain. Backhaul might seem to be the most problematic issue, but that should not be significant problem. The CRTC’s September 2013 *Communications Monitoring Report* states that more than 87% of Ontario residences had access to broadband service at speeds in excess of 10 Mbps and 84% had access to broadband with speeds in excess of 25 Mbps.<sup>1</sup> A household with 25 Mbps Internet access could permit several Mbps to be used by a small cell without seeing significant degradation in performance of their broadband service.<sup>2</sup>

If more backhaul capacity than that were needed, then the wireless carrier would probably have to purchase such connectivity separately from the broadband connectivity supplier. DOCSIS 3.0 cable modems can support more than 100 megabits per second of upstream capacity – so the option for providing substantial backhaul capacity should be available at most residences.

---

<sup>1</sup> A copy of that study is available at <http://www.crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2013/cmr2013.pdf>. The cited data come from Table 6.1.5.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 6:**

2 **Reference(s):** **Evidence of Dr. Jackson**

3

4 **ISSUE(S):** **2**

5

6 At page 31 of his evidence, Dr. Jackson refers to a paper by Ghosh et al, stating:  
7 “Ghosh and his co-authors address the use of small cells on utility poles (they use the  
8 term street poles). They noted two main benefits of small cells on utility poles: (1)  
9 proximity to pedestrians in areas where people tend to congregate and (2) negotiating  
10 with a single property owner.<sup>48</sup> They also identify difficulties with using utility poles,  
11 the most important of which were the cost of backhaul and the difficulties in supplying  
12 power; esthetic impacts were a third issue. [Footnote omitted]”

13

- 14 a) If an antenna, intended to provide outdoor coverage, were mounted on the side of a  
15 residential home, in Dr. Jackson's view, what measures would have to be taken to  
16 ensure secure backhaul. In particular, comment on any privacy issues.
- 17 b) Could Dr. Jackson please comment on the aesthetics of placing small cell antennas on  
18 the outside of residential houses?
- 19 c) Could Dr. Jackson please comment on any problems that the house occupants or their  
20 neighbors might perceive to arise, due to electromagnetic radiation from the antenna?
- 21 d) Could Dr. Jackson please comment on the costs and time delays arising from the need  
22 to negotiate individual agreements with the required number of residential house  
23 owners?
- 24 e) Could Dr. Jackson please comment on any privacy issues that might arise if an  
25 antenna were fixed to an outside or inside wall of a private residence so as to provide

## RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES

1 outdoor coverage, and cables were placed inside the house to provide backhaul, via  
2 an Internet connection or any other means, if any.

3

### 4 **RESPONSE:**

5 a) Dr. Jackson's response is as follows: If *secure* in the question means *confidential*,  
6 modern encryption techniques (e.g., AES with 128-bit keys and Diffie-Hellman key  
7 exchange for initialization of keys) make the backhaul connection immune to  
8 interception by any but the most sophisticated intruders.<sup>1</sup> Communications links  
9 using the TCP/IP suite can be secured using the IPSEC protocols. The wireless  
10 standardization community has developed protocols for secure backhaul.<sup>2</sup>

11

12 The basic idea is to set up a secure tunnel through the insecure public Internet,  
13 similarly to that used by a person telecommuting to access the workplace network.

14

15 The homeowner could configure the local network so that they were able to  
16 determine the existence of traffic flows. In other words, the homeowner would be  
17 able to determine when the small cell was being used by a wireless caller.

18

19 It might be possible for a potential eavesdropper to open the base station and intercept

---

<sup>1</sup> I note that the Communications Security Establishment Canada approves the use of AES-128 and Diffie-Hellman key exchange for securing Protected Information within the Government of Canada. See <http://www.cse-cst.gc.ca/its-sti/services/crypto-services-crypto/ca-ac-eng.html>. I am not aware of any information showing that entities with the resources of national governments can circumvent the protection provided by these systems. The fact that multiple nations are known to use these technologies to secure communications links provides a strong indication that these technologies are quite secure.

<sup>2</sup> See

[http://www.3gpp.org/ftp/information/presentations/presentations\\_2011/2011\\_05\\_Bangalore/DZBangalore290511.pdf](http://www.3gpp.org/ftp/information/presentations/presentations_2011/2011_05_Bangalore/DZBangalore290511.pdf) and the 3GPP technical specification publications on security (33 series) at <http://www.3gpp.org/DynaReport/33-series.htm>. ETSI TS 133 320 contains the specification for the

## RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES

1 the communications at a point inside the base station where the user signals were in  
2 an unencrypted form. Doing so would require a high level of expertise and would be  
3 quite difficult unless the user signals were passed in unencrypted form between  
4 separate chips in the base station. There are probably easier ways to intercept  
5 wireless communications.

6

7 b) The aesthetics of small cell hardware on the side of house would vary with the design  
8 of the house, the design of the small cell, and the location of the small cell on the  
9 house. I find it hard to give a general answer to this question, and I do not think that  
10 my engineering training provides any insight for such analysis. I expect that most  
11 small cell equipment suitable for mounting on a residence would be relatively  
12 small—perhaps 25 cm high, 25 cm wide, and 10 cm deep.

13

14 c) Let me give two responses. First, I do not believe that any significant health effects  
15 would be created by low-power, small cells operated within houses or mounted on the  
16 sides of houses. Health Canada's Safety Code 6 sets limits on the exposure of people  
17 to such transmissions.<sup>3</sup> Wireless handsets operated in Canada must pass tests  
18 showing conformance to these limits when operating at their highest power levels.  
19 These handset power levels and the power of Wi-Fi access points are of the same  
20 order of magnitude as the power of small cell base stations. Hence, the fact that Wi-  
21 Fi access points and wireless handsets operate in conformity with Safety Code 6  
22 indicates to me that small cell base stations can operate in conformity with that code.

23

---

security aspects of WCDMA and LTE small cells in the home (Home Node B (HNB) and Home evolved Node B (HeNB).

<sup>3</sup> <http://www.radiationsafety.ca/wp-content/uploads/2012/06/Safety-Code-6.pdf>

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 Second, the question asks about concerns—not about valid concerns. Some people  
2 have concerns regarding possible harms from low levels of radio-frequency energy  
3 that do not appear to have a rational basis. A World Health Organization fact sheet  
4 addressing electromagnetic hypersensitivity stated,

5  
6 “The majority of studies indicate that EHS individuals cannot detect EMF  
7 exposure any more accurately than non-EHS individuals. Well controlled and  
8 conducted double-blind studies have shown that symptoms were not  
9 correlated with EMF exposure.

10  
11 It has been suggested that symptoms experienced by some EHS individuals  
12 might arise from environmental factors unrelated to EMF. Examples may  
13 include “flicker” from fluorescent lights, glare and other visual problems with  
14 VDUs, and poor ergonomic design of computer workstations. Other factors  
15 that may play a role include poor indoor air quality or stress in the workplace  
16 or living environment.

17  
18 There are also some indications that these symptoms may be due to pre-  
19 existing psychiatric conditions as well as stress reactions as a result of  
20 worrying about EMF health effects, rather than the EMF exposure itself.”

21  
22 d) A more massive model of the negotiation process is given by U.S. cable operator  
23 Comcast’s Xfinity WiFi Hotspot. Comcast has configured its combination cable  
24 modem/WiFi access points to operate as a pair of WiFi access points. One is a  
25 secured private access point for the cable customer; the other access point provides a



## RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES

1 public hotspot open to all Xfinity WiFi subscribers. Comcast describes this  
2 arrangement saying:

3

4 **How does the XFINITY WiFi Home Hotspot work?**

5 Your XFINITY Wireless Gateway broadcasts an additional “xfinitywifi”  
6 network signal for use with XFINITY WiFi. This creates an extension of  
7 the XFINITY WiFi network right in your home that any XFINITY Internet  
8 subscriber can use to sign in and connect. This XFINITY WiFi service is  
9 completely separate from your secure WiFi home network.<sup>4</sup>

10

11 Comcast claims to be operating more than one-half million such hotspots—I  
12 understand that the actual number is close to one million. The French wireless carrier  
13 and IPS *Free* has a similar offering. Based on the June 2013 press release by Free,  
14 which is reproduced below, the only negotiation required is for a subscriber to request  
15 a unit from Free and pay the ten Euro shipping fee.<sup>5</sup>

---

<sup>4</sup> See <http://www.comcast.com/wifi/faqs.htm?SCRedirect=true>.

<sup>5</sup> See [http://www.iliad.fr/presse/2013/CP\\_200613.pdf](http://www.iliad.fr/presse/2013/CP_200613.pdf).

## RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES



Paris, le 20 juin 2013

### **Free Mobile : les Femtocells disponibles pour les abonnés Freebox Révolution**

Les abonnés équipés de la Freebox Révolution peuvent désormais bénéficier d'un boîtier Femtocell.

Ce mini-boîtier relais 3G qui s'insère dans la Freebox Révolution est la solution idéale pour les abonnés qui rencontrent des difficultés à passer des communications mobiles Free depuis leur domicile.

La Freebox Révolution a été conçue dès l'origine pour intégrer un boîtier Femtocell. Ainsi, toutes les Freebox Révolution installées aujourd'hui chez les abonnés peuvent accueillir une Femto Freebox.

Pour en bénéficier, rien de plus simple : la Femto est incluse\* dans le forfait Freebox Révolution et mise à disposition de tous les abonnés Freebox Révolution qui en font la demande depuis leur interface abonné Freebox ([free.fr](http://free.fr) > rubrique « Mon compte »).

Discrète et simple à installer, la Femto ne nécessite ni branchement de câble ni activation particulière. La connexion du mobile à la Femto est automatique dès qu'un abonné mobile Free se trouve à proximité d'une Freebox Révolution équipée d'une Femto.

Cette première génération de Femto Freebox sera amenée à évoluer à l'avenir pour répondre encore plus largement aux besoins des consommateurs et leur proposer des services innovants.

*Femto Freebox compatible uniquement avec la Freebox Révolution (ADSL, Fibre ou VDSL2). La connexion à la Femto est possible à partir d'un mobile 3G compatible ayant activé le réseau de données cellulaires. Détails et conditions sur [adsl.free.fr](http://adsl.free.fr). Le décompte et la facturation des communications et services mobiles acheminés par la Femto demeurent inchangés. Service accessible sous réserve de disponibilité de la bande passante de la Freebox Révolution de l'abonné.*

*\* hors frais d'envoi : 10€.*

### **A propos de Free**

*Free est l'inventeur de la Freebox, le 1<sup>er</sup> boîtier multiservices sur l'ADSL. Free est à l'origine des nombreuses innovations sur le marché de l'accès haut débit (VoIP, IPTV, forfaitisation des appels vers de multiples destinations...). Free propose des offres simples et innovantes au meilleur prix. Fin 2010, Free a lancé la Freebox Révolution, la 6<sup>ème</sup> génération de Freebox intégrant notamment un NAS et un lecteur Blu-Ray™. Free a été le 1<sup>er</sup> opérateur à intégrer au forfait de sa box les appels des lignes fixes vers les mobiles. Depuis janvier 2012, Free démocratise l'usage du mobile avec des offres simples, sans engagement et à un prix très attractif. Free compte 5,5 millions d'abonnés haut débit et 6,1 millions d'abonnés mobiles (au 31/03/2013).*

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

- 1 e) As discussed with respect to backhaul, modern wireless standards incorporate a  
2 variety of security elements. I believe that these elements are sufficiently sound, such  
3 that a residential base station, whether mounted inside the house or outside the house,  
4 would create no additional privacy concerns.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 11:**

2 **Reference(s):** **Evidence of Dr. Church – page 4, paragraph 13**

3

4 **ISSUE(S): 4**

5

6 Counsel for THESL requested:

7 “The preparation of a written report (the “Report”), to be filed as evidence with THESL’s  
8 application to the OEB assessing the extent to which wireless telecommunications in  
9 THESL’s service territory is, or will be, competitive if the OEB refrains from regulating  
10 the rates, terms and conditions upon which access for wireless telecommunications  
11 services is made available by THESL.”

12

13 Please explain how the question framed by THESL above is responsive to the test  
14 provided in S. 29 of the OEB Act. In your answer please specifically address whether, in  
15 the context of this application, section 29 tests for competition in the market in which  
16 THESL pole attachments forms a part of the supply, or whether it tests for competition in  
17 a market which uses pole attachment access as an input?

18

19 **RESPONSE:**

20 The statement quoted in the question does not, and was not intended to, capture all of the  
21 elements of what the OEB must determine in an application under section 29 of the  
22 *Ontario Energy Board Act, 1998*. One of the elements is the nature and extent of  
23 competition now, and in the foreseeable future, in the relevant market. Dr. Church is an  
24 expert in, among other things, competition policy and regulatory economics. It was left  
25 to him to frame the relevant competition analysis, which he did at paragraph 14 of his  
26 Evidence.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 The test under Section 29 is whether competition is, or will be, sufficient to protect the  
2 public interest. This proceeding, as explained at paragraph 14 of Dr. Church's Evidence,  
3 involves an assessment of whether competition is sufficient to discipline the exercise of  
4 market power by THESL in the provision of pole access for wireless attachments (an  
5 input). However, because regulation is not costless, it is also important to know what the  
6 costs of that exercise of market power (if any) might be. That requires consideration of  
7 how the exercise of market power in the input might harm users of wireless services in  
8 the downstream market. In Dr. Church's Evidence the harm to users of wireless services  
9 is considered based on two potential avenues for harm.<sup>1</sup> The second of these involves a  
10 consideration of whether the exercise of market power by THESL in the input market for  
11 pole access for wireless attachments would result in an increase in market power in  
12 wireless services. As explained in Dr. Church's Evidence at paragraph 29, an assessment  
13 of market power in the downstream market – whether it is competitive – is part of the  
14 analysis for assessing this hypothesis.

---

<sup>1</sup> Dr. Church's Evidence at para. 26.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 12:**

2 **Reference(s):** Evidence of Dr. Church, pages 5/6, paragraph 17;  
3 page 53 paragraph 139  
4

5 **ISSUE(S):** 4  
6

7 Expert Report states:

8 [...] These possibilities for substitution suggest that there is a broad upstream “input  
9 market”, and not a market defined by monopoly control over the input provision of pole  
10 access for wireless attachments. Consequently, the fact that THESL may be an exclusive  
11 supplier in the provision of pole access for wireless attachments does not mean that it has  
12 market power in a relevant upstream market.”  
13

14 “The evidence is consistent, therefore with the hypothesis that, in urban Toronto,  
15 especially in its downtown core, the availability of upstream alternative inputs, and in  
16 particular alternative sites to pole access, is likely to be substantial, and the elasticity of  
17 substitution between different inputs is likely to be high.”  
18

19 a) Please provide any evidence of economic substitutability for the assertion of a broad  
20 upstream “input market”.

21 b) Specifically what costs are associated with alternatives to pole access for small cell  
22 and DAS on a per unit of service basis.  
23

24 **RESPONSE:**

25 a) In general, the hypothetical monopolist test is a conceptual tool used to inform  
26 antitrust market definition. In particular, what this means is that it is a way to

## RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES

1 identify, organize, and assess facts and data that are informative. It can be  
2 implemented in many different ways, and how it is implemented depends on the data  
3 that is available. Dr. Church's Evidence arrives at the conclusion of a broad product  
4 market for pole access for wireless attachments on the basis of evidence regarding  
5 *economic substitutability – which Dr. Church infers is meant to capture the notion of*  
6 *whether substitution to other inputs would discipline the exercise of market power by*  
7 *THESL in the provision of pole access for wireless attachments as per the*  
8 *hypothetical monopolist test.* For a summary of the evidence used by Dr. Church  
9 please refer to Dr. Church's response to Energy Probe interrogatory 4, part b (Tab D,  
10 Schedule 5-4, part b).

11  
12 b) Dr. Church does not know what the costs associated with alternatives are on a per unit  
13 basis, and doubts that simple cost per unit of service calculations that are not site-  
14 specific are possible or useful. The particular characteristics of a site will matter for  
15 the cost minimizing solution. Moreover, the relevant comparison is not just on a cost  
16 basis, but also the different quality of service provided by different alternatives.

17  
18 Inferences can be drawn about the relative magnitude across all sites (and the  
19 different capabilities and hence qualities of alternatives) from the behaviour of  
20 wireless service providers: (i) they have not intervened or are active in this  
21 proceeding and (ii) pole access for wireless attachments are not integral to their  
22 network deployment. Please refer to Dr. Church's response to Energy Probe  
23 interrogatory 4, part b (Tab D, Schedule 5-4, part b), in particular the second bullet.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 13:**

2 **Reference(s):** **Evidence of Dr. Church, page 8 paragraph 24;**  
3 **page 39, paragraph 106;**  
4 **page 63, paragraph 168**

5  
6 **ISSUE(S): 4**

7  
8 Expert Report states:

9 “The analysis of the extent to which wireless service providers can and will substitute to  
10 alternative inputs and sites is supported by the fact that at regulated rates, the use of  
11 THESL poles for wireless attachments to provide wireless services is extraordinarily  
12 small.”

13  
14 “The use of utility poles by wireless service providers in Toronto to date is *very* limited.  
15 [...]”

16  
17 “[...] THESL presently provides pole access for wireless attachments made by wireless  
18 service providers on a very small number of poles. This is so even though access is  
19 available at a regulated rate. Clearly this indicates that at the regulated rate the extent of  
20 substitution identified in our analysis is sufficient that demand for pole access for  
21 wireless attachments is minimal at present. The analysis suggests that the demand in the  
22 future will be sufficiently elastic that THESL’s market power will be limited.”

23  
24 a) Is it Dr. Church’s opinion that the current and likely future size of the pole access  
25 market for wireless attachments in Toronto is extraordinarily small and very limited?



## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

- 1 b) Is it possible that impediments to pole access for wireless attachments currently  
2 restrict the use of pole access in Toronto, or that the market is expected to grow  
3 significantly in the future?
- 4 c) Please provide any available evidence relating to the quantum by which wireless  
5 service providers are using inputs other than small cells and DAS?
- 6 d) Please provide any available evidence relating to the quantum by which attachment  
7 services other than pole access are being used?
- 8 e) Regarding the statement to the effect that only a very small number of poles are  
9 currently providing attachments for wireless providers what impact does Dr. Church  
10 assign to the letter from THESL of November 2010 wherein it stated that it would no  
11 longer attach wireless to its poles?

12

### **RESPONSE:**

- 14 a) Currently, the use of pole access for wireless attachments is small and limited. The  
15 reason is the ability to substitute to other inputs that result in lower costs of providing  
16 the quality of service desired. If there was technological change then it is possible, as  
17 discussed in Dr. Church's response to Board Staff Interrogatory 10 (Tab 2, Schedule  
18 1-10), that demand for pole access for wireless attachments might increase.  
19 Moreover, demand might increase because the incentives for THESL to market poles  
20 to wireless service providers might be greater with forbearance. However, in either  
21 case of increased demand the existing set of substitutes would remain, and would still  
22 provide, a competitive constraint. The analysis in Dr. Church's Evidence indicates  
23 that there are limited sets of circumstances where pole access to wireless attachments  
24 is likely to be a consideration (i.e., in the set of economic substitutes). This is  
25 unlikely to change even if there is growth in demand for pole access. It also means  
26 that in the absence of the ability to price discriminate across pole locations, THESL

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 will not be able to exercise market power. The price it will receive will be  
2 constrained by substitution on a city wide basis, as explained in Dr. Church's  
3 Evidence at paragraphs 164 and 165.

4  
5 Moreover, even if demand were to increase and THESL were to exercise market  
6 power, the effect on wireless providers' costs is never likely to be significant enough  
7 to materially impact the costs of service provision by wireless providers. Hence, the  
8 conclusion that the effect of the exercise of market power in the downstream market  
9 is unlikely to be significant is likely to continue to be valid even if there is growth in  
10 the number of poles used for wireless attachments.

11  
12 Dr. Church would also have expected to see more applications for pole attachments  
13 from wireless service providers than has actually been the case, and would have  
14 expected wireless service providers to intervene in this proceeding if the market for  
15 pole access for wireless attachments was expected to grow **and** wireless service  
16 providers were concerned about the exercise of market power.

17  
18 b) Dr. Church is not aware of "impediments to pole access" or the expectations for  
19 growth in demand. Please also refer to the response in part a), above.

20  
21 c) Rogers, Bell, Telus, and WIND all provide wireless services in THESL's service  
22 area, without extensive use of pole access. The network investment by the three  
23 incumbents is in the billions of dollars. Clearly, they can provide service without  
24 using DAS and small cells mounted on poles. Dr. Church has no other specific  
25 knowledge of the extent to which wireless service providers are using inputs other  
26 than small cells and DAS and does not believe that such information is necessary.

## RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES

1 But it is worth highlighting, especially in residential areas, the use of Wi-Fi and  
2 femtocells to augment capacity on wireless networks (which use licensed spectrum).

3  
4 Globally, 45 percent of total mobile data traffic was offloaded onto the fixed network  
5 through Wi-Fi or femtocell in 2013. In 2013, 1.2 exabytes of mobile data traffic were  
6 offloaded onto the fixed network each month. Without offload, mobile data traffic  
7 would have grown 98 percent rather than 81 percent in 2013. By contrast, in 2012,  
8 Cisco reported that 33 percent of total mobile data traffic was offloaded onto the fixed  
9 network through Wi-Fi or femtocell. The 2011 version of the VNI index suggested  
10 that 39 percent of smartphone and tablet traffic would be offloaded by 2015. Given  
11 that all smartphone and tablets with cellular capability are dual-mode (i.e., have Wi-  
12 Fi), the 39 percent offload for smartphone and tablet traffic is presumably higher than  
13 the offload fraction for all mobile data traffic. At any rate, the 2013 offload fraction  
14 already exceeds the upper-bound 39 percent forecast for 2015. By 2018, more than  
15 half of all traffic from mobile-connected devices (almost 17 exabytes) will be  
16 offloaded to the fixed network by means of Wi-Fi devices and femtocells each month.  
17 Without Wi-Fi and femtocell offload, total mobile data traffic would grow at a CAGR  
18 of 65 percent between 2013 and 2018 (12-fold growth), instead of the projected  
19 CAGR of 61 percent (11-fold growth).<sup>1</sup>

20  
21 d) Dr. Church has no such information, nor does THESL. It would have to be sourced  
22 from the wireless service providers. Presumably, if they thought other attachment

---

<sup>1</sup> For the February 2014 release (containing 2013 data) of Cisco's forecast, see Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2013–2018, online: <[http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white\\_paper\\_c11-520862.html](http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white_paper_c11-520862.html)>. See also <http://tmfassociates.com/blog/wp-content/uploads/2013/02/Cisco-mobile-VNI-Feb-2011.pdf> for the February 2011 release.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 services were not very good substitutes for pole access they would have intervened  
2 and opposed the application by THESL for forbearance.  
3  
4 e) The CANDAS decision was issued 13 September 2012 and is still applicable. Under  
5 this decision, THESL must allow wireless attachments. As noted in Dr. Church's  
6 Evidence at paragraph 106, only applications for 18 poles have been submitted to  
7 THESL (and only two poles had wireless attachments). It is more relevant that none  
8 of the wireless service providers have opposed THESL's application for forbearance  
9 or are even active participants in this proceeding, especially given that the demand for  
10 network capacity is driven by data transmission growth in dense urban areas.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 14:**

2 **Reference(s):** **Evidence of Dr. Church, Pages 61-62, paragraph 163**

3

4 **ISSUE(S): 4**

5

6 “This does leave open the possibility for localised circumstances in which pole access  
7 might be vital. These localised circumstances might suggest that the geographic  
8 dimension of the input market be treated in a disaggregated fashion. ...there is only a  
9 limited likelihood that wireless service providers will lack for options to provide outside  
10 data coverage for non mobile users using small cells mounted on poles.”

11

12 a) Please explain what disaggregating the geographic dimension of the input market  
13 means.

14 b) Should the geographic dimension be disaggregated and if so, how should that be  
15 done? Please be specific. If not, why not.

16

17 **RESPONSE:**

18 a) In competition analysis, the process of market definition often follows a “smallest  
19 market” principle. That is, a relevant market is defined as the smallest set of products  
20 and the smallest set of geographies over which a hypothetical profit-maximizing  
21 monopolist will find it profit maximizing to implement a small but significant and  
22 non-transitory increase in price (SSNIP). For example, please refer to the  
23 Competition Bureau’s Merger Enforcement Guidelines (2011) at sections 4.4 and 4.5  
24 and the discussion in Dr. Church’s Evidence at paragraphs 67 to 68. Thus, a single  
25 pole or a set of poles along a single road might constitute a relevant geographic  
26 market under the “smallest market principle.” As explained in paragraph 70 of Dr.

## RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES

1 Church's Evidence, even where the smallest market is extremely small and local (e.g.,  
2 in the example of telephone service, corresponding to a single customer's location) it  
3 is analytically convenient to aggregate markets together if competitive conditions are  
4 identical across the geographic regions that comprise the disaggregated geographic  
5 markets. If competitive conditions are not identical (i.e., there are differences in the  
6 number and identity of providers who provide service across different areas), then the  
7 markets should not be aggregated together.

8

9 b) Please refer to the response in part a), above. But even if it is true that for some poles  
10 THESL might have market power in the region around them, THESL will not be able  
11 to exercise that market power if it is not aware that the possibilities for substitution by  
12 the wireless providers are limited there when they are not limited elsewhere. From a  
13 competition perspective, the key to disaggregating the geographic dimension is  
14 THESL's ability to recognize those locations where wireless service providers have  
15 no good economic alternatives to using THESL's poles, thus permitting THESL to  
16 charge higher prices for just these locations.<sup>1</sup> Therefore, in Dr. Church's view, since  
17 THESL cannot identify those locations for which it might have market power,  
18 geographic markets should not be disaggregated *ex ante* and no attempt should be  
19 made to identify and regulate access to those poles for which market power in the  
20 provision of pole access for wireless attachments might be an issue.

---

<sup>1</sup> Please refer to Dr. Church's Evidence, at paras. 164-165.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 15:**

2 **Reference(s):** **Evidence of Dr. Church, page 64 paragraph 172**

3

4 **ISSUE(S):** **4 to7, 10**

5

6 Expert Report states:

7 “With respect to the exercise of market power on the prices and quality of downstream  
8 services, pole access services for wireless service providers is not and cannot be an  
9 appreciable element of downstream costs for the major wireless firms in Toronto.  
10 Because of this the ability of the incumbent firms to deploy new networks and services at  
11 affordable prices to consumers will not be impacted by the price for pole access for  
12 wireless attachments. THESL is not in the position of a firm that can exercise market  
13 power in a way that creates substantial harm in the downstream market.”

14

15 What is the basis for the opinion that the competitive impact should be measured in the  
16 downstream market and not in the upstream market, given THESL is not vertically  
17 integrated?

18

19 **RESPONSE:**

20 The usual measure of the inefficiency associated with the exercise of market power is  
21 deadweight loss. The deadweight loss from the exercise of market power in an input  
22 market is the change in total surplus in the downstream market that uses the input when  
23 the downstream market is competitive.<sup>1</sup> The objective is to measure the harm from the  
24 exercise of market power in the upstream market, the market for the input. In this case,

---

<sup>1</sup> See H. Quirmbach, (1984), “Input Market Surplus: the Case of Imperfect Competition,” *Economics Letters* 16:357-362 and references therein for the case of perfect competition.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

- 1 perspective on the magnitude of the inefficiency is provided by considering the effect on
- 2 the downstream market.



## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 7:**

2 **Reference(s):** **Evidence of Dr. Jackson**

3

4 **ISSUE(S):** **4**

5

6 At paragraph 114 and elsewhere in his evidence, Dr. Church states that there may be  
7 alternative siting structures available for small cell antennas, other than utility pole  
8 attachments.

9

10 Please provide a complete list of such alternative siting structures, in the cases of:

11 a) indoor coverage

12 b) outdoor coverage in downtown cores, e.g. PA-1 in Toronto

13 c) outdoor coverage in commercial districts, e.g. CL zone in Toronto

14 d) outdoor coverage in residential neighborhoods, e.g. RD zone in Toronto

15 e) employment areas, e.g. EH zone in Toronto.

16

17 **RESPONSE:**

18 (a) - (e) Dr. Church does not have a complete list of alternative siting structures. Section  
19 5.3.3 of the Dr. Church's Evidence focuses on buildings as one set of alternative siting  
20 structures, but there could be other non-utility pole structures.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 8:**

2 **Reference(s):** **Evidence of Dr. Jackson**

3

4 **ISSUE(S):** **4**

5

6 In Table 2 at page 33, Dr. Jackson shows the advantages and disadvantages of various  
7 antenna sitings.

8 1) As regards [sic] siting antennas inside residences, please estimate the effective  
9 outdoor range, or area of outside coverage, of antennas inside residences, as  
10 compared to antennas mounted on external walls next to the windows.

11 2) Please include as a separate case, the siting of an antenna put in window, as  
12 mentioned at page 33.

13

14 Please discuss any special problems in obtaining a homeowner's agreement to put an  
15 antenna in a window of his house

16

17 **RESPONSE:**

18 1) The outside coverage of an antenna located inside the house depends on the specific  
19 location of the antenna in the house, the construction of the house, the angle that the  
20 path between the transmitter and receiver makes to the wall of the house, and the  
21 frequency band of interest. There is a large literature on this topic. That literature  
22 presents a range of results that are broadly consistent. Roughly speaking, for the  
23 radio frequencies used for wireless today, penetrating the exterior walls of a building  
24 weakens a signal by about a factor of 10. However, there is wide variation around  
25 this average value. If one assumes a propagation exponent of four, then this  
26 corresponds to cutting in half the distance that a signal can reach; if one assumes a

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 more optimistic free-space propagation model, then the distance that a signal can  
2 reach is one-third of the unobstructed value.

3  
4 Assuming a propagation exponent of four, if a Wi-Fi base station could support a  
5 100-Mbps connection at 50 meters in the open, it could support a 100-Mbps  
6 connection at 25 meters or a 10-Mbps connection at 50 meters after passing through  
7 a residential exterior wall.

8  
9 Two other points should be noted. First, the discussion above considers the effect of  
10 a signal passing through a single, exterior wall. If a small cell transmitter were  
11 located in an interior room of the house, the signal might have to pass through one or  
12 more interior walls as well. Second, several studies indicate that the future use of  
13 wireless will be unlike that of the past—relevant here is the prediction that most  
14 wireless usage will take place indoors. Hence, most of the capacity created by small  
15 cells will be needed indoors.

16  
17 A recent article by senior Qualcomm engineers stated:

18 “A key functionality of an NSC [neighborhood small cell] network is “indoor-to-  
19 outdoor” coverage, that is, indoor small cells providing coverage to outdoor users  
20 (e.g., pedestrians, low-mobility vehicles) in the neighborhood. Thus, NSC  
21 constitutes a coverage layer that complements an existing macrocellular network.  
22 More significantly, by virtue of cell splitting, a dense NSC network can provide

## RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES

1 huge data capacity over macro-only deployment while maintaining seamless  
2 mobility across the entire (macro-NSC) network.”<sup>1</sup>  
3

4 2) The attenuation for an antenna placed in a window, provided the window is not a low  
5 emissivity (low-E) window, is substantially less than the attenuation associated with  
6 penetrating a wall.<sup>2</sup> To a first approximation, a plain window’s effects on coverage  
7 are negligible. I measured the signal strength from the small cell in my house inside  
8 the house and outside the house on the side of the house where the small cell was  
9 located near a window. At equal distances from the small cell base station, whether  
10 inside or outside, the signal strengths were essentially equal.  
11

12 Regarding commercial arrangements, it seems unlikely that a residential user could  
13 easily be convinced to put a small cell transmitter in a window unless there were  
14 some benefit to the user of doing so. My small cell is adjacent to a window because  
15 that device requires a GPS signal in order to synchronize properly with the CDMA  
16 network—it will not work without a GPS signal. Absent such technical  
17 requirements, then one would expect that small cells would tend to be collocated  
18 with cable modems or other broadband access facilities. In commercial  
19 organizations, the group managing the telecommunications function could be  
20 expected to be willing to place small cells in or near windows if there were some  
21 incentive for the organization to do so.

---

<sup>1</sup> Bhushan, N.; Li, J.; Malladi, D.; Gilmore, R.; Brenner, D.; Damnjanovic, A.; Sukhavasi, R.T.; Patel, C.; Geirhofer, S., “Network densification: the dominant theme for wireless evolution into 5G,” *Communications Magazine, IEEE*, vol.52, no.2, pp.82,89, February 2014  
doi: 10.1109/MCOM.2014.6736747

<sup>2</sup> The conductive coating on low-E windows that is designed to reflect infrared light causes such windows to attenuate radio waves. The argon insulating layer in double pane windows does not have such effects.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 9:**

2 **Reference(s):**           **Evidence of Dr. Church**

3

4 **ISSUE(S):**    **4**

5

6 For each of the alternatives specified in the answer to VECC/5 above, please provide Dr.  
7 Church's best estimate of the cross-price elasticity with utility pole attachments, i.e. the  
8 impact on the demand for the alternative of a small but significant increase in the price  
9 (or rental rate) of pole attachments. If Dr. Church does not have a quantitative estimate,  
10 please provide his best qualitative estimate, including supporting details.

11

12 **RESPONSE:**

13 VECC interrogatory 5 does not refer to a list of alternatives.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 **INTERROGATORY 2:**

2 **Reference(s):** **BRG Report (Dr. Church) Page 1 Para 1**

3

4 **ISSUE(S): 4**

5

6 Toronto-Hydro Electric System Limited (“THESL”) is owned by the City of Toronto.  
7 THESL is the local electric distribution company (“LDC”) in the City of Toronto. One  
8 component of the electric distribution system owned, maintained, and operated by  
9 THESL is a network of hydro (or power) poles. These poles are an example of a support  
10 structure used by THESL to provide distribution services. THESL has a number of  
11 different types of poles, with the type of pole determined by its requirements. Some  
12 poles support both primary and secondary distribution of electricity, wireline attachments  
13 of the telecommunications and cable television providers, and streetlights. Other poles  
14 have a much more limited function, primarily supporting streetlights but available to  
15 provide distribution services.

16

17 a) Under the OEB CCTA decision the regulated rate for an attachment was set at \$22.35  
18 per year. Please compare this rate/charge to the range of rates/charges in the market.

19 b) Please separate utility pole rate/charges from other non-utility attachment charges  
20 (buildings and other infrastructure).

21 c) Please explain an attachment compared to a connection for Streetlighting and USL  
22 customers?

23

24 **RESPONSE:**

25 a) Dr. Church does not have information on the rates/charges for wireless attachments  
26 charged for non-pole siting.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

- 1    b) Please see response to part a) above.
- 2
- 3    c) THESL considers an attachment to be any material, apparatus, equipment or facility  
4       owned, either in part or whole, by a third party that is seeking to attach to THESL's  
5       poles. Per Section 1.2 of the OEB Distribution System Code (the "DSC"), a  
6       connection means the process of installing and activating connection assets in order to  
7       distribute electricity. The DSC defines connection assets as the portion of the  
8       distribution system used to connect a customer to the existing main distribution that  
9       consists of those assets between the connection point on a distributor's main  
10       distribution system and the ownership demarcation point with the customer. Thus,  
11       while attachments are a broad-sweeping term for any prospective third party seeking  
12       to install their equipment on THESL poles, connections are a defined term that  
13       encapsulates both the process and specific assets to enable the utility to supply the  
14       customer with electricity.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES, ISSUE 4**

1 **INTERROGATORY 3:**

2 **Reference(s):** **BRG Report (Dr. Church) at Para 42**

3

4 **ISSUE(S):** **4**

5

6 The Canadian Competition Bureau guidelines on merger enforcement and abuse of  
7 dominance make no mention of an “antitrust market”. Similarly, the Canadian guidelines  
8 do not contain the concept of the “antitrust violation”. In its decision in the Superior  
9 Propane merger case, Canada’s Competition Tribunal discussed the relevant “competition  
10 market”.

11

12 a) Recognizing that the enforcement agencies in both Canada and the United States have  
13 a similar approach to delineating relevant markets in merger and monopolization  
14 cases, does Professor Church believe that there are any significant differences  
15 between Canadian competition law and U.S. antitrust laws?

16 b) If the answer to a) is yes, please briefly indicate any differences that Professor Church  
17 feels are significant?

18

19 **RESPONSE:**

20 a) Dr. Church’s views on whether there are or are not significant differences between  
21 Canadian competition *law* and U.S. antitrust *laws* are irrelevant.

22

23 b) Please refer to part a), above.



## RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES

1 **INTERROGATORY 4:**

2 **Reference(s):** **BRG Report (Dr. Church) at Para 17, 63. 99-143**

3

4 **ISSUE(S):** **4**

5

6 At para 17, Professor Church states:

7 “Wireless service providers can utilize a number of alternative inputs to small  
8 cell wireless technologies and DAS deployments that use pole access to  
9 provide outdoor coverage and capacity. Wireless service providers can also  
10 utilize alternative siting facilities for small cell and DAS deployment, such as  
11 the side of a building. These possibilities for substitution suggest that there is  
12 a broad upstream ‘input market’, and not a market defined by monopoly  
13 control over the input provision of pole access for wireless attachments. ...”

14

15 At para 63 he states:

16 “The product dimension of the relevant market is found by considering the  
17 willingness and ability of customers to substitute to different products in  
18 response to a SSNIP (sic Small but Significant and Non-transitory Increase in  
19 Price). Products to which it appears that customers are readily willing to  
20 substitute in the face of higher prices are included in the market. Substitutes  
21 are often identified by the requirement of functional interchangeability, which  
22 means that substitute products have similar qualities that enable the same end  
23 use. The issue of whether products are reasonable substitutes, in aggregate, is  
24 resolved by the Hypothetical Monopolist Test and the threshold for the  
25 SNNIP.” (underlined emphasis added)

26

## RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES

- 1 a) Does Professor Church believe that the mere existence of “possibilities for  
2 substitution” is sufficient to establish that the relevant market that the Board  
3 should adopt in this proceeding is broad?
- 4 b) Would it be correct to infer that Professor Church puts substantial weight,  
5 throughout his report, on the concept of functional interchangeability to establish  
6 that there is a broad upstream input market?
- 7 c) In EB-2011-0120, Professor Ware opined that functional equivalence was not  
8 determinative in product market definition:

9 Dr. Schwartz: to Professor Ware: ... Do you believe as – and this is my  
10 take – as apparently Mr. Starkey and Professor Yatchew do, that:  
11 “Functional equivalence is a sufficient basis for including products  
12 or technologies in the same product market under the Competition  
13 Bureau’s guidelines.”

14 And may I just add one thing? The guidelines refer -- use the phrase  
15 “functional interchangeability”, not “functional equivalence” so I think it’s  
16 a small distinction, but you might want to take that into account.  
17

18 DR. WARE: Yes. Well, the answer is no. I don’t believe that functional  
19 equivalence is a particularly precise way of defining product markets. ...

20 Transcript, Technical Conference, November 4, 2011. 102, line 11-24

21 Professor Ware believes that functional equivalence/interchangeability is  
22 insufficient evidence to determine whether alternative products are in the same  
23 product market. Does Professor Church agree or disagree?

- 24 d) If, as the final statement in para 63 above states, the HMT and SSNIP resolve the  
25 issue substitutes in aggregate, why does Professor Church emphasize functional  
26 interchangeability? Is it possible for functionally interchangeable products to be

## RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES

1 excluded correctly from the relevant market on the basis of the HMT and the  
2 SSNIP?

3 e) At paras 99-143, Professor Church provides a lengthy discussion of technical  
4 features of wireless telecom systems and alternatives to poles. Is it his view that  
5 such a demonstration is sufficient to include all functionally equivalent  
6 technologies that he describes in the same product market?

7

### 8 **RESPONSE:**

9 a) No.

10

11 b) Functional interchangeability is a means to identify substitutes. Functional  
12 interchangeability by itself is not sufficient for a product to be included in a relevant  
13 product market. The relevant product market is established by the Hypothetical  
14 Monopolist Test under which the relevant market is typically the smallest set of  
15 products that must be under the control of the hypothetical monopolist. Application  
16 of this test can clearly exclude some products that are functionally interchangeable.  
17 The extent of substitution to all products by consumers at the margin, as per the  
18 Hypothetical Monopolist Test, is what matters/defines the product market. Dr.  
19 Church's evidence arrives at the conclusion of a broad product market for pole access  
20 for wireless attachments on the basis of the following:

- 21 • Wireless providers can substitute away from pole access for wireless  
22 attachments by substituting other inputs and other siting alternatives (direct  
23 substitution) and wireless consumers can substitute to downstream services  
24 that do not use pole access (indirect substitution).<sup>1</sup>

---

<sup>1</sup> Dr. Church's Evidence at paras. 140 and 158.

## RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES

- 1       • Minimizing the cost of providing universal coverage and mobility involves a  
2       mix of technologies and the use of pole access in that mix is limited because  
3       of its costs and characteristics.<sup>2</sup> This is supported by the nature of the  
4       deployment by the three main providers of wireless services (Rogers, Telus,  
5       and Bell). They have been able to substitute other inputs for pole access. The  
6       evidence on pole usage suggests that direct substitution to other inputs is easy,  
7       i.e., the elasticity of substitution very large.
- 8       • The possibility of mounting small cells and DAS deployment on poles is  
9       economically relevant in particular circumstances.<sup>3</sup> But in those  
10      circumstances pole siting likely has cost disadvantages (power and backhaul  
11      availability) relative to other siting alternatives and there may be other  
12      combinations of inputs that provide coverage and capacity.<sup>4</sup>
- 13      • Pole access does not appear to provide wireless service providers with either a  
14      cost or quality advantage. Hence downstream substitution between wireless  
15      services that use and wireless services that do not use pole access for wireless  
16      attachments will be possible and potentially important.<sup>5</sup>
- 17      • The importance of these substitution alternatives and the disadvantages of  
18      pole siting is confirmed by the small use of pole access for wireless  
19      attachments at regulated rates.<sup>6</sup>

20      In addition, it also is reasonable to conclude that, were pole access at regulated rates  
21      important to the efficient deployment of modern wireless networks—either now or in

---

<sup>2</sup> *Ibid.* at para. 109-110.

<sup>3</sup> *Ibid.* at para. 141.

<sup>4</sup> *Ibid.* at para. 142.

<sup>5</sup> *Ibid.* at s. 5.4.

<sup>6</sup> *Ibid.* at para. 168

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1       the future—that wireless services providers would have opposed the THESL  
2       application.

3

4       c) Please refer to part b), above.

5

6       d) Please refer to part b), above. It is clearly possible—and correct—for functionally  
7       interchangeable products to be excluded from the relevant market when the  
8       hypothetical monopolist test is used.

9

10      e) Please refer to part b), above.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

**INTERROGATORY 5:**

**Reference(s): BRG Report (Dr. Church) at Para 17**

**ISSUE(S): 4**

In EB-2011-0120, Mr. M. Starkey, an expert for THESL, stated in his affidavit:

“... For example, even Public Mobile was able to deploy a macro cell site-based network in which it placed numerous traditional macro cell sites throughout the city as a complete substitute for the DAS network it intended to build utilizing attachments to power poles. Public Mobile apparently uses this macro-site network to offer its wireless services throughout Toronto today.” (Affidavit of M. Starkey on Behalf of THESL, September 2, 2011, line 10-14 at p.25)

“... Note that Rogers does not indicate that it will rely upon DAS to further its wireless capacity needs, instead it intends to rely on Wi-Fi offload and femtocell technology (both of which are direct substitutes for the DAS network CANDAS describes below):” (ibid., line 5-8 at p.33 parentheses in original)

In its Interrogatory #2(b), Energy Probe asked:

“Does he (Mr. Starkey) contend that these two technologies (macro cells and the DAS network) are good substitutes in the economic sense?”

The response to this interrogatory was:

“b) Yes.”

(Interrogatory Responses Tab 4 Schedule 2, filed 2011 Sep 20)

## RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES

- 1 a) Applying his expertise in market definition, does Professor Church agree with Mr.  
2 Starkey's statement that the macro cell site-based network is "a complete substitute  
3 for the DAS network" that Public Mobile intended to build and therefore be included  
4 in the relevant product market?
- 5 b) Applying his expertise in market definition, does Professor Church agree with Mr.  
6 Starkey's statement that Wi-Fi and femtocell technology are "direct substitutes" for  
7 the DAS network described by CANDAS and therefore be included in the relevant  
8 product market?

9

### 10 **RESPONSE:**

- 11 a) Dr. Church's Evidence and approach does not attempt to define whether DAS and  
12 macrocells are in the same product market. Dr. Church does not address binary  
13 comparisons, nor does his analysis require specific binary comparisons. The relevant  
14 issue for market definition is whether the Hypothetical Monopolist Test is satisfied.  
15 This requires an assessment of the collective impact of all substitution at the margin,  
16 not binary comparisons between alternatives. The question that he attempts to answer  
17 is whether pole access provided by THESL is the relevant product market.  
18 Dr. Church's analysis and conclusion with respect to the *relevant upstream product*  
19 *market* in this proceeding regarding the issue of pole access for wireless attachments  
20 is found in section 5.3 of his evidence. At paragraph 140 as part of his conclusion on  
21 the relevant upstream product market Dr. Church states:

22 The foregoing discussion makes it apparent that the relevant  
23 product market is very unlikely to correspond *only* to the  
24 provision of pole access for wireless attachments. Pole access  
25 is an input that might be useful in the context of particular  
26 kinds of outdoor technologies (DAS and small cell). But those

## RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES

1 technologies are themselves *one of a set of options* that wireless  
2 service providers have at their disposal, in their quest to  
3 provide capacity and coverage in Toronto. These wireless  
4 service providers have the flexibility to use these technologies  
5 in varying proportions with other capacity and coverage  
6 augmenting techniques. This flexibility arises from the fact  
7 that small cells and DAS are unlikely to be used to provide  
8 blanket outdoor coverage, and much more likely to be used to  
9 augment capacity and coverage of the macrocell networks that  
10 wireless service providers already have in place. As well,  
11 wireless service providers have the ability to use alternative  
12 siting facilities to poles, even if they choose to deploy small  
13 cells or DAS.

14  
15 Dr. Church's conclusion is that: "Pole access for wireless attachments is not likely a  
16 relevant input market in its own right, but an input that is part of a broader relevant  
17 market."<sup>1</sup> Please refer to Dr. Church's response to Energy Probe interrogatory 4, part  
18 b) (Tab D, Schedule 5-4), for the logic and evidence that support this conclusion.

19  
20 b) Please refer to the response in part a), above.

---

<sup>1</sup> Dr. Church's Evidence at 143.



## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 **INTERROGATORY 6:**

2 **Reference(s):** **BRG Report (Dr. Church) at Para 59**

3

4 **ISSUE(S):** **4**

5

6 Throughout his report, Professor Church Professor Church cites with approval the  
7 Competition Bureau's Merger Enforcement Guidelines' approach to market definition.

8 Please consider the following extract therefrom:

9 "Various functional indicators help to determine what products are considered  
10 substitutes, including end use, physical and technical characteristics, price  
11 relationships and relative price levels, as well as buyer switching costs, as  
12 discussed below. Buyers may not view products purchased for similar end  
13 uses as substitutes. Therefore, functional interchangeability is not sufficient to  
14 warrant inclusion of two products in the same relevant market. In general,  
15 when buyers place a high value on the actual or perceived unique physical or  
16 technical characteristics of a product (including warranties, post-sales service  
17 and order turnaround time), it may be necessary to define distinct relevant  
18 markets based on these characteristics." (Merger Enforcement Guidelines,  
19 March 2011 at para 4.14)

20

- 21 a) Poles, rooftops and sides of buildings may be functionally interchangeable in the  
22 limited sense that they can enable the attachment of DAS systems. However, would  
23 Professor Church agree that, according to the market definition approach taken in the  
24 Merger Enforcement Guidelines, they would not necessarily be regarded as  
25 substitutes?

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

- 1    b)    What evidence does Professor Church have that buyers of those products view them  
2            as substitutes? If some buyers do view them as substitutes but others do not, can it  
3            be concluded that they are?

4

5    **RESPONSE:**

- 6    a)    Please refer Dr. Church's response to Energy Probe interrogatory 4 (Tab D, Schedule  
7            5-4).

8

- 9    b)    Please refer Dr. Church's response to Energy Probe interrogatory 4 (Tab D, Schedule  
10          5-4).

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 **INTERROGATORY 7:**

2 **Reference(s):** **BRG Report (Dr. Church) at Para 63**

3

4 **ISSUE(S):** **4**

5

6 “The CANDAS Application in EB-2012-0120 indicates that DAScom entered  
7 into Agreements for Licensed Occupancy of Support Structures with THESL effective  
8 August 1, 2009 and with THESI effective September 4, 2009 (CANDAS Application,  
9 para 6.11, p.18).

10

11 On January 14, 2010, THESL advised DAScom that THESL had issued a Stop Work  
12 Order (ibid., para 7.5, p.20)

13

14 In June 2010, due to delays in construction and permitting, Public Mobile decided to  
15 launch its service using Macro Cell Sites on a temporary basis and delayed the  
16 introduction of its DAS Network. (ibid., para 7.10, p.21)

17

18 On August 13, 2010, THESL filed a letter with the Board advising that as a matter of  
19 policy, the attachment of wireless telecommunications equipment to THESL power poles  
20 would not be permitted. (ibid., para 8.1, p.21)

21

22 On August 17, 2010, Public Mobile received an e-mail message from Mr. Lawrence  
23 Wilde stating that neither THESL nor THESI would grant access for wireless  
24 attachments. (ibid., para 8.3, p.22)

25

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 According to Brian O'Shaughnessy, Public Modbile's chief technology officer, Public  
2 Mobile shifted to a permanent Macro Cell Site deployment and is upgrading its  
3 temporary structures on the building rooftops and special purpose towers. (Written  
4 evidence, July 26, 2011, p.8)"

5  
6 THESL's expert Professor Yatchew opined that hydro poles and cell towers were in the  
7 same product market, relying in part on the fact that Public Mobile had launched service  
8 in Toronto on May 26, 2010 "despite the absence of access to utility poles in Toronto"  
9 (Yatchew evidence at p.15).

10  
11 a) Does Professor Church believe that Public Mobile's shift to permanent Macro Cell  
12 Site deployment supports the conclusion that cell towers and poles are in the same  
13 product market?

14 b) Does Professor Church believe that evidence of substitution/switching by Public  
15 Mobile after termination is also evidence of substitutability before termination?

16 c) In Professor Church's opinion as an independent expert economist, did Professor  
17 Yatchew and/or Mr. Starkey commit the well-known "cellophane error" in taking the  
18 evidence of switching after termination of the pole access agreements to indicate that  
19 cell towers and poles are in the same product market?

20 d) If functional interchangeability and the above evidence of actual switching do not  
21 necessarily support the conclusion that cell towers and poles are in the same product  
22 market, what evidence does Professor Church point to that supports to a different  
23 conclusion?

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1   **RESPONSE:**

2   a) The relevant issue for market definition is whether the Hypothetical Monopolist Test  
3   is satisfied. This requires an assessment of the collective impact of all substitution at  
4   the margin, not binary comparisons between alternatives. The use of market  
5   definition is to assist with identifying market power in this proceeding. The ultimate  
6   question is whether THESL has market power in the provision of pole access for  
7   wireless attachments. For a summary of Dr. Church's conclusion and reasoning with  
8   respect to market definition and market power, please refer to Dr. Church's response  
9   to Energy Probe interrogatory 4 (Tab D, Schedule 5-4).

10

11   b) Dr. Church does not rely on the substitution by Public Mobile in Toronto in reaching  
12   his conclusions regarding market definition.

13

14   c) Dr. Church's views on whether Professor Yatchew and/or Mr. Starkey committed the  
15   cellophane fallacy are irrelevant since Dr. Church does not rely on the substitution  
16   described in the interrogatory.

17

18   d) Please refer to the response in part a), above.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 **INTERROGATORY 8:**

2 **Reference(s):** **BRG Report (Dr. Church) at Para 55, 58-62, 63, 64, 65.**

3

4 **ISSUE(S): 4**

5

6 At para 55, Professor Church refers to the “functional definition of the market” as  
7 “identifying the levels of the supply chain or the different vertical levels of production  
8 that are relevant for assessing market power. At paragraphs 58-62, he outlines the  
9 Hypothetical Monopolist Test (“HMT”) in the enforcement guidelines of the Competition  
10 Bureau.

11

12 a) Does “functional definition of the market” (para 63) mean including all products that  
13 are functionally interchangeable or functionally equivalent? If not, please explain  
14 what “functional definition” is.

15 b) Does Professor Church propose that functional definition of the product market  
16 would be a process that complements the HMT when vertical levels of production  
17 are involved? Does it replace the HMT in those circumstances?

18 c) If, as Professor Church states at para 65, the own price elasticity of demand  
19 summarizes all substitution possibilities, then further “functional definition” should  
20 not be necessary as it adds no information. Is this statement correct or incorrect?

21 d) The HMT is often illustrated by assuming that the market demand curve of a product  
22 is linear and that a monopolist of that product has constant marginal costs. If the  
23 SSNIP is 5%, and if the competitive price prevailed prior to the hypothetical  
24 monopolization, would Professor Church agree that the own-price elasticity of  
25 demand for the product in question must be at least 10 in order for consumer

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

- 1 switching to make the 5% price increase unprofitable, thereby restraining the price  
2 increase by the monopolist to a non-significant amount?
- 3 e) On the basis of his knowledge of the telecom industry, does Professor Church  
4 believe that the price-elasticity of demand for pole attachment in Toronto by existing  
5 landline and cable attachers to be as large as 10?
- 6 f) Is it reasonable to believe that the demand elasticity for landline and cable attachers  
7 is inelastic, i.e. less than 1.0 in absolute value?
- 8 g) Assume that there is a large number of wireless attachers to THESL's poles. Based  
9 on his knowledge of the telecom industry, does Professor Church believe that the  
10 price-elasticity of demand for pole attachment in Toronto by those attachers would  
11 be inelastic or elastic?
- 12 h) If he believes that the demand-elasticity for pole attachment by wireless attachers is  
13 elastic, does he believe that it is at least as large as 10?
- 14 i) Please identify other commodity goods or services (i.e. not differentiated brands of  
15 the same product) that have a demand elasticity as high as 10.
- 16 j) If Professor Church does not accept the premises of linear demand and constant  
17 marginal costs, what other premises would he propose that would justify a demand  
18 elasticity of 10?
- 19 k) If Professor Church believes that the demand elasticity for pole attachments would  
20 be higher in the presence of pre-existing margins, does he believe that the CCTA  
21 decision erred in setting the attachment rate of \$22.35? Does Professor Church  
22 regard the regulated price of \$22.35 per pole per annum as being at or near (i) the  
23 marginal cost of access to a pole and (ii) the competitive level at the time it was  
24 imposed by the Board in the CCTA decision? If not, please briefly explain why not.

## RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES

1   **RESPONSE:**

2   a) The functional dimension of the market is a concept that is distinct from functional  
3   interchangeability or equivalence. The functional dimension of the market is defined  
4   in Dr. Church's Evidence at paragraph 55, as is its potential importance when the  
5   relevant question is market power in the provision of an input. If there is sufficient  
6   substitution downstream between products that use the input and products that do not  
7   then an exclusive supplier of that input will not have market power even if its  
8   customers cannot substitute to other inputs.<sup>1</sup> In this case, the relevant functional  
9   dimension of the market would be the downstream product market.

10

11   b) Dr. Church's analysis is consistent with the Hypothetical Monopolist Test, taking into  
12   account that the functional dimension requires indirect substitution downstream to be  
13   considered in assessing the extent of substitution when considering the profitability of  
14   a small but significant and non transitory increase in price by a hypothetical  
15   monopolist of an input.

16

17   c) Please refer to the response in part b), above.

18

19   d) The set of circumstances assumed in this question are considered in Exercise 19.2 in  
20   Church and Ware.<sup>2</sup> The elasticity of firm demand for a 5% SSNIP not to be  
21   profitable is actually 20. The elasticity of firm demand for a 5% SSNIP not to be  
22   profit maximizing is 10.

---

<sup>1</sup> Dr. Church's Evidence at paras. 77 and 78.

<sup>2</sup> See J. Church and R. Ware, (2000), *Industrial Organization: A Strategic Approach*, McGraw-Hill at pp. 609-610. The question assumes that at the competitive level of price, price equals marginal cost, and there is no margin.



## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

- 1 e) Dr. Church does not have any information about, and has not considered the elasticity  
2 of demand for, wired attachments. This information is not relevant to considering  
3 whether THESL has market power in the provision of pole attachments for wireless  
4 services. Indeed, at paragraph 112 of Dr. Church's Evidence, he indicates why the  
5 technology of wireline and wireless services suggest that demand for wireline and  
6 wireless attachments will be very different.  
7
- 8 f) Please refer to the response in part e), above.  
9
- 10 g) Please refer to Dr. Church's response to Energy Probe interrogatory 4 (Tab D,  
11 Schedule 5-4). It is useful information that there are not a large number of wireless  
12 attachments. This suggests the ability to easily substitute inputs and elastic demand.  
13
- 14 h) Please refer to the response in part g), above. This is a discussion not about final  
15 consumer demand, but about the ability of wireless providers to substitute inputs for  
16 pole access on wireless attachments. The evidence is consistent with an ease of  
17 substitution that suggests very elastic demand.  
18
- 19 i) The relevant demand elasticity is that for a hypothetical monopolist over a candidate  
20 set of products, in this case a set that includes pole access for wireless attachments by  
21 THESL. Estimates of demand elasticities for other commodities, especially if  
22 estimated for other purposes, are not relevant.  
23
- 24 j) In general the hypothetical monopolist test is a conceptual tool used to inform  
25 antitrust market definition. In particular what this means is that it is a way to identify,  
26 organize, and assess facts and data that are informative. It can be implemented in

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 many different ways and how it is implemented depends on the data that is available.  
2 The question fundamentally misunderstands the nature of the analysis performed by  
3 Dr. Church to arrive at his conclusions on market definition. See response to Energy  
4 Probe interrogatory 4 part b (Tab D, Schedule 5-4, part b). The possibility of easily  
5 substituting pole access for wireless attachments would appear to be more than a  
6 theoretical possibility, rather it is the reality of wireless network deployment.

7  
8 While textbook examples are useful pedagogical tools, and while it is sometimes  
9 possible to directly implement the hypothetical monopolist test by calculating critical  
10 elasticities and comparing them to prevailing elasticities, this must be done carefully.  
11 In particular, the linear functional form can be very problematic. Curvature of the  
12 demand curve (i.e., how quickly demand elasticity increases as price rises) is a key  
13 determinant of critical elasticity and the relevance of estimated elasticities from  
14 assumed functional forms for demand. The second component of the implementation  
15 of the hypothetical monopolist test using critical elasticity analysis is the margin (i.e.,  
16 the difference between price and marginal cost). This requires information about  
17 marginal cost. Using the OEB's estimates of marginal cost, the margin is  
18 approximately 90%. At this margin, the critical elasticity is only 1 for a 5% SSNIP.  
19 At the existing price, demand is very small. Based on Dr. Church's analysis, it may  
20 be that the regulated price is above competitive levels; the regulated price should not  
21 be presumed to reflect either a competitive price or a market price.

22  
23 k) Dr. Church has not done an analysis of the referenced OEB rate of \$22.35. He does  
24 not have an opinion on whether this is the correct rate. Dr. Church notes that the rate  
25 is based on a fully distributed cost methodology. Around \$2 of that rate is "direct  
26 cost", and over \$20 of that rate is "indirect costs" (i.e., an allocation of the common

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 costs to the pole attachment service). Fully distributed costing is unlikely to represent  
2 an economically efficient (or meaningful) pricing.<sup>4</sup> A price based on fully distributed  
3 cost is not a price that equates with “marginal cost” (at least not intentionally). Dr.  
4 Church also has no analyzed, and therefore does not know, whether the “direct costs”  
5 (including any relevant opportunity costs) or “indirect costs” are appropriately.

---

<sup>4</sup> See the discussion in See J. Church and R. Ware, (2000), *Industrial Organization: A Strategic Approach*, McGraw-Hill at p. 846.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 16:**

2 **Reference(s):**        **none provided**

3

4 **ISSUE(S):**    **5**

5

6 With respect to the number of applications received requesting pole access, what is the  
7 general timeframe for THESL / THESI to respond to these requests, and what is the  
8 likelihood of receiving permission to attach to a pole?

9

10 **RESPONSE:**

11 In 2013, the average timeframe for THESL / THESI to respond to pole requests was 12  
12 days.

13

14 Sixty-four percent of attachment requests were granted in 2013. However, that  
15 percentage does not necessarily represent the likelihood that permission will be granted.

16 Under THESL's current practice, each application is considered pursuant to the  
17 permitting process outlined in THESL's response to OEB Staff Interrogatory 1 (Tab A,  
18 Schedule 1-1). The approval of an application depends on the specific details of that  
19 application.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 17:**

2 **Reference(s):**           **none provided**

3

4 **ISSUE(S):**    **5**

5

6 What reasons might THESL / THESI cite if denying attachment to a pole to an applicant?

7

8 **RESPONSE:**

9 Please refer to THESL's response to CCC interrogatory 4 (Tab A, Schedule 2-4).

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 18:**

2 **Reference(s):** **Evidence of Dr. Church, Page 41, paragraph 111**

3

4 **ISSUE(S):** **5**

5

6 “These considerations mean that wireless service technology is characterized by variable  
7 proportions. Wireless carriers can, and will, choose the relative usage of different inputs,  
8 including pole access, based on minimizing costs.”

9

10 What evidence or facts provide support for the above conclusion?

11

12 **RESPONSE:**

13 Please refer to Dr. Church’s Evidence at paragraphs 100, 103, and 117-127, as well as Dr.  
14 Church’s response to Energy Probe interrogatory 4, part b (Tab D, Schedule 5-4, part b),  
15 especially the second bullet.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 19:**

2 **Reference(s):** **Evidence of Dr. Church, Page 66, paragraph 176**

3

4 **ISSUE(S):** **5**

5

6 Expert Report states:

7 “Third, the entrants into the Canadian wireless market appear to have focused on talk and  
8 text, and not on data. Their focus has been on providing low priced voice and text  
9 packages. This is reflected in their relatively low average revenue per user and relatively  
10 small share of postpaid subscribers relative to the three incumbents. These differences  
11 are likely attributable to a large difference in the importance of data service for the  
12 incumbents relative to the entrant. [...]”

13

- 14 a) Who are the new entrants that are being referenced in this statement?
- 15 b) What specific new entrants are not focussed on data?
- 16 c) Could there be reverse causality given the observation that entrants focus on voice  
17 (and not data) services and have low demand for pole access?
- 18 d) Please provide any supporting evidence for the statement that entrants focus on voice  
19 and text rather than data.
- 20 e) Please explain what post-paid subscribers are and why this is an important factor is  
21 driving entrants’ alleged focus on voice and text.
- 22 f) Please explain why data service is more important to incumbents than entrants.
- 23 g) Would you expect your answer to (f) to change over time? If so, how?

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1   **RESPONSE:**

2   a) Paragraph 27 of Dr. Church's Evidence clearly sets out who are considered  
3       incumbents and who are considered entrants. For avoidance of doubt, the entrants are  
4       Wind, Public Mobile and Mobilicity. These three firms acquired spectrum in  
5       THESL's footprint in the 2008 AWS Auction.

6  
7   b) None of the new entrants focused on data.<sup>1</sup> All of the entrants lacked and continue to  
8       lack an attractive array of "smart" devices. Furthermore, they have not launched LTE,  
9       and their initial entry strategies targeted pre-paid budget users, not smartphone users.  
10      Press reports cited in footnote 163 of Dr. Church's Evidence indicate that the entrants  
11      did begin shifting their strategies in 2012, but currently none of these entrants is in a  
12      position to launch an LTE network, which means that their significance in the  
13      wireless data market going forward will continue to be limited. Indeed two of them  
14      are unlikely to exist for much longer; Public Mobile was acquired by Telus and  
15      Mobilicity is in bankruptcy proceedings. Wind Mobile declined to bid for 700 MHz  
16      spectrum and has been for sale. Given these constraints, it would be hard to imagine  
17      that any of these firms will be able to compete effectively in the wireless data market  
18      with or without pole access.

19  
20   c) The question is unclear. The context of the cited paragraph is why it is necessary to  
21       only consider the effects of market power in the provision of pole access for wireless  
22       attachments by looking at its effects on the dominant providers of data services in the  
23       downstream market. The effect on entrant's ability to compete and discipline the  
24       incumbents is considered subsequently in section 6.2.2 of Dr. Church's Evidence.

---

<sup>1</sup> Dr. Church's Evidence at paras. 174-178, 201-202, and fn. 163.



## RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES

1

2 Assuming that the question is implying that entrants' focus on pre-paid voice was  
3 caused by a lack of regulated pole access, Dr. Church is unaware of any strong  
4 evidence that suggests that the initial "talk and text" strategy of entrants was strongly  
5 or substantially related to their ability to use poles at regulated rates. Only Public  
6 Mobile, because of its unique spectrum holdings, had an initial entry plan in Toronto  
7 based on access to poles. But all of the strategies of the three entrants were  
8 predicated on the notion that Canadian wireless penetration was low, and that there  
9 was a void to be filled in providing low-cost pre-paid services.

10

11 d) Please refer to the response in part b), above.

12

13 e) Footnote 142 of Dr. Church's Evidence states: "Post paid customers pay in advance  
14 and are on a contract. Pre paid customers pay as they go." The Evidence, elsewhere  
15 or in the paragraph cited, does not say that postpaid subscribers are an important  
16 factor in the entrants' focus on voice and text. The paragraph cited starts from the  
17 observation that subscribers on monthly contracts and who have high ARPU typically  
18 use more data than subscribers with low ARPU and who pay as they go. The  
19 entrants' relatively high share of pre-paid subscribers *reflects* the fact that entrants  
20 started off by targeting low-spending consumers with "talk and text" plans, rather  
21 than targeting high-spending customers with data plans and subsidized smartphones.

22

23 f) The issue is not whether data service is more or less important to incumbents than  
24 entrants. The discussion at paragraphs 173 to 179 of Dr. Church's Evidence  
25 establishes, that in the market, the important providers of wireless data services are  
26 the incumbents and are likely to remain so.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1

2 g) No. Please refer to the response in part b), above.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 20:**

2 **Reference(s):** **Evidence of Dr. Church, Page 10, paragraph 30**

3

4 **ISSUE(S):** **5 and 7**

5

6 “The analysis indicates that that the facts do not support the hypothesis that if THESL  
7 exercised market power, it would create, maintain, or preserve market power in the  
8 downstream market.”

9

10 Please explain why the creation, maintenance or preservation of market power in the  
11 downstream market is a relevant or important consideration in this case.

12

13 **RESPONSE:**

14 If THESL’s exercise of market power had the effect of entrenching existing market  
15 power by (for example) deterring what would be otherwise viable entry or relaxing the  
16 competitive constraint by entrants on incumbents, then it would result in higher prices,  
17 lower output and reduced quality in the downstream market. The harm from the exercise  
18 of market power upstream could arise from its effect on the exercise of market power in  
19 the downstream market ( i.e., it creates inefficiency there). This is why creation,  
20 maintenance or preservation of market power in the downstream market is a relevant  
21 consideration. This is the usual focus in an essential facilities case, and while this is not  
22 such a case, the core concern of an essential facilities case – that the exercise of market  
23 power in an upstream market harms competition in the downstream market – is  
24 potentially applicable here. But to make it applicable, the case theory must be recast as is  
25 done in paragraph 29 and section 6.2.2 of Dr. Church’s Evidence: that the exercise of  
26 market power by THESL against the entrants would protect the market power of the

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

- 1 incumbents. This theory is provided and assessed to ensure that Dr. Church has
- 2 considered all potential effects from the exercise of market power by THESL.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 **INTERROGATORY 9:**

2 **Reference(s):** **BRG Report (Dr. Church) at Para 18, 22.**

3

4 **ISSUE(S):** **5**

5

6 Professor Church states, inter alia, that:

7 “The relevant downstream market is a wireless service that meets both nomadic and  
8 mobile by users in Toronto, with an emphasis on high speed data transmission.” (para  
9 18)

10 “Because pole access does not result in either a significant cost advantage or quality  
11 advantage, consumers do not distinguish between wireless services that utilize pole  
12 access as an input and those that do not. ...” (para 22)

13

- 14 a) Does Professor Church mean to say that the downstream market consists only of  
15 wireless service?
- 16 b) Is wireless service a single homogeneous product, or is it a differentiated product?
- 17 c) Re: para 22, how does Professor Church know this? On what evidence does he rely?
- 18 d) Supposing it were true that use of poles enabled a DAS deployment to deliver a  
19 clearer signal in certain areas than signals delivered (say) by cell towers, is it  
20 reasonable to suppose that consumers who valued greater signal clarity would  
21 distinguish among alternate wireless services?

22

23 **RESPONSE:**

- 24 a) The relevant downstream market is wireless services providing both nomadic and  
25 mobile access by licensed spectrum users who operate cellular networks. It may be

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 defined more narrowly to be these wireless services that also provide high speed data  
2 transmission

3

4 b) Economics, by necessity, involves abstraction from irrelevant details. For some  
5 purposes, wireless services might be differentiated. For the purposes of this  
6 proceeding, the key issue in terms of downstream product differentiation was whether  
7 services provided using wireless attachments on THESL's poles are sufficiently  
8 differentiated from other wireless services to constitute a differentiated product based  
9 on the Hypothetical Monopolist Test. The assessment in Dr. Church's evidence at  
10 paragraph 157 is that this is not likely to be the case. Hence, on the margin that  
11 matters for this proceeding, the use of pole access for wireless attachments, wireless  
12 services are not sufficiently differentiated to be considered in separate markets. It is  
13 reasonable to speak of a wireless service market as discussed in the response to part  
14 a), above.

15

16 c) Please refer to section 5.4 of Dr. Church's Evidence for the full analysis. The cited  
17 bullet is simply the conclusion from the introduction.

18

19 d) Consumers of wireless services can, do, and will distinguish between wireless  
20 services on the basis of price and quality. The analysis in section 5.4 of Dr. Church's  
21 Evidence of the observed behavior of consumers and of the wireless service providers  
22 suggests that a quality differential on the basis of pole access for wireless  
23 attachments, at the margin, does not seem to be significant.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 21:**

2 **Reference(s):** Evidence of Dr. Church, Page 10, paragraph 30

3

4 **ISSUE(S):** 6

5

6 THESL states:

7 “With the exception of wireless attachments for Wi-Fi, the THESL and THESI poles on  
8 which there are wireless attachments, or for which applications for attachments have been  
9 made, are all located outside the downtown core.”

10

11 Where are the poles with wireless attachments located (including those for which a  
12 permit application has not yet been granted or been declined)?

13

14 **RESPONSE:**

16 This response has been filed confidentially, in accordance with the OEB’s *Rules of*  
17 *Practice and Procedure* and the OEB’s Practice Direction on Confidential Filings.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 22:**

2 **Reference(s):** **Pre-Filed Evidence of THESL, page 3, paragraph 17**

3

4 **ISSUE(S):** **6**

5

6 THESL states:

7 “THESL proposes to charge a competitive rate for wireless attachments to its poles.

8 Doing so will improve THESL’s ability to recover its true costs, and provide a benefit to  
9 its ratepayers and to its shareholder.”

10

11 Please provide any agreements for the attachment of wireless equipment on  
12 THESL/THESI poles, including related term sheets, for which the pole rental rate is not  
13 the regulated rate of \$22.35 (including agreements with TTC and OneZone)?

14

15 **RESPONSE:**

16 Appendices A and B to this Schedule have been filed confidentially in accordance with  
17 the OEB’s *Rules of Practice and Procedure* and the OEB’s *Practice Direction on*  
18 *Confidential Filings* .



## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 23:**

2 **Reference(s):** **Evidence of Dr. Church, Page 10, paragraph 30**

3

4 **ISSUE(S): 6**

5

6 “First the analysis suggests that incumbents do not exercise (inefficient) market power.”

7

8 a) Please explain what “inefficient market power” is as distinguished from “efficient  
9 market power”.

10 b) Please explain how efficient market power is relevant to the determination of issues  
11 in this case.

12 c) What metrics are used to measure efficient and inefficient market power and what  
13 evidence is available on the values of these metrics?

14

15 **RESPONSE:**

16 a) Please refer to footnotes 34 and paragraph 189 of Dr. Church’s Evidence.

17 Collectively, these excerpts indicate that there is a difference between technical  
18 market power, where price exceeds marginal cost, and market power involving the  
19 ability to make and sustain economic profits. In industries with economies of scale  
20 and scope pricing at marginal cost typically results in negative profits. Hence, firms  
21 will need to be able to exercise enough market power to raise price to at least average  
22 cost to break even. The number of firms will adjust in the long run to at least this  
23 level. Without this exercise of market power there would not be production. Thus,  
24 this exercise of market power is not harmful, but beneficial. As a result, the focus on

## RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES

1 when market power should be a concern typically involves whether it is significant  
2 (above average cost) and durable.<sup>1</sup>

3

4 b) The primary use is to understand that the typical indirect measures of market power  
5 used in antitrust analysis are not very helpful in assessing the state of competition or  
6 the exercise of market power in an absolute sense. Changes in these measures, such  
7 as changes in the number of firms and market share, can be useful to indicate changes  
8 in market power, which if entry is not timely, likely and sufficient, will indicate the  
9 potential for market power to be inefficient (i.e., significant and durable). But in  
10 trying to assess the extent of competition for policy purposes they may not be  
11 informative, especially if there are significant economies of size. If there are  
12 significant economies of size such that marginal cost pricing is not profitable, then the  
13 industry will be concentrated such that firms can exercise market power to raise  
14 prices to average cost levels. The issue then for assessing competition is not whether  
15 the industry is concentrated but whether it is too concentrated. When assessing  
16 competition in the downstream wireless market, because of the strong network  
17 economies, it is expected that marginal cost pricing will not be profitable and that  
18 some exercise of market power will be necessary and the market will be concentrated.  
19 Whether it is too concentrated and there is a competition problem (i.e., the inefficient  
20 exercise of market power such that prices are above average cost), requires different  
21 metrics. This discussion is developed further, and those metrics are applied to the  
22 downstream wireless industry, in section 6.2.1 of Dr. Church's Evidence.

23

---

<sup>1</sup> See J. Church and R. Ware, (2000), *Industrial Organization: A Strategic Approach*, McGraw-Hill at p. 603.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

- 1 c) Please refer to section 6.2.1 of Dr. Church's Evidence. The two metrics applied to
- 2 the downstream wireless market are profitability over the life cycle of investment
- 3 (internal rate of return vs. cost of capital) and international comparisons of market
- 4 structure.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 24:**

2 **Reference(s):** **Evidence of Dr. Church, page 8, paragraph 25**

3

4 **ISSUE(S): 6**

5

6 Expert Report states:

7 “There are likely only a very limited number of locations where using small cells or DAS  
8 mounted on poles is the sole option for wireless service providers to implement outside  
9 data coverage and capacity. But, these localized circumstances are not likely to be  
10 known by THESL. Hence it is unlikely that THESL can exercise market power in those  
11 locations: if it cannot distinguish the locations where it has market power from those  
12 where it does not, then the relevant geographic area is no smaller than the footprint of its  
13 entire pole network. THESL does not know the value of pole access at a given location  
14 to a wireless service provider and hence cannot discriminate if rates were forborne.”

15

16 What is the basis for the opinion that THESL cannot distinguish pole locations with  
17 market power from those without, thereby preventing THESL from price discriminating?

18

19 **RESPONSE:**

20 Please refer to Dr. Church’s Evidence at paragraphs 163 and 164. THESL would have to  
21 know which poles are valuable to which wireless operators in order for it to successfully  
22 discriminate between the pricing of poles at different locations. This would require  
23 THESL to have the technical and market knowledge to assess at each pole whether  
24 wireless providers can easily substitute to other inputs to provide service or will instead  
25 find it profitable to lower their quality of service in that local area. Please also refer to

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

- 1 Dr. Church's response to OEB Staff interrogatory 14 part b) (Tab D, Schedule 1-14, part
- 2 b).

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 25:**

2 **Reference(s):** Evidence of Dr. Church, Page 10, paragraph 30

3

4 **ISSUE(S):** 6

5

6 “First the analysis suggests that incumbents do not exercise (inefficient) market power.”

7

8 a) Please explain what “inefficient market power” is as distinguished from “efficient  
9 market power”.

10 b) Please explain how efficient market power is relevant to the determination of issues  
11 in this case.

12 c) What metrics are used to measure efficient and inefficient market power and what  
13 evidence is available on the values of these metrics?

14

15 **RESPONSE:**

16 Please see Dr. Church’s response to OEB Staff Interrogatory 23 (Tab F, Schedule 1-23).

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 10:**

2 **Reference(s):** **Pre-filed Evidence**

3

4 **ISSUE(S):** **6**

5

6 At paragraph 7 of its evidence, THESL states that approximately 117,000 of its poles are  
7 available for wireless attachments. Please update this number, including any new poles  
8 currently planned.

9

10 **RESPONSE:**

11 Paragraph 7 of THESL's Pre-Filed Evidence states that approximately 119,000 poles are  
12 available for wireless attachments. This number is still accurate.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 11:**

2 **Reference(s):** **Pre-filed Evidence**

3

4 **ISSUE(S):** **6**

5

6 At paragraph 1, THESL states that it has approximately 175,000 poles. At paragraph 9,  
7 THESL states that approximately 40,000 poles are street lighting poles. At paragraph 7,  
8 THESL states that approximately 117,000 of its poles are available for wireless  
9 attachment.

10

11 a) Please confirm that 18,000 poles are not street lighting poles, but are nonetheless not  
12 available for wireless attachment.

13 b) Please explain why they are not available.

14

15 **RESPONSE:**

16 a) The poles are not street lighting poles and not available for wireless attachment.

17

18 b) These poles are not available for wireless attachment because they have major  
19 equipment (i.e., SCADA switches) or riser attachments.

20

21 Any poles which have any overhead switches, transformers and risers are generally  
22 not available for wireless attachments. In cases where overhead switches are  
23 implemented, additional hardware associated with the switch occupies portions of the  
24 pole which renders them unavailable. In cases where overhead transformers are  
25 implemented, customers which may require services greater than 200A would have  
26 their electrical infrastructure fed underground directly from the transformer pole



## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

- 1 location. This would essentially create a riser configuration and would generally
- 2 render the pole unavailable for wireless attachments.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 12:**

2 **Reference(s):** **Pre-filed Evidence**

3

4 **ISSUE(S):** **6**

5

6 At paragraph 2, THESL states that some of its street lighting poles can, if modified or  
7 replaced, accommodate wireless attachments.

8

9 a) Please provide a range for the costs per pole of such modification or replacement.

10 b) Please provide similar estimates for THESI's poles, if different from THESL.

11

12 **RESPONSE:**

13 THESL's response to this interrogatory has been filed confidentially in accordance with  
14 the OEB's *Rules of Practice and Procedure* and the OEB's *Practice Direction on*  
15 *Confidential Filings*.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 13:**

2 **Reference(s):**            **Pre-filed Evidence**

3

4 **ISSUE(S):**    **6**

5

6 At paragraph 11, THESL states that at the time of its application, there were 130 wireless  
7 attachments on its poles and 61 on THESI's poles, further breaking these down into  
8 cellular and Wi-Fi. Please update these numbers.

9

10 **RESPONSE:**

11 Please refer to THESL's response to CCC interrogatory 2 (Tab A, Schedule 2-2).

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 14:**

2 **Reference(s):** **Pre-filed Evidence**

3

4 **ISSUE(S):** **6**

5

6 At paragraph 13, THESL states that since the Board's Preliminary Decision and Order,  
7 there have been 19 permit applications, giving some detail on the applications. Please  
8 update the numbers in paragraph 13.

9

10 **RESPONSE:**

11 Since the date of the Board's Preliminary Decision and Order in EB-2011-0120 there  
12 have been 41 permit applications, from two providers, for wireless attachments on  
13 THESL and THESI's poles. To date 21 permits have been issued, ten on THESL and 11  
14 on THESI. Of those applications, 20 are for cellular services on THESL poles and 20 are  
15 for cellular services on THESI poles. The remaining application contemplates WiFi  
16 attachments on two THESL poles.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 15:**

2 **Reference(s):** **Pre-filed Evidence**

3

4 **ISSUE(S):** **6**

5

6 At paragraph 15, THESL states that its direct and indirect costs for pole attachments are  
7 higher than the \$22.35 currently authorized by the Board.

8

9 a) Please provide THESL's best estimate of the cost of pole attachments. Please provide  
10 a detailed description of the methodology used by THESL to calculate these costs.

11 b) Please list those cost elements that are included.

12 c) Please describe THESL's definitions and identification and inclusion of fixed costs  
13 and common costs.

14 d) Please provide any related studies or analyses.

15 e) If THESL does not have an estimate of its costs for pole attachments, please provide  
16 the basis for THESL's statement that its direct and indirect costs are higher than  
17 \$22.35. Please provide any related studies or analyses.

18

19 **RESPONSE:**

20 Please refer to THESL's response to CCC Interrogatory 16 (Tab J, Schedule 2-16) for an  
21 answer to questions a), b), c) and e). Regarding question d), THESL has not undertaken  
22 any related studies or analyses.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

### **INTERROGATORY 16:**

**Reference(s):**           **Evidence of Dr. Church**

**ISSUE(S):**     **6**

At paragraph 12 and elsewhere in his evidence, Dr. Church uses the expression ‘marginal cost’.

- a) Please define what is meant by this expression as applied to pole attachments.
- b) In particular, please specify what Dr. Church considers to be the unit of output to be costed.
- c) Please specify what cost elements would be included, and what cost elements would be excluded, from this definition.

### **RESPONSE:**

- a) Marginal cost is the increase in the opportunity cost of resources used to produce the marginal unit of output. There is a distinction between marginal cost in the short run, when not all inputs can be varied, and in the long run, when the utilization of all inputs can be varied. The marginal cost of a pole attachment is therefore the opportunity cost to THESL of placing the wireless attachment; this is the value forgone by placing the attachment. The value forgone might be direct—resources are used in the placement of the wireless attachment. The value forgone might also be a lost opportunity. By placing a wireless attachment, revenue from other opportunities is precluded. It might vary between the short and long run.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

- 1    b) The unit of output in the short run is an attachment at a pole. In the long run, there  
2       might be two different measures that are important. One is the unit of attachment to a  
3       pole. The second is broader and involves all of the avoidable costs THESL incurs  
4       with being in the business of wireless attachments. Some of these inputs might not be  
5       divisible, in which case their fixed costs are not marginal to any particular wireless  
6       attachment, but to all wireless attachments.  
7  
8    c) Please refer to the response in parts a) and b), above.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

### **INTERROGATORY 17:**

**Reference(s):**            **Evidence of Dr. Church**

**ISSUE(S):**    **6**

At paragraph 118, Dr. Church suggests that off-loading traffic to fixed line networks is a substitute to attaching antennas to utility poles. Please explain the extent to which this is an efficient substitute for:

- a) outdoor coverage in commercial districts and
- b) outdoor coverage in residential neighborhoods.

### **RESPONSE:**

Section 5.3.1 of Dr. Church's Evidence discusses a number of alternative techniques that a wireless service provider can use to meet capacity and coverage challenges, including off-loading traffic to fixed line networks. The objective of this section is to indicate that the technology of providing wireless services involves variable proportions. Wireless service providers can, and as the discussion indicates *do*, use a mix of different inputs to provide the desired level of capacity and coverage. This also means they can substitute one input for others as relative prices change. The issue for market definition is whether there is sufficient substitution to discipline the exercise of market power by a hypothetical monopolist, where substitution is both direct (other inputs) and indirect (downstream by wireless consumers).

The relevant issue for market definition is whether the Hypothetical Monopolist Test is satisfied. This requires an assessment of the collective impact of all substitution at the margin as the price of pole access for wireless attachments increases, not binary



## RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES

1 comparisons between alternatives as is contemplated in this question, evidence which is  
2 not available to Dr. Church.

3  
4 It is not relevant whether fixed-line offloading is a substitute for outdoor DAS and small  
5 cells in every potential deployment situation. The evidence does establish the importance  
6 of fixed line off loading in managing capacity on wireless networks. While fixed line  
7 offloading does not directly improve **outdoor coverage**, it increases the capacity and  
8 performance of the wireless system. By doing so, fixed-line offloading reduces the need  
9 for wireless service providers to resort to pole-based deployments of small cells and DAS  
10 as responses to increased capacity burdens caused by increased demand for wireless data.  
11 Fixed-line offloading is already a widely-used and highly salutary technique since about  
12 45 percent of mobile data traffic is already being offloaded.<sup>1</sup>

13  
14 Dr. Church relies upon the conceptual framework of the hypothetical monopolist test to  
15 identify, organize, and assess facts and data that are informative. It can be implemented  
16 in many different ways and how it is implemented depends on the data that is available.  
17 Dr. Church's evidence arrives at the conclusion of a broad product market for pole access  
18 for wireless attachments on the basis of evidence on *the extent of substitution to other*  
19 *inputs and whether this is likely to be sufficient to discipline the exercise of market power*  
20 *by THESL in the provision of pole access for wireless attachments as per the hypothetical*  
21 *monopolist test*. Please refer to Dr. Church's response to Energy Probe interrogatory 4  
22 (Tab D, Schedule 5-4) for a summary of the evidence used by Dr. Church to arrive at this  
23 conclusion.

---

<sup>1</sup> See Cisco Systems, Cisco Virtual Networking Index: Global Mobile Data Traffic Forecast Update, 2013-18, available online: <[http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white\\_paper\\_c11-520862.html](http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white_paper_c11-520862.html)>.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 18:**

2 **Reference(s):**           **Evidence of Dr. Church**

3

4 **ISSUE(S):**    **6**

5

6 At paragraph 119, Dr. Church discusses indoor deployment of small cells and DAS.

7

8 Please explain the extent to which this is an efficient substitute for pole attachments for:

9 a) outdoor coverage in commercial districts and

10 b) outdoor coverage in residential neighborhoods.

11

12 **RESPONSE:**

13 a) and b) Dr. Church is aware that indoor deployments of small cells and DAS  
14 might be capable of providing outdoor coverage.<sup>1</sup> Whether these indoor deployments  
15 are “efficient substitutes” for outdoor DAS and small cells in every potential  
16 deployment situation is not relevant to Dr. Church’s analysis of the relevant market  
17 and THESL’s ability to exercise market power in the provision of pole attachment  
18 service. As noted at paragraph 22 in Dr. Church’s Evidence substitution need not be  
19 direct: “The substitution might be circuitous: outdoor capacity and coverage in a  
20 particular geographic area can be enhanced by reallocating macrocell capacity away  
21 from providing indoor usage by installing DAS and small cells indoors.”

22

23 Additional evidence found subsequent to the preparation of Dr. Church’s Evidence  
24 estimates that if small cells could just absorb in-building traffic generated at venues  
25 such as train stations, shopping malls, and entertainment venues, the total traffic

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 carried by the macrocell network would decline by up to 32%.<sup>2</sup> A chain of  
2 substitution that runs from outdoor small cells on poles to indoor small cells to  
3 macrocell coverage outdoors is potentially very material.

---

<sup>1</sup> Dr. Church's Evidence at para. 119; Dr. Jackson's Evidence, at Table 2 and p. 12.

<sup>2</sup> See Analysys Mason, "3G and 4G Small Cells Create Big Challenges for MNOs", available at  
<<http://www.analysysmason.com/About-Us/News/Insight/small-cells-big-challenges-Mar2013/>>.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

### **INTERROGATORY 19:**

**Reference(s): Evidence of Dr. Church**

**ISSUE(S): 6**

At paragraph 120, Dr. Church suggests that wireless service providers can increase capacity through increased spectrum availability and sharing.

- 1) Please provide Dr. Church's best estimate as to the amount by which these methods could increase capacity for an incumbent wireless service provider:
  - a) in theory and
  - b) in practice.
- 2) Please discuss the extent to which spectrum is available to a new entrant.
- 3) Please describe the incentives for incumbents to share spectrum with new entrants.

### **RESPONSE:**

- 1) There is no practical way for Dr. Church, or any other analyst, to estimate how much additional capacity could be added through acquisition of spectrum and spectrum sharing. This depends on how much spectrum they acquire and how much spectrum is shared. Dr. Church notes that Bell and Rogers have access to 2500 MHz spectrum in Toronto, have recently acquired 700 MHz spectrum, and will make efforts to re-form existing spectrum that is used for 2G and 3G services. The availability of additional bandwidth reduces the need to engage in "frequency re-use" techniques including outdoor small cells and DAS.<sup>1</sup>

---

<sup>1</sup> See Dr. Church's Evidence at para. 100, which explains the basics of wireless networks, and how capacity challenges have traditionally been met by re-using frequencies in adjacent cells.

## RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES

1       What is relevant is whether wireless carriers can increase capacity through increased  
2       use of spectrum and spectrum sharing in the face of an increase in the price for pole  
3       access for wireless attachments. On the relevance of this, please refer to Dr. Church's  
4       response to VECC interrogatory 17 (Tab F, Schedule 3-17). What should be clear is  
5       that wireless providers do use spectrum in the provision of wireless services and can  
6       and do substitute other inputs for spectrum.

7

8       2) The availability of spectrum to a new entrant depends on how much the new entrant  
9       is prepared to pay for spectrum, and how much spectrum is made available. In the  
10       2008 AWS auction, large quantities of spectrum were set-aside for new entrants. In  
11       the most recent auction (of 700 MHz spectrum), the entrants in Toronto—Wind,  
12       Public Mobile and Mobilicity—did not participate in the auction, but Quebecor  
13       acquired 10 MHz of spectrum covering Southern Ontario at very low cost compared  
14       to the incumbent operators.

15

16       3) The incentives to share spectrum between incumbents and entrants will depend on the  
17       business interests of the entrant and incumbent. Dr. Church notes that Rogers, an  
18       “incumbent”, has entered into a spectrum and network sharing agreement with  
19       Videotron/Quebecor, an “entrant.”<sup>2</sup>

---

<sup>2</sup> *Ibid.* at para. 127 and fn. 103.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 20:**

2 **Reference(s):**           **Evidence of Dr. Church**

3

4 **ISSUE(S):**    **6**

5

6    At paragraph 121, Dr. Church suggests that the deployment of MIMO is one way to  
7    expand capacity. Please discuss the aesthetic and health concerns that might be raised by  
8    the deployment of MIMO in residential neighborhoods.

9

10 **RESPONSE:**

11    Dr. Church declines to speculate on whether such concerns might be raised by the  
12    deployment of MIMO, as this is outside of his area of expertise.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

**INTERROGATORY 21:**

**Reference(s): Evidence of Dr. Church**

**ISSUE(S): 6**

At paragraph 122, Dr. Church discusses pricing, traffic shaping, and compression as methods to increase capacity.

Please provide Dr. Church's best estimate as to the amount by which these methods could increase capacity:

- a) in theory and
- b) in practice.

**RESPONSE:**

Traffic-shaping, data compression and pricing are not capacity-augmenting techniques, but capacity management techniques. These techniques can be used with varying intensity depending on the wireless service providers' commercial strategies. Dr. Church notes that most wireless data plans are now "tiered" plans, instead of unlimited plan.<sup>1</sup> Thus, these alternatives, or some of them, are already being intensively used.

Having established that wireless operators can, and do, use capacity management techniques, Dr. Church reiterates his response to VECC interrogatory 17 (Tab F,

---

<sup>1</sup> In a three-year period from 2010 to 2013, Cisco Systems estimates that the proportion of "tiered" pricing plans in all wireless data plans that it surveyed increased from 4 percent in January 2010 to 55 percent in September 2013. See Cisco Systems, Cisco Virtual Networking Index: Global Mobile Data Traffic Forecast Update, 2013-18. Available at [http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white\\_paper\\_c11-520862.html](http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white_paper_c11-520862.html).

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

- 1 Schedule 3-17) with respect to substitution between these techniques and pole access for
- 2 wireless attachments.



## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 22:**

2 **Reference(s):** **Evidence of Dr. Church**

3

4 **ISSUE(S):** **6**

5

6 At paragraph 123, Dr. Church discusses cell splitting and spectrally efficient technology.

7

8 Please provide Dr. Church's best estimate as to the amount by which these methods could  
9 increase capacity:

10 a) in theory and

11 b) in practice.

12

13 **RESPONSE:**

14 While it is impossible to quantify the precise increase in capacity that is possible (at least  
15 in practice) through improvements in spectral efficiency or cell-splitting, these  
16 techniques, together with allocation of increased spectrum, have been at the forefront of  
17 meeting capacity challenges to date, and will continue to be relied on in the future.<sup>1</sup>

18

19 Having established that wireless operators can and do increase capacity by adopting  
20 standards with greater spectral efficiency and cell-splitting, Dr. Church reiterates his  
21 response to VECC interrogatory 17 (Tab F, Schedule 3-17) with respect to substitution  
22 between these alternatives and pole access for wireless attachments.

23

---

<sup>1</sup> Dr. Church's Evidence at para. 100 and fn. 61.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

- 1 Dr. Jackson observes that new approaches to system design promise to expand
- 2 substantially the overall spectral efficiency of wireless systems by allowing the reuse of
- 3 frequencies within a single cell. One such technique is called multi-user MIMO.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 23:**

2 **Reference(s):**           **Evidence of Dr. Church**

3

4 **ISSUE(S):**    **6**

5

6 At paragraph 124, Dr. Church discusses Industry Canada's roaming and sit [sic] sharing  
7 mandates. In Dr. Church's view, does Industry Canada's site sharing mandate apply to  
8 antenna sits located on utility poles or on the sides of buildings?

9

10 **RESPONSE:**

11 Industry Canada's roaming mandates allow entrant firms' customers to "roam" on  
12 incumbent networks, and cannot be applied to poles or any other site. Dr. Church does  
13 not know whether Industry Canada's site sharing mandates apply to poles. Whether  
14 Industry Canada's site-sharing mandates apply to utility poles or sides of buildings may  
15 be a matter of interpretation or legal expertise.

16

17 The ability to roam and to share other types of sites (besides poles) with incumbents will,  
18 all else equal, reduce entrants' need to make their own separate placements using utility  
19 poles as sites.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 24:**

2 **Reference(s):**           **Evidence of Dr. Church**

3

4 **ISSUE(S):**    **6**

5

6 At paragraph 148 and following, Dr. Church discusses the use of utility poles by Public  
7 Mobile and by Videotron to deploy distributed antenna systems in Montreal.

8 a) Please provide the prices paid by Public Mobile and by Videotron for these pole  
9 attachments.

10 b) Please describe the process by which these prices were established, whether  
11 agreements negotiated between parties, commercial arbitration, or regulatory  
12 intervention.

13

14 **RESPONSE:**

15 a) Dr. Church is only aware of the details of a rental agreement between DASCOM and  
16 Ville De Montreal that stipulates an annual pole rental of \$100 per pole for the use of  
17 259 poles, subject to an annual inflation factor of 3%.

18

19 b) The agreement appears to be a negotiated agreement between the City of Montreal  
20 and DASCOM.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 25:**

2 **Reference(s):**           **Evidence of Dr. Church**

3

4 **ISSUE(S):**    **6**

5

6 At paragraph 182, Dr. Church states:

7 “...if THESL attempts to price pole access at very high levels, this is likely to reduce the  
8 demand for poles to the limited set of circumstances where even the incumbent wireless  
9 firms lack effective economic substitutes. Even if wireless service providers could not  
10 avoid using THESL poles entirely, they would appear to certainly have the flexibility to  
11 greatly reduce their reliance on this infrastructure...”

12

13 a) Please provide Dr. Church’s best estimate of the own-price elasticity of demand for  
14 pole attachments.

15 b) Please provide any supporting studies and analyses.

16

17 **RESPONSE:**

18 a) Please refer to Dr. Church’s response to VECC interrogatory 17 (Tab F, Schedule 3-  
19 17).

20

21 b) Dr. Church does not have any such studies or analyses.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 **INTERROGATORY 10:**

2 **Reference(s):** **BRG Report (Dr. Church) Page 5 Para 17 and 18,**  
3 **Appendix Table 2**

4  
5 **ISSUE(S):** **6**

6  
7 17. *Upstream Product Market Definition:* The economic interest in the regulation of  
8 access to poles by firms wishing to make wireless attachments is linked to  
9 demand for such pole access by (cellular) wireless service providers in Toronto.  
10 While some parties might also wish to make wireless attachments to poles for  
11 providing other types of services – e.g., Wi-Fi or highly localised wireless  
12 networks—the economic importance of these is likely limited.10

13

14 Based on the above please provide qualitative estimates of the future market demand for  
15 attachments. Please include utility poles, streetlight and other, in Toronto.

16

17 **RESPONSE:**

18 Dr. Church does not have such an estimate. Moreover, the cited paragraph provides no  
19 basis for a qualitative estimate of future market demand. Instead the citation and the rest  
20 of paragraph 17 in Dr. Church's Evidence observes that interest, or demand, for pole  
21 access for wireless attachments arises from the potential for it to be useful for the  
22 provision of service by wireless service providers.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 **INTERROGATORY 11:**

2 **Reference(s):** **Dr. Jackson Report Page 32, Table 2**

3

4 **ISSUE(S):** **6**

5

6 a) Please explain whether the market for wireless utility pole attachments is  
7 expanding/contracting.

8 b) Please update Table 2 for most recent data.

9 c) Please include information on 4G networks if available.

10

11 **RESPONSE:**

12 Dr. Jackson's responses are as follows:

13

14 a) In my report, I did not attempt to define the market for pole attachments, so I am  
15 reluctant to answer the question in the terms it is posed. As I note in my report,  
16 "Future demand growth will require much more extensive use of small cells."  
17 Wireless utility poles are one place where small cells can be installed.

18

19 b) Table 2 was prepared less than a year ago. I am not aware of any changes in  
20 technology or equipment available in the marketplace that would change the  
21 comparisons shown in that table.

22

23 c) There are a number of references to LTE and LTE-Advanced in my report. LTE is  
24 and will continue to be the most widely-used 4G technology. The only significant  
25 alternative to 4G technology is WiMAX (IEEE 802.16). However, most of the  
26 wireless industry seems to have chosen to build LTE systems. Consequently, the

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

- 1       LTE ecosystem is and will stay far more vibrant than that for WiMAX. I believe that
- 2       the discussion in my report is fully applicable to 4G—most importantly LTE.



## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 **INTERROGATORY 12:**

2 **Reference(s):** **THC Annual Corporate Report April 2013, Page 18/19**

3

4 **ISSUE(S): 6**

5

6 4.4 Toronto Hydro Energy Services Inc.

7 TH Energy is a professional energy services company with \$22.2 million of Capital  
8 Assets. Until January 1, 2012, TH Energy owned and operated all of the street lighting  
9 assets located in the City and had the sole right to provide maintenance and capital  
10 improvements to the street lighting systems throughout the City until 2035, which  
11 services were sub-contracted to LDC. Effective January 1, 2012, TH Energy transferred  
12 a portion of its street lighting assets to LDC. TH Energy continues to provide street  
13 lighting system maintenance and capital improvement services to the City, and such  
14 services continue to be sub-contracted to LDC. See section 5.3 under the heading "Street  
15 Lighting Activities" for more information on the transfer of street lighting assets from TH  
16 Energy to LDC.

17

18 TH Energy also provides consolidated billing services to the City, which services are sub-  
19 contracted to LDC.

20 a) What are the 2013 businesses of THESI? Please provide detail.

21 b) Please provide the aggregate 2013 net assets and revenues.

22 c) Does THESI provide Wi-Fi or other attachment/connection services on streetlights –  
23 either directly or as part of its SL maintenance arrangements with City and or  
24 THESL?

25 d) Please delineate each and numbers of attachments/connections.

26 e) Please provide copies of the relevant Inter-Corporate Agreements per ARC.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

- 1 f) Are there any restrictions on THESI providing Wi-Fi/Wireless connection services in  
2 future? Please discuss.

3  
4 **RESPONSE:**

- 5 a) The only change in THESI's business activities in 2013, from those described in the  
6 2012 Annual Information Form at pages 18 and 19, is that THESI no longer provides  
7 consolidated billing services to the City of Toronto.

- 8  
9 b) This information is not relevant to this application, and in any event, cannot be  
10 disclosed at this time because THESI is undergoing a financial audit.

- 11  
12 c) As noted at paragraph 11 of THESL's Pre-Filed Evidence, THESI's poles support  
13 wireless attachments for both Wi-Fi and cellular services.

- 14  
15 d) Please refer to THESL's response to CCC interrogatory 2 (Tab A, Schedule 2-2).

- 16  
17 e) A copy of the relevant agreement is attached as Appendix A.

- 18  
19 f) THESL interprets this question to ask whether there are any restrictions on THESI  
20 providing wireless services in the future. THESL is not aware of any such  
21 restrictions beyond those set out in the Board's Affiliate Relationships Code and the  
22 *Ontario Energy Board Act, 1998*.

## **SERVICE AGREEMENT**

**THIS SERVICE AGREEMENT made as of January 1, 2012.**

**BETWEEN:**

**Toronto Hydro-Electric System Limited ("THESL")**

and

**Toronto Hydro Energy Services Inc. ("Affiliate")**

**WHEREAS** the Affiliate desires THESL to provide certain Services (as defined herein) to it and THESL wishes to provide such Services; and,

**WHEREAS** the Affiliate desires to provide certain Services (as defined herein) to THESL and THESL wishes to receive such Services.

**NOW THEREFORE** in consideration of the mutual covenants and agreements herein and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, THESL and Affiliate (together, the "Parties") agree as follows:

### **1. PURPOSE**

1.1 The purpose of this Agreement is to describe:

- (a) the Services to be provided by THESL to the Affiliate, and by the Affiliate to THESL;
- (b) the charges to be paid by each Party for the Services it receives from the other Party; and
- (c) the working relationship between the Parties relating to the Services.

### **2. DEFINITIONS AND INTERPRETATION**

2.1 As used in this Agreement, the following terms shall have the following meanings:

- (a) "Affiliate Relationships Code" means the Affiliate Relationships Code for Electricity Distributors and Transmitters issued by the Ontario Energy Board on April 1, 1999, including any and all amendments or revisions thereto;
- (b) "Agreement" means this Service Agreement for Services and all instruments supplemental to it or in amendment or confirmation of it;

- (c) "Fully-Allocated Costs" shall have the same meaning prescribed to it in the Affiliate Relationships Code;
  - (d) "Market Price" shall have the same meaning prescribed to it in the Affiliate Relationships Code;
  - (e) "Parties" means THESL and Affiliate collectively, and "Party" means any one of them;
  - (f) "Representatives" means any employee, agent, or subcontractor, of the Party in question, including without limitation any third party retained to perform any or all of the Services pursuant to Section 4 of this Agreement;
  - (g) "Services" shall have the meaning prescribed to it in Section 4.1 of this Agreement;
  - (h) "Shared Corporate Services" shall have the meaning prescribed to it in the Affiliate Relationships Code;
  - (i) "Transfer Price(s)" shall have the meaning prescribed to it in Section 5 of this Agreement;
  - (j) "Term" shall have the meaning prescribed to it in Section 3.1 of this Agreement;
- 2.2 Unless the context of this Agreement requires otherwise, the singular number shall include the plural and vice versa and any gender includes any other gender.
- 2.3 The following Schedules are attached to and form an integral part of this Agreement:
- |             |  |
|-------------|--|
| Schedule 1  | Environment, Health and Safety               |
| Schedule 2  | Treasury and Insurance                       |
| Schedule 3  | Finance                                      |
| Schedule 4  | Information Technology and Services          |
| Schedule 5  | Procurement                                  |
| Schedule 6  | Legal  |
| Schedule 7  | Organizational Effectiveness                 |
| Schedule 8  | Facilities Management                        |
| Schedule 9  | Fleet and Fleet Management                   |
| Schedule 10 | Emergency Response and System Support (1)    |
| Schedule 11 | Consolidated Billing and Settlement Services |
| Schedule 12 | Emergency Response and System Support (2)    |

### **3. TERM AND TERMINATION**

- 3.1 The Parties agree that, notwithstanding any provision contained therein, the Service Agreement made between them as of January 1, 2011 is terminated effective December 31, 2011.
- 3.2 This Agreement shall be for a term of five (5) years commencing on January 1, 2012 and terminating on December 31, 2016 unless the Agreement is terminated earlier by either



Party, in whole or in part, upon no less than sixty (60) days' written notice to the other Party ("Term"); provided that in the event of default in performance of any material covenant in this Agreement, including Section 13.3, the non-defaulting Party shall be entitled to terminate the Agreement on no less than fourteen (14) days written notice to the defaulting Party. Any partial termination of the Agreement shall be evidenced by a written agreement as between the Parties specifying the specific Shared Services to be terminated, and the adjustment in Transfer Price pursuant to such partial termination; provided that the Parties shall make any adjustments required to insure that the Transfer Prices remain consistent with the Affiliate Relationships Code.

#### **4. SERVICES**

- 4.1 "Services" means the services referred to in section 4.2 and any transfer or secondment of an employee as contemplated in section 4.6.
- 4.2 Subject to Section 4.5 of this Agreement, THESL shall provide the Affiliate with the Services listed in Schedules "1" through "11" hereto and any additional services required by Affiliate from time to time, and the Affiliate shall provide THESL with the Services listed in Schedule "12" hereto and any additional services required by THESL from time to time. Any additional services required by the Affiliate or THESL shall be provided on the same terms and conditions and Transfer Prices set out in this Agreement. The Parties shall provide the Services at commercially reasonable quality levels.
- 4.3 Subject to Sections 4.4 and 4.5 hereof, each Party shall have the right, in its sole discretion, to contract with a third party to deliver all or part of the Services, provided however that such third party shall be capable of providing such Services to the same or better quality levels than those set forth in Section 4.2. The Parties agree that, in procuring the delivery of such Services from a third party, the Party providing such Services shall be acting as the agent of the Party receiving such Services.
- 4.4 If THESL contracts with a third party to provide part or all of the Services pursuant to Section 4.3 above, the Affiliate shall pay the amount charged by the third party for the portion of the Services delivered, plus any applicable administration fees.
- 4.5 If the Affiliate contracts with a third party to provide THESL a Service pursuant to Section 4.3 above, THESL shall pay no more than Market Price for that Service, provided that a reasonably competitive market exists for the Service.
- 4.6 No employee shall be shared between THESL and the Affiliate, however an employee may be transferred or seconded from THESL to the Affiliate or from the Affiliate to THESL with the prior approval of an officer or other authorized individual of each of the relevant departments of THESL and the Affiliate. When on a secondment or transfer, the employee will not provide any services to the original company during the period of secondment or transfer unless the services are pursuant to this Agreement.
- 4.7 Each Party shall bear the risk involved in delivering the Services to the other Party.

## **5. TRANSFER PRICING**

- 5.1 "Transfer Price(s)" means the charges referred to in sections 5.2 and 5.3. Estimates of the annual Transfer Prices for the Services are set out in the attached Schedules.
- 5.2 All Services provided by THESL or its Representatives will be charged to the Affiliate at Fully-Allocated Cost (plus any applicable taxes), unless the Services are not a Shared Corporate Service and the Market Price exceeds the charge, in which case the charge will be set to the Market Price. The Affiliate shall pay the charges to THESL.
- 5.3 All Services provided by the Affiliate or its Representatives will be charged to THESL at the lower of Market Price or the Affiliate's Fully-Allocated Cost. THESL shall pay the charges to the Affiliate.
- 5.4 The Parties hereby agree and acknowledge that they shall review the Services and the estimated Transfer Prices described in the Schedules hereto at such times as necessary in order to ensure that the Transfer Prices remain consistent with the requirements of the Affiliate Relationships Code.
- 5.5 Each Party shall render to the other Party, on or before the 15<sup>th</sup> day of each month (or such other time as may be agreed), an invoice setting forth the total amount due in respect of each of the Services provided during the previous calendar month and the amount of any HST or other taxes, which the Party receiving the Services has an obligation to pay.
- 5.6 Each Party shall, no later than forty-five (45) days after receipt of an invoice described in Section 5.5 above, or if such day is not a business day, the immediately preceding business day, render to the other Party, by any acceptable method agreed to by the Parties, the amount due to the other Party as set forth in the invoice. This Section 5.6 shall survive any termination of this Agreement or the expiry of the Term for a period of twelve (12) months from the date on which the last invoice is rendered to Affiliate pursuant to this Agreement.
- 5.7 At the end of the fiscal year, each Party will perform a reconciliation of the estimated annual Transfer Price (as invoiced pursuant to Section 5.5) and the actual annual Transfer Price of providing the Services during that fiscal year, and will issue a reconciliation invoice. Any differences, that were not previously paid by or refunded to the Party receiving the Services, shall be settled within forty-five (45) days after the receipt of the reconciliation invoice.

## **6. NOTICES AND CONTACTS**

- 6.1 Any notice or communication required as between the Parties pursuant to this Agreement shall be delivered to the following individuals, or to such other individual as either Party may stipulate by notice to the other:

For THESL: Anthony Haines  
Telephone: 416.542.3339  
Fax: 416.542.2602



For Affiliate: Jean-Sebastien Couillard  
Telephone: 416.542.3166  
Fax: 416.542.2662

**7. AMENDMENTS**

- 7.1 If at any time during the term of this Agreement the Parties deem it necessary or expedient to make any alteration or addition to this Agreement, they may do so by means of a written agreement between them which shall be supplemental and form part of this Agreement.

**8. FURTHER ASSURANCES**

- 8.1 The Parties agree that each of them shall, upon reasonable request of the other, do or cause to be done all further lawful acts, deeds and assurances whatever for the better performance of the terms and conditions of this Agreement.

**9. SUCCESSORS AND ASSIGNS**

- 9.1 This Agreement shall enure to the benefit of and be binding upon the respective successors and permitted assigns of the Parties, provided however that neither Party may assign this Agreement without the prior written consent of the other Party, such consent not to be unreasonably withheld.

**10. SEVERABILITY**

- 10.1 If any provision of this Agreement is determined to be invalid or unenforceable in whole or in part, such invalidity or unenforceability shall attach only to such provision and everything else in this Agreement shall continue in full force and effect.

**11. COUNTERPARTS**

- 11.1 This Agreement may be executed by the Parties in separate counterparts, each of which when so executed and delivered shall be an original, but all counterparts shall together constitute one and the same instrument.

**12. DISPUTE RESOLUTION**

- 12.1 The Parties will use their best efforts to resolve, at an operational level, any disputes which may arise concerning this Agreement. Any issues which remain unresolved for more than fifteen (15) days will be referred to a member of the senior management of each of the Parties, who shall confer in an effort to resolve the issue. The parties agree to use their best efforts to resolve all disputes in a timely and professional manner utilizing a process appropriate to the issues involved.

### 13. CONFIDENTIALITY

13.1 **“Confidential Information”** means all information, whether disclosed orally, in writing, or otherwise, designated as being confidential, which is disclosed by one Party (the “Disclosing Party”) to the other Party (the “Recipient”) relating to the business of the Disclosing Party or in connection with the subject matter of this Agreement and includes, but is not limited to, business, financial, and marketing information, plans and strategies, contractual, customer and supplier information, technical information related to hardware, software and firmware, and know-how, trade secrets and any other intellectual property rights, and the terms of this Agreement. Notwithstanding the foregoing, Confidential Information shall not include:

- (i) information which now is, or hereafter properly becomes, generally available to the public other than as a result of disclosure in breach of this Agreement;
- (ii) information which is required to be disclosed in compliance with any applicable law, under order of a court of competent jurisdiction or other similar requirement of a governmental agency, so long as the Recipient provides the Disclosing Party with prior written notice of any required disclosure pursuant to such law, order or requirement and cooperates, to the extent permitted by law with the Disclosing Party in seeking an order eliminating or restricting the disclosure or a protective order or otherwise ensuring the confidential treatment of the Confidential Information;
- (iii) information which is disclosed with the prior written approval of an authorized officer of the Disclosing Party;
- (iv) information which is previously known to the Recipient at the time of disclosure;
- (v) information which is discovered by the Recipient without reference to the Confidential Information of the Disclosing Party; or
- (vi) information which is lawfully obtained from a third party which was not bound by a confidentiality agreement respecting the disclosure.

13.2 Each Party agrees not to disclose any Confidential Information to any person except those of its Representatives who have a need to know such Confidential Information in connection with this Agreement and who are informed of the confidential nature of the Confidential Information and who agree to be bound by the terms of this Section 13. The Recipient will not use any Confidential Information relating to the Disclosing Party for any purpose other than in connection with the performance of its obligations, or exercise of its rights under this Agreement, and will exercise the same security measures normally exercised with respect to its own Confidential Information, and at a minimum a reasonable degree of care, to safeguard the Confidential Information from disclosure to anyone other than as permitted hereby. The provisions of this Section 13.2 shall survive termination of this Agreement.

13.3 The Affiliate shall comply at all times with the data management and access protocols implemented by THESL to protect access to any Confidential Information including, but not limited to, any information relating to specific smart sub metering provider, wholesaler, consumer, retailer or generator that THESL has obtained in the process of providing current or prospective utility service, or any other information that is defined as confidential information under the Affiliate Relationships Code. In the event that this Section 13.3 conflicts with any other provision under Section 13, this Section 13.3 will prevail.



**IN WITNESS WHEREOF**, the Parties have executed this agreement effective as of the date first above written as attested by the hands of their respective officers duly authorized in that behalf:

**TORONTO HYDRO-ELECTRIC SYSTEM LIMITED**

Per: 

Anthony Haines  
President and Chief Executive Officer

**TORONTO HYDRO ENERGY SERVICES INC.**

Per: 

Jean-Sebastien Couillard  
Chief Financial Officer

**SCHEDULES FOR SERVICE LEVEL AGREEMENT BETWEEN**

**Toronto Hydro-Electric System Limited**

**and**

**Toronto Hydro Energy Services Inc.**

<b>Schedule</b>	<b>Service Area</b>	<b>Page</b>
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<b>Schedule 3</b>	Finance	11
<b>Schedule 4</b>	Information Technology and Services	12
<b>Schedule 5</b>	Procurement	13
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<b>Schedule 7</b>	Organizational Effectiveness	15
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## SCHEDULE 1

**SERVICE:** Environment, Health and Safety

**PROVIDED BY:** THESL to the Affiliate

**DESCRIPTON:** Providing recommendations and advice on scope and content of environmental issues; coordinate and conduct environmental training; providing health services which will co-ordinate the disability management process for absences of an occupational and non-occupational illness or injury; providing recommendations and advice on EHS issues; conducting and co-ordinating health and safety education and training; maintaining health and safety records; providing accident/incident investigations; providing occupational and non-occupational claims management services.

SUMMARY	ESTIMATED ANNUAL TRANSFER PRICE
Safety: Environment, Health and Safety Management System; Environment, Health and Safety Training; Accident/Incident Investigations; Health Services; WSIB Claims Management Administration	\$10,365

## SCHEDULE 2

**SERVICE:** Treasury and Insurance

**PROVIDED BY:** THESL to the Affiliate

**DESCRIPTON:** Providing treasury related services such as cash management, banking, investing, credit, risk and debt management, financial strategy, planning, reporting and insurance activities.

SUMMARY	ESTIMATED ANNUAL TRANSFER PRICE
Cash Management; Credit Risk Management; Long-term Debt Management and Investor Relations; Financing Strategy; Insurance Management; Monthly Accounting/Reporting	\$27,460

### SCHEDULE 3

**SERVICE:** Finance

**PROVIDED BY:** THESL to the Affiliate

**DESCRIPTON:** Providing finance services which includes: payroll and accounts payable services such as analysis, processing and reporting; financial reporting and accounting such as preparation of financial statements, accounting research, development of internal accounting policies, and general ledger services; management reporting; financial planning; business unit support; and tax services such as preparation of corporate tax returns, tax planning and tax consulting services on tax compliance matters.

SUMMARY	ESTIMATED ANNUAL TRANSFER PRICE
Payroll, Corporate Controllershship and Policy, Accounts Payable, Reporting, Financial Planning, Corporate Tax, Finance - Operations	\$276,210

#### **SCHEDULE 4**

**SERVICE:** Information Technology and Services

**PROVIDED BY:** THESL to the Affiliate

**DESCRIPTON:** Providing required IT equipment (hardware), required software and applications, data centre and network services, maintenance, implementation, administration and support; as well as overseeing and managing IT related matters.

<b>SUMMARY</b>	<b>ESTIMATED ANNUAL TRANSFER PRICE</b>
IT Stewardship, Management, Maintenance and Support	\$61,898

## SCHEDULE 5

**SERVICE:** Procurement

**PROVIDED BY:** THESL to the Affiliate

**DESCRIPTON:** Providing procurement services consisting of: acquisition of required goods and services which includes compiling tender and RFP requirements and coordinating goods and service requirements; and contract administration services which involve administering the competitive bidding process and vendor assessment.

SUMMARY	ESTIMATED ANNUAL TRANSFER PRICE
Procurement Charge	\$44,688

## SCHEDULE 6

**SERVICE:** Legal

**PROVIDED BY:** THESL to the Affiliate

**DESCRIPTON:** Providing legal services for commercial, litigation, real property, claims, and other legal matters, which include legal consultation and advice, initiation of defense of legal proceedings, preparation of contracts, review of contracts, legal research and compliance, and preparation of required legal responses as well as providing legal leadership and strategy.

SUMMARY	ESTIMATED ANNUAL TRANSFER PRICE
Legal services for commercial, litigation, real property, claims	\$48,647



## SCHEDULE 7

**SERVICE:** Organizational Effectiveness

**PROVIDED BY:** THESL to the Affiliate

**DESCRIPTON:** Providing support for organizational staff planning; the design and administration of benefit programs; design and administration of compensation systems; salary administration; job evaluation; and the management of human resources information systems and reporting requirements. Services also include: supporting the design and implementation of human resources strategic initiatives; the design, assessment and audit of internal human resources policies, programs and processes. Providing support to employees and leaders in the following areas: labour and employee relations; recruitment, selection, and on-boarding; job analysis and design; employee performance and attendance management.

SUMMARY	ESTIMATED ANNUAL TRANSFER PRICE
Disability Case Management; Attendance Management Program; Administer and Manage All Leaves; Development and Maintenance of HRIS System; Administer Benefits Program - Employees and Retirees; Manage Total Compensation Program (Job Evaluation/Salary Administration/Variable Pay); Manage Retirement Program; Training and Education on Compensation and Benefits Topics; Manage Benefit Programs – Employees and Retirees; Labour Relations; Employee Relations; Deliver Training on Labour/Employee Relations Topics; Legal Compliance; HR Practices and Procedures; Conduct Recruitment, Selection and Orientation – Full-time, Temporary, Internal and External; Administer Student and Intern Employment Programs; Process Voluntary Termination; Engage Contingent Personnel	\$33,541

## SCHEDULE 8

**SERVICE:** Facilities Management

**PROVIDED BY:** THESL to the Affiliate

**DESCRIPTON:** Providing required office space and operations and maintenance function of work areas and facilities as well as facilities and real estate related acquisitions and disposals, planning, health and safety, strategy, assessment, administration and management activities.

SUMMARY	ESTIMATED ANNUAL TRANSFER PRICE
Operation and Maintenance; Real Estate; Human and Environmental Factors; Planning and Project Management; Manage Facility Function; Quality Assessment and Innovation; Investment Recovery	\$62,104

## SCHEDULE 9

**SERVICE:** Fleet and Fleet Management

**PROVIDED BY:** THESL to the Affiliate

**DESCRIPTON:** Providing usage, management, administration and maintenance of vehicles and trucks.

SUMMARY	ESTIMATED ANNUAL TRANSFER PRICE
Fleet Management and Repair; Wash Vehicles and Equipment; Fleet Vehicle and Equipment Asset Management; Inventory Management; Legislative Compliance; Licences, Permits; Fleet Parking; Driver Training and Licence Management; Centralized Tool Crib Services	\$183,580

## **SCHEDULE 10**

**SERVICE:** Emergency Response and System Support (1)

**PROVIDED BY:** THESL to the Affiliate

**DESCRIPTON:** Providing emergency response and system support Services.

<b>SUMMARY</b>	<b>ESTIMATED ANNUAL TRANSFER PRICE</b>
Emergency operations and maintenance; storm damage response; unplanned corrective measures and repairs; operations support services	\$454,000

## **SCHEDULE 11**

**SERVICE:** Consolidated Billing and Settlement Services

**PROVIDED BY:** THESL to the Affiliate

**DESCRIPTON:** Providing consolidated billing and settlement Services.

<b>SUMMARY</b>	<b>ESTIMATED ANNUAL TRANSFER PRICE</b>
Processing and clerical work involved in the consolidated billing to the City of Toronto; billing and settlement activities.	\$122,499

## **SCHEDULE 12**

**SERVICE:** Emergency Response and System Support (2)

**PROVIDED BY:** Affiliate to THESL

**DESCRIPTON:** Providing emergency response and system support Services.

<b>SUMMARY</b>	<b>ESTIMATED ANNUAL TRANSFER PRICE</b>
Field Services: Emergency operations and maintenance; storm damage response; demand operations and maintenance	\$222,000
Design Services: Project design support	\$384,000

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 **INTERROGATORY 13:**

2 **Reference(s):** **THC Annual Corporate Report April 2013, Page 18/19**

3

4 **ISSUE(S):** **6**

5

6 Potential Business reorganization

7

8 If THESL is allowed to deregulate services and prices for pole-related Wi-Fi services,  
9 then will THESI (or other THC subsidiary) either become service provider and/or acquire  
10 a service provider?

11

12 **RESPONSE:**

13 It is not THESL's current intention that THESI or any other THC subsidiary would  
14 become involved a line of business that includes providing wireless services. This  
15 application is predicated on engagement exclusively with arms length counterparties.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 **INTERROGATORY 14:**

2 **Reference(s):** **BRG Report (Dr. Church) at Para 4-7, 20, 52-53**

3

4 **ISSUE(S):** **6**

5

6 At para 4, Professor Church states that the

7 “key issue in assessing regulatory forbearance is whether, in the absence of  
8 regulation, competition is sufficient to discipline the exercise of market power”.

9

10 At para 5, he states:

11 “The goal of a market power analysis is to determine the extent to which a firm,  
12 in this case THESL, can profitably offer a service, in this case, pole access for  
13 wireless attachments, at rates in excess of competitive levels. If THESL cannot  
14 exercise market power in the provision of pole access for wireless attachments,  
15 then in the absence of some other compelling reason to continue regulation,  
16 competition is sufficient to protect the public interest.”

17

18 At para 20, he states:

19 “Market definition involves identifying substitutes that constrain the exercise of  
20 market power. If the relevant market was (on the product dimension) pole access  
21 for wireless attachments and (on the geographic dimension) a specific pole then  
22 THESL would have market power.”

23

24 a) Does Professor Church regard the presence of market power and the exercise thereof  
25 as distinct issues, or are they the same?



## RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES

- 1    b) Professor Church makes repeated reference to Canada's Competition Act and the  
2       enforcement guidelines of the Competition Bureau. Does he believe that under s.92  
3       of the merger provisions of the Act, the Commissioner must show both that the  
4       contested merger creates market power AND that the merged firm will exercise that  
5       market power?
- 6    c) If the answer to b) above is yes, would Professor Church agree that his view differs  
7       from s.2.3 of the Bureau's merger guidelines:
- 8       2.3 These guidelines describe the analytical framework for assessing market  
9       power from the perspective of a seller of a product or service ("product," as  
10      defined in section 2(1) of the Act). Market power of sellers is the ability of a  
11      firm or group of firms to profitably maintain prices above the competitive level  
12      for a significant period of time. The jurisprudence establishes that it is the  
13      *ability* to raise prices, not whether a price increase is likely, that is  
14      determinative.
- 15   d) At para 6, Professor Church states that an exclusive supplier may not have market  
16      power if it competes with differentiated products. Does he regard hydro poles, roof-  
17      tops, and sides of buildings as distinct products or as differentiated products in this  
18      case?
- 19   e) At para 7, Professor Church states that the rationale for price and entry regulation  
20      requires an assessment, the first step of which is a determination that the technology  
21      is a "normative natural monopoly". Accordingly, does he believe that a hydro pole  
22      is NOT a natural monopoly? If so, please explain briefly why not.
- 23   f) Please clarify para 20. Suppose that the product market consisted only of poles and  
24      that the geographic market were larger than a specific pole. Would Professor  
25      Church claim that THESL had market power?
- 26

## RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES

1   **RESPONSE:**

2   a) Market power is defined as the ability to profitably raise price above competitive  
3   levels or otherwise increase profits by deviating from competitive levels.<sup>1</sup> The  
4   distinction in the question is not typically relevant because profit maximizing firms  
5   that have the ability to exercise market power will typically do so, unless they are  
6   subject to regulatory constraint or the threat of a regulatory constraint. A firm with  
7   the ability to exercise market power whose objective was to maximize total surplus  
8   would not do so.

9

10   b) Dr. Church is an economist, not a lawyer. His beliefs regarding the legal requirements  
11   for demonstrating that a merger would result in a substantial lessening of competition  
12   are irrelevant. From the perspective of an economist and competition policy scholar,  
13   a lessening of competition corresponds to an increase in market power which, in the  
14   typical case, would be expected to be exercised. Please refer to the response in part  
15   a), above. So, in Dr. Church's view, the Commissioner's burden of proof is  
16   demonstrating that the merger creates, enhances, or maintains market power; if the  
17   market power is not exercised because of a regulatory constraint then it is arguable  
18   that the merger did not create, enhance or maintain market power because there is still  
19   a constraint on its exercise.

20

21   That being said, it is not clear why or how Dr. Church's views on the interpretation of  
22   section 92—a key merger provision of the *Competition Act*—are relevant to  
23   assessing forbearance of pole access for wireless attachments. There is a single  
24   reference to the Merger Enforcement Guidelines in Dr. Church's Evidence and it is to

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<sup>1</sup> Dr. Church's Evidence at para. 50.

## RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES

1 the hypothetical monopolist test and market definition, not the definition of a  
2 substantial lessening of competition under section 92 of the *Competition Act*.

3

4 c) The Competition Tribunal's approach under Section 92 of the *Competition Act* is to  
5 assess the effect on market power of the transaction holding costs constant. If market  
6 power increases substantially then it will find a substantial lessening or prevention of  
7 competition *even if price were to fall because of efficiencies*.<sup>3</sup> However, if the  
8 requirements of Section 96 are met, and the efficiencies are found to be greater than,  
9 or offsetting to, the effects of the lessening or prevention of competition, then the  
10 Tribunal is not to enjoin the transaction. This may be the case if price falls. That  
11 being said, Dr. Church does not see how his views on this matter, and the Bureau's  
12 interpretation in the current *Merger Enforcement Guidelines*, are relevant to the issue  
13 before the OEB in this proceeding.

14

15 d) Dr. Church does not understand the relevance of the distinction made between  
16 distinct products and differentiated products. THESL will have market power in the  
17 provision of pole access for wireless attachments if substitution to other products is  
18 limited or other suppliers of pole access is limited. The assumption in Dr. Church's  
19 Evidence is that there are no other suppliers of pole access. Hence, the issue is  
20 whether those who demand pole access for wireless attachments will substitute to  
21 other products when the price of pole access for wireless attachments increases. If  
22 they do, whether this makes these other products "distinct products" or "differentiated  
23 products", Dr. Church does not know and does not believe is important in any event.

---

<sup>3</sup> *The Commissioner of Competition v. Superior Propane Inc.*, 2000 Comp. Trib. 15 August, 30, 2000 at 258.

## RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES

- 1 e) Dr. Church is willing to assume that pole networks are a normative natural  
2 monopoly.<sup>4</sup>  
3
- 4 f) Dr. Church understands what it means from his analysis for a specific pole to define  
5 the relevant geographic market<sup>5</sup>, but it is unclear to him what is meant by phrase “the  
6 geographic market were larger than a specific pole” in this part f) of the interrogatory.  
7 The relevant geographic market should be defined around a pole and it may include  
8 other poles. The question is whether substitution to another pole makes a SSNIP at a  
9 given pole non-profit maximizing. The relevant geographic market is the smallest set  
10 of poles required for the SSNIP to be profit maximizing. If the relevant geographic  
11 market is defined this way, THESL, as the only supplier of pole access for wireless  
12 attachments (assuming the relevant product market is poles access for wireless  
13 attachments) would have market power.

---

<sup>4</sup> Please refer to J. Church and R. Ware, (2000), *Industrial Organization: A Strategic Approach*, McGraw-Hill at p. 764 on the relevance of intermodal competition and s. 24.1.2 for the definition of a normative natural monopoly.

<sup>5</sup> Dr. Church’s Evidence at paras. 163-165.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 **INTERROGATORY 15:**

2 **Reference(s):** **BRG Report (Dr. Church) at Para 21-25, 53, 106**

3

4 **ISSUE(S):** **6**

5

6 Professor Church states that:

7 “The key to the conclusion that THESL is very unlikely to have market power  
8 in the provision of pole access for wireless attachments is recognition of the  
9 limited role that pole access for such attachments will have in the deployment  
10 of high speed (broadband) wireless networks.” (para 21)

11 “...Both of these make demand for pole access for wireless attachments  
12 relatively price responsive and suggest that THESL will not have market  
13 power.” (para 23)

14 “The analysis of the extent to which wireless service providers can and will  
15 substitute to alternative inputs and sites is supported by the fact that at  
16 regulated rates, the use of THESL poles for wireless attachments to provide  
17 wireless services is extraordinarily small. (para 24)

18 “...THESL does not know the value of pole access at a given location to a  
19 wireless service provider and hence cannot price discriminate if rates were  
20 forborne.” (para 25)

21

22 a) Please explain why the supposed limited role of poles implies that THESL does not  
23 possess market power?

24 b) Please explain the meaning of “relatively price responsive”. How large must the  
25 price responsiveness for pole access to wireless attachments be in order to conclude it  
26 is high enough to thwart THESL’s market power?

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

- 1 c) Does Professor Church believe that if rates were forborne (presumably rate)  
2 regulation), THESL would not charge landline and cable attachers a different rate  
3 than wireless attachers?
- 4 d) Re: para 53, please provide citations to decisions of the Competition Tribunal in  
5 which supply substitution was sufficient to reject the market power concerns of the  
6 Competition Bureau.
- 7 e) In the absence of such litigated cases, can Professor Church cite instances where the  
8 Competition Bureau declined to challenge a merger or anti-competitive conduct on  
9 the basis that supply substitution was sufficiently strong?
- 10 f) Re: paras 24 and 106, the litigation in and following EB-2011-0120 was lengthy and  
11 then THESL launched the current case by requesting forbearance. Would the  
12 regulatory uncertainty account for the low level of use of poles to which Professor  
13 Church alludes?
- 14 g) Re: paras 24 and 106, it appears that Professor Church believes that there are many  
15 wireless services that would seek access to THESL poles. If so, can he indicate how  
16 many such wireless services would do so?

17

### **RESPONSE:**

- 18
- 19 a) The limited role of poles follows from the ability of users of pole access to wireless  
20 attachments to substitute. This is explained in the rest of paragraph 21 (not cited) and  
21 paragraph 22 of Dr. Church's Evidence.
- 22 b) Relatively price responsive means that the demand for pole access will be elastic.  
23 Please refer to Dr. Church's response to Energy Probe interrogatory 4 (Tab D,  
24 Schedule 5-4).

## RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES

- 1 c) THESL might well be able to engage in price discrimination between wire and  
2 wireless attachments. This requires it to have market power in the provision of wired  
3 attachments and be able to stop arbitrage.
- 4 d) Supply substitution is not used by Dr. Church in defining the relevant market for pole  
5 access for wireless attachments. Dr. Church is not aware of a case before the  
6 Competition Tribunal where supply substitution considerations were important for  
7 *market definition*, the subject matter of paragraph 53 of Dr. Church's Evidence. The  
8 U.S. *Horizontal Merger Guidelines* note that where capacity can be "easily and  
9 profitably" shifted from "adjacent markets" to the relevant market, this ability is  
10 nearly universal among suppliers, and products in the relevant market are relatively  
11 homogenous, then "an aggregate description of markets for those products" may be  
12 used.<sup>1</sup> Supply substitution has been a factor in defining markets in litigated cases in  
13 the United States.<sup>2</sup>
- 14 e) Dr. Church cannot comment on cases that the Bureau has not brought or the  
15 motivations for not bringing a case.
- 16 f) The factual basis for the question is incorrect; the application for forbearance was not  
17 filed immediately after the CANDAS decision. The CANDAS decision was issued  
18 13 September 2012. The application for forbearance was not filed until 13 June 2013.  
19 As noted in the Dr. Church Evidence at paragraph 106, only applications for 18 poles  
20 have been submitted to THESL (and only two poles had wireless attachments). It is

---

<sup>1</sup> See U.S. *Horizontal Merger Guidelines* (2010) at s. 5.1 and footnote 8.

<sup>2</sup> For a discussion of supply substitution as a factor considered when defining markets in litigated cases in the U.S. see M.A. Glick, D. J. Cameron, and D. G. Mangum (1997), "Importing the Merger Guidelines Market Test in Section 2 Cases: Potential Benefits and Limitations," *Antitrust Bulletin* 42:121; G. Werden, (1992), "The History of Antitrust Market Delineation," *Marquette Law Review* 76:123 (for an historical

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

- 1 more relevant that none of the wireless service providers have opposed THESL's  
2 application for forbearance or are even active participants in this proceeding.
- 3 g) The cited paragraphs, 24 and 106, do not provide any foundation for the assertion  
4 alleged.

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overview); and ABA Section of Antitrust Law (2007), *Antitrust Law Developments* 6<sup>th</sup> edition at 576 to 578.



## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 26:**

2 **Reference(s):** **Evidence of Dr. Church, Page 9, paragraph 26**

3

4 **ISSUE(S):** **7**

5

6 "... The exercise of market power by THESL in the provision of pole access for  
7 wireless attachments could result in a substantial lessening of competition in  
8 downstream wireless broadband markets if:

- 9
  - The exercise of market power by THESL raises the costs of deploying  
10 wireless services resulting in higher prices and lower quality service in the  
11 downstream market.
  - The exercise of market power by THESL affects wireless service  
12 providers asymmetrically, and in doing so, preserves, creates, or enhances  
13 the market power of some wireless service providers in the downstream  
14 market.

15

16

17 a) Please explain whether the two bullets above connected by an "and" or an "or".

18 b) Please explain, with respect to the first bullet above, whether a substantial lessening  
19 of competition in downstream wireless broadband markets is an expected result of  
20 THESL's exercise of market power in respect of pole access only when both higher  
21 prices and lower quality service in the downstream market results, or one or the other  
22 results.

23 c) Please explain how THESL's exercise of market power might lower the quality of  
24 service in the downstream market.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1   **RESPONSE:**

2   a) The bullets are connected by an “or”.

3

4   b) Higher prices and/or lower quality would both be indicators of a lessening of  
5       competition.

6

7   c) Assuming THESL has market power in pole access for wireless attachments, if it  
8       raised the price for such access, wireless service providers would respond by trying to  
9       reduce their use of pole access for wireless attachments. However, because of the  
10      assumption of market power, they will not be entirely successful. The result is that  
11      their costs will rise. The profit maximizing response to an increase in costs (holding  
12      quality constant) is to reduce quantity and raise price; but if quality is endogenous,  
13      the firm might respond by raising price less and reducing quality. For instance, its  
14      profit maximizing response to an increase in pole access for wireless attachments  
15      might lead it to eliminate a small cell, thereby reducing its capacity and signal  
16      strength in a particular area. If it has national pricing this is likely to be the primary  
17      response.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 27:**

2 **Reference(s):**           **Evidence of Dr. Church, Page 9, paragraph 27**

3

4 **ISSUE(S):**    **7**

5

6 “Because the expected increase in demand for capacity is likely attributable to an  
7 increased demand for data, it is most likely to materialise almost exclusively on the  
8 networks of these carriers. Consequently, a significant impact on consumer welfare  
9 would arise primarily if THESL were able to exercise market power at the expense of  
10 incumbent wireless service providers...”

11

12 Please provide any supporting data on the drivers of increased demand for capacity.

13

14 **RESPONSE:**

15 Please see the cited papers in footnotes 61 and 62 of the Church Report. The cited papers  
16 contain evidence about the magnitude of the increase in capacity and in data volumes  
17 over the next few years, as well as the drivers of these trends.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 28:**

2 **Reference(s):** **Evidence of Dr. Church, Page 9, paragraph 28**

3

4 **ISSUE(S):** **7**

5 “Pole access services for wireless service providers is not likely, and is not likely to be,  
6 an appreciable element of downstream costs for the major wireless forms in Toronto”.

7

8 What metrics would support these conclusions? What evidence is available on these  
9 metrics?

10

11 **RESPONSE:**

12 Please refer to paragraphs 106 and 183 of Dr. Church’s evidence. These indicate that the  
13 cost of pole access, at anything close to current levels of demand, will be minimal  
14 relative to the overall cost base of wireless service providers.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 29:**

2 **Reference(s):** **Evidence of Dr. Church, page 16, paragraph 45**

3

4 **ISSUE(S):** **7 and 8, 10**

5

6 Expert Report states:

7 “[...] If the owner of the alleged essential facility is not vertically integrated, then  
8 mandated access at cost based rates to control its market power in the upstream market is  
9 only warranted if the owner of the facility has market power upstream and the effects of  
10 its exercise in the downstream market are substantial.”

11

12 a) Please explain the basis for the assertion that mandated access at cost based rates to  
13 an essential input of a non-integrated owner is only warranted if the impact on the  
14 downstream market is substantial.

15 b) Please explain more precisely what is meant by the effects of exercise of market  
16 power by THESL on the downstream market.

17 c) Please explain the metrics that would be used determine whether these effects are  
18 “substantial” or “insubstantial”.

19 d) Please provide any evidence available on the values these metrics would take.

20

21 **RESPONSE:**

22 a) and b) Please refer to Dr. Church’s response to OEB Staff interrogatories 11 and  
23 15 (Tab D, Schedules 1-11 and 1-15, respectively), as well as paragraphs 45 and 46  
24 in Dr. Church’s Evidence.

25

## RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES

1 c) Please refer to Dr. Church's response to OEB Staff interrogatory 11 (Tab D, Schedule  
2 1-11). The issue is an assessment of whether the benefits of regulation exceed the  
3 costs. The issue of substantiality is implied by how great the expected costs of the  
4 unregulated exercise of market power by THESL in the provision of pole access for  
5 wireless attachments would have to be before they exceed the expected costs of  
6 regulation, both its direct and indirect costs.

7  
8 d) The thrust of Dr. Church's evidence is (i) THESL does not have market power in the  
9 provision of pole access and (ii) the expected costs of this exercise are small.

10  
11 The harm in the downstream market from the exercise of market power upstream in  
12 the input market arises from downstream firms not minimizing costs of production  
13 (by substituting to other inputs) and from the quantity distortion—the reduction in  
14 output because prices downstream rise when higher costs are passed through and  
15 consumers reduce their consumption.<sup>1</sup>

16  
17 Dr. Church's Evidence explains when the effect of market power upstream will have  
18 a significant effect on the welfare of downstream firms and consumers.<sup>2</sup> Paragraph  
19 85 highlights that the total loss to downstream market participants will be small if the  
20 usage of the input is small and the effect of its price on the marginal cost downstream  
21 is small (both of which appear to be true in the case of pole access for wireless  
22 attachments<sup>3</sup>).

23  
24 To summarize Dr. Church's evidence between paragraphs 181 and 185:

---

<sup>1</sup> Dr. Church's Evidence at para. 84.

<sup>2</sup> *Ibid.* at para. 85.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

- 1       • THESL does not have market power in the provision of pole access for wireless  
2       attachments.
- 3       • The ability to substitute to other inputs for the most part means that the effect on  
4       costs is small. Hence the productive inefficiency from market power will be  
5       small as will be any transfer of profits from downstream firms.
- 6       • Since the effect on costs is small, so too will any price increase from pass  
7       through. Hence the allocative inefficiency (the quantity distortion) from market  
8       power will be small.

---

<sup>3</sup> *Ibid.* at paras 183-185.

## RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES

1 **INTERROGATORY 16:**

2 **Reference(s):** **BRG Report (Dr. Church) at Para 14, 48, 73**

3

4 **ISSUE(S):** **7**

5

6 Professor Church states that his report deals, in part, with the following question:

7 “Could THESL’s exercise of market power result in a substantial lessening of  
8 competition in the relevant downstream market?” (para 14)

9

10 He also states:

11 “In the absence of either market power in the upstream market *or* a substantial  
12 negative effect from its exercise in the downstream market, the condition for  
13 forbearance is likely satisfied.” (para 48) (*italics emphasis in original*)

14

15 a) The expression “substantial lessening of competition” is found in s.92(1) and s.79(1)  
16 of the Competition Act. As Professor Church uses this expression repeatedly in his  
17 report, is he intending that it have the same meaning as in those provisions of the  
18 Competition Act?

19 b) If the answer to a) above is no, please describe what the expression means to him.

20 c) If there is no vertically integrated incumbent, does Professor Church believe that  
21 upstream market power by itself does not justify mandated access at cost based  
22 rates?

23 d) In his discussion of derived demand (para 72+), Professor Church discusses market  
24 power in input markets, the appropriate measure of such power, and the conditions in  
25 which a single supplier of an input will or will not have market power. Does



## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

- 1 Professor Church agree that market power is measured in these circumstances by the  
2 demand elasticity that the single supplier faces?
- 3 e) Does he agree that if an input accounts for only a small share of total purchaser costs,  
4 then the elasticity of demand for that input will be lower than if the input share is  
5 high? Accordingly, if a wireless attacher's cost of pole attachments was a small  
6 share of its total costs, then the single attachment supplier faces relatively inelastic  
7 demand and has correspondingly greater market power?
- 8 f) The presence of many close substitutes for pole attachments would reduce the  
9 market power of the single supplier thereof. Does Professor Church say that there  
10 are many such close substitutes?
- 11 g) Taking these conditions in aggregate, does Professor Church say that the single  
12 supplier of pole access faces highly elastic demand, somewhat elastic demand or  
13 inelastic demand?

14

### **RESPONSE:**

- 16 a) Dr. Church provides two different definitions of substantial lessening of competition  
17 in section 4.3 of his Evidence. The first, discussed in section 4.3.1, is relevant for  
18 regulatory concerns over the exercise of market power in the upstream input market.  
19 The second, discussed in section 4.3.2, is the antitrust notion and is relevant when the  
20 concern is the creation, enhancement, or maintenance of market power in the  
21 downstream market. For the relevance of the two different definitions please refer to  
22 Dr. Church's Evidence at paragraph 171 .
- 23
- 24 b) Please refer to the response in part a), above.

25

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

- 1 c) Dr. Church observes that there are costs and benefits to regulation. The choice is not  
2 between imperfect markets and perfect regulation. While market power in an  
3 upstream input is a necessary condition for regulation, it is not sufficient. Unless it  
4 can be shown that the benefits from controlling that market power exceed the costs of  
5 regulation (both the costs of the regulatory process and the indirect costs arising from  
6 the effects of regulation on resource (mis)allocation) then regulation is not likely  
7 justified. Hence, it is not sufficient to show, in the case of an input, that there is  
8 market power, but it should also be shown that the effects of this exercise of market  
9 power in the downstream market are significant or regulation is not warranted.  
10
- 11 d) Dr. Church would agree that the elasticity of derived demand of the single supplier of  
12 that input would determine its market power.  
13
- 14 e) If the production technology downstream has fixed cost shares, then holding all else  
15 constant, a lower share of costs will result in more inelastic demand.<sup>1</sup> The second  
16 interrogatory does not follow because the cost share may not be exogenous (fixed),  
17 but depends on the other three Marshall factors discussed in footnote 41 of Dr.  
18 Church's Evidence. Moreover, it does not follow because, even if the cost share is  
19 fixed, the demand elasticity depends on the other three factors. For instance, even if  
20 the cost share is small and fixed, the elasticity for an input might be large if  
21 substitution is easy (i.e., the example in the Dr. Church's Evidence is the snack on  
22 airplanes) or demand elasticity downstream for products that use the input is high  
23 (i.e., gasoline at independent retailers).  
24

---

<sup>1</sup> Dr. Church's Evidence at fn. 41.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

- 1 f) Please refer to Dr. Church's response to Energy Probe interrogatory 4 (Tab D,  
2 Schedule 5-4).  
3  
4 g) Please refer to Dr. Church's response to Energy Probe interrogatory 4 (Tab D,  
5 Schedule 5-4).

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 26:**

2 **Reference(s):**           **Evidence of Dr. Church**

3

4 **ISSUE(S):**    **8**

5

6 At paragraphs 43 and following, Dr. Church describes the doctrine of essential facilities,  
7 as found in antitrust or competition law.

8

9 1) In Dr. Church's opinion, does this doctrine require that the same firm that is dominant  
10 in the upstream market, also be present in the downstream market?

11 2) If yes, explain how the doctrine applies to THESL and THESI in the market for pole  
12 attachments?

13

14 **RESPONSE:**

15 1) Yes.

16

17 2) It does not apply. Please refer to Dr. Church's response to OEB Staff interrogatory  
18 20 (Tab E, Schedule 1-20) and Energy Probe interrogatory 17, part (f) (Tab H,  
19 Schedule 5-17, part f).

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 **INTERROGATORY 17:**

2 **Reference(s):** **BRG Report (Dr. Church) at Para 40-48**

3

4 **ISSUE(S):** **8**

5

6 Professor Church refers to the “essential facilities framework” at several points in his  
7 affidavit. For example, at para 42, he states:

8 “The essential facilities framework is an antitrust concept that was developed to  
9 determine when refusal by a vertically integrated incumbent to provide access  
10 could be an antitrust violation.”

11

12 At para 45, Professor Church states:

13 “However, if the owner of the alleged essential facility is not vertically integrated,  
14 i.e. not active in the downstream market, then the issues are ... If the owner of the  
15 alleged essential facility is not vertically integrated, then mandated access at cost-  
16 based rates to control its market power in the upstream market is only warranted if  
17 the owner of the facility has market power upstream and the effects of its exercise  
18 in the downstream market are substantial.”

19

20 a) Does Professor Church maintain that the Board articulated an “essential facilities  
21 framework” in its CCTA decision when it ordered access at regulated access charges  
22 to all power poles owned by local electric distribution companies in Ontario?

23 b) If so, please describe briefly the elements of the “framework” that the Board adopted.

24 c) Does Professor Church believe the Board’s “framework” (assuming there is one)  
25 differs from the essential facilities doctrine found in U.S. antitrust law? If not, please  
26 so state. If so, please indicate what these differences are.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

- 1 d) Does Professor Church maintain that there is an “essential facilities doctrine” in the  
2 Competition Act or pursuant to decisions of the Competition Tribunal?
- 3 e) Please indicate the party in this case that is the “vertically integrated incumbent”. Is it  
4 THESL and if so, in what downstream market does it compete and with whom?
- 5 f) If there is no vertically integrated incumbent in this case, why is the essential  
6 facilities framework (whatever it consists of) applicable in the circumstances of this  
7 case?
- 8 g) Does Professor Church believe that the hydro poles owned by Toronto Hydro are  
9 essential facilities as that term is used in U.S. antitrust law?
- 10 h) Does Professor Church believe that the hydro poles owned by Toronto Hydro are  
11 essential facilities according to his essential facilities framework?
- 12

13 **RESPONSE:**

- 14 a) The OEB in its CCTA Decision stated the following: “The Board agrees that power  
15 poles are essential facilities.”<sup>1</sup> The OEB did not articulate an essential facility  
16 framework; it simply stated its conclusion. The OEB also found that the electricity  
17 distributors had exercised monopoly power in the supply of pole access to cable  
18 television providers.<sup>2</sup>
- 19
- 20 b) Please refer to the response in part a), above.
- 21
- 22 c) Please refer to the response in part a), above.

---

<sup>1</sup> RP-2003-0249, at p. 3.

<sup>2</sup> RP-2003-0249, at p. 3.

## RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES

- 1 d) Dr. Church's assessment of whether or not denial of access to an input by a vertically  
2 integrated firm could be a violation of the *Competition Act* is irrelevant to this  
3 proceeding.  
4
- 5 e) There is no vertically integrated incumbent in this case.  
6
- 7 f) The essential facilities framework is not relevant to this case.<sup>5</sup> What is relevant is the  
8 ability of THESL to exercise market power in the provision of pole access for  
9 wireless attachments and the effects of that exercise in the downstream market (i.e.,  
10 on wireless services).  
11
- 12 g) No.  
13
- 14 h) No.

---

<sup>5</sup> Dr. Church's Evidence at paras. 45 to 47.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 30:**

2 **Reference(s):** **Evidence of Dr. Church, Page 80, paragraph 213**

3

4 **ISSUE(S): 9 to 10**

5

6 “Efficiency considerations mean that the greater THESL’s market power in providing  
7 pole access for wireless attachments, the greater should be the mark up on pole access for  
8 wireless attachments.”

9

10 a) Please explain why the “optimal price” or “socially efficient price” would rise with  
11 THESL’s market power.

12 b) Would forbearance provide the best means of arriving at this price, or would  
13 regulation? What arguments support your answer here?

14 c) If the OEB was to forbear from regulating the pricing of THESL utility pole access  
15 pricing is there anything that would guarantee that THESL’s unilateral exercise of  
16 market power would tend towards an outcome close to a socially efficient price?

17 d) Is there any reason to think that free pricing setting after forbearance would be a  
18 superior means of arriving at the socially efficient price than would continued  
19 regulation?

20

21 **RESPONSE:**

22 a) Socially efficient pricing in the circumstances discussed in Section 7.1 of Dr.  
23 Church’s evidence involves maximizing consumer benefit subject to the producer  
24 breaking even. This is known as Ramsey pricing and involves the well known  
25 inverse elasticity rule: products for which demand is relatively inelastic, and hence



## RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES

1 market power relatively large, should have greater mark-ups over marginal cost than  
2 products for which demand is relatively elastic and market power relatively small.<sup>1</sup>

3

4 b) Regulators do not typically use Ramsey pricing and the present pricing formula  
5 involves fully distributed cost pricing.<sup>2</sup> The issue is relatively simple: if THESL has  
6 market power, then even the optimal regulatory solution involves the exercise of  
7 some market power. But since THESL is unlikely to have very much market power  
8 (the main emphasis of Dr. Church's evidence is that it does not), the costs of the  
9 regulator implementing the efficient prices (assuming they will) is unlikely to be  
10 warranted, given the potential for error, relative to the benefit of the price that THESL  
11 would charge.

12

13 c) Please see response to part b) above.

14

15 d) Please see response to part b) above.

---

<sup>1</sup> See J. Church and R. Ware, (2000), *Industrial Organization: A Strategic Approach*, McGraw-Hill at pp. 790-791.

<sup>2</sup> See J. Church and R. Ware (2000), *Industrial Organization: A Strategic Approach*, McGraw-Hill at pp. 795-797 and 846.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 31:**

2 **Reference(s):** **Evidence of Dr. Church, Page 81, paragraph 214**

3

4 **ISSUE(S): 9 to 10**

5

6 “Errors in setting the access price will induce regulatory distortions in economic activity  
7 and associated economic costs.”

8

9 Would the economic costs of any errors in setting the access price referenced above be  
10 mitigated if the same access price was set via THESL’s unilateral exercise of market  
11 power?

12

13 **RESPONSE:**

14 The premise of the question is that THESL and the OEB would set the same price for  
15 access. The economic costs of any errors would likely be the same if the forborne price  
16 was the same as the regulated price. However, such a situation seems very unlikely and  
17 the costs of regulation are not zero.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 32:**

2 **Reference(s):**           **none provided**

3

4 **ISSUE(S):**    **9 to 10, 11 to 13**

5

6 a) Since THESL's distribution poles are rate base assets and since each pole is a single  
7 undivided unit, please explain of how, or on what basis, in THESL's view, the Board  
8 can forbear from regulating one part of a distribution pole?

9 b) Does THESL agree that there is the potential for cross-subsidization between  
10 ratepayers and shareholders under a forbearance scenario? If so, and if the Board  
11 determines that it will forbear in whole or part, how should this be addressed? If not,  
12 why not?

13 c) How would THESL's rate base be impacted if the Board were to forbear, in whole or  
14 in part, from regulating the rates for attachment of wireless equipment to its  
15 distribution poles?

16 d) What if any impact would this have on THESL's ratepayers and shareholders? Please  
17 be specific.

18

19 **RESPONSE:**

20 a) The OEB's regulation to date has addressed a per pole attachment rent, intended to  
21 apply to all instances of telecommunications pole attachments as an asset category,  
22 on the one hand, and access to the poles as an asset category on the other. There  
23 doesn't seem to be any historic or current impediment to treating poles as an asset  
24 category.

25

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

- 1    b) To avoid the danger of ratepayers subsidizing commercial activity, THESL should  
2        refuse to accommodate attachments in the (unlikely) event that the costs of  
3        accommodating the attachments exceed the negotiated price for the attachments.  
4
- 5    c) The utility's rate base will be unaffected.  
6
- 7    d) THESL expects ratepayers to benefit to the extent that the negotiated price exceeds  
8        the current approved rent of \$22.32 per pole. THESL also expects that ratepayers  
9        would benefit to the extent that the utility would refrain from accommodating  
10       attachments where the costs of doing so exceed the negotiated price. The shareholder  
11       likely would benefit to the extent that THESL anticipates a sharing of the proceeds as  
12       between ratepayers and the shareholder in a manner and in an amount to be  
13       determined by the OEB.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 **INTERROGATORY 6:**

2 **Reference(s):** **Pre-Filed Evidence of THESL, p. 3**

3

4 **ISSUE(S): 9**

5

6 The evidence states that THESL proposes to charge a competitive rate for wireless  
7 attachments to its poles. Furthermore, the evidence states that doing so will improve  
8 THESL's ability to recover its true costs, and provide a benefit to its ratepayers and to its  
9 shareholder.

10 a) Please indicate what the "true costs" for pole attachments are. Please include all  
11 assumptions;

12 b) Please explain why THESL's shareholder should be provided a benefit arising from  
13 the rental of utility poles paid for by ratepayers. Why is THESL not proposing to  
14 treat all revenues resulting from pole rentals as a revenue offset?

15

16 **RESPONSE:**

17 a) Please see THESL's response to CCC interrogatory 16 (Tab J, Schedule 2-16) for a  
18 detailed schedule and explanation of the direct and indirect costs for  
19 telecommunications pole attachments.

20

22 b) THESL's stated position is that issues related to revenue-sharing can and should be  
23 dealt with in a future rate application. The IRM regime does not contemplate a  
24 mechanism allowing an LDC to address the treatment of the excess of revenues over  
25 costs at this point in the rate-setting process. Those determinations appropriately take  
26 place in a rate application.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 The issue in this case is whether the OEB should forbear from regulating wireless  
2 pole attachments. THESL has provided expert evidence that demonstrates that there  
3 is a competitive market for this activity, according to the relevant standards. That  
4 determination, in THESL's respectful view, is distinct from the split of revenue  
5 deriving from the activity. All of THESL's interrogatory responses should be read so  
6 as to include this reservation: THESL does not associate the treatment of any revenue  
7 arising from the activity with the determination that the OEB must make with respect  
8 to this Section 29 application.

9  
10 Despite THESL's position on this point, and in the interest of assisting the OEB  
11 consider the issues in this proceeding, THESL provides the following comments  
12 regarding how it believes revenue-sharing could be accomplished.

13  
14 Where the distribution system has attributes that are attractive to competitive  
15 businesses operating in competitive markets these attributes should be exploited.  
16 Such leveraging of distribution system assets has not been thoroughly explored in  
17 THESL's regulatory context, and it has the potential to deliver benefits to  
18 distributors' shareholders and ratepayers. This approach has been adopted within the  
19 natural gas distribution context.

20  
21 Ratepayers pay an amount for the regulated service that equals the cost of the service,  
22 including a rate of return. The payment of rates does not carry with it a right in  
23 ratepayers to any species of ownership of the utilities' assets. It follows that there is  
24 no obvious or intuitive right residing in ratepayers to a share of revenues unconnected  
25 to the distribution of electricity, and derived from competitive markets.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1

2       Having said that, it is THESL's stated intention to ensure that ratepayers do  
3       participate in such revenues, under the supervision of the OEB. In concert with the  
4       OEB, intervenors and our ratepayers, it is THESL's hope to develop a method for the  
5       allocation of such revenues that may serve all parties' interests.

6

7       As things stand today, the only real beneficiaries are private enterprises operating in  
8       an unrelated competitive environment.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES, ISSUE 9**

1 **INTERROGATORY 7:**

2 **Reference(s):**           **none provided**

3

4 **ISSUE(S):**    **9**

5

6 Has THESL done an analysis as to what the demand might be for wireless attachments to  
7 its poles over the next five years? If not, why not? Please provide a forecast setting out  
8 how this proposal will impact ratepayers for the next five years

9

10 **RESPONSE:**

11 With respect, it is not clear to THESL what relevance this particular question has to the  
12 matter before the OEB. The revenues are dependent on what THESL's evidence  
13 demonstrates is a competitive market. Competitive markets have the potential to grow  
14 and to contract according to market pressures and technology changes (in this particular  
15 case).

16

17 While THESL has not undertaken a detailed analysis, the company believes that the  
18 evidence filed in this proceeding demonstrates that such a market does exist.<sup>i</sup> The market  
19 for the attachment of wireless equipment is independent of the distribution of electricity.  
20 Such market research may be relevant to participants in the wireless market, but it is not  
21 necessarily appropriate or prudent for a utility to focus on this issue, particularly in  
22 advance of a determination by the OEB under Section 29.

---

<sup>i</sup> As addressed in CCC 3 and OEB Staff 22 some wireless service providers have recently paid significant amounts for pole access.



**RESPONSES TO CONSUMERS COUNCIL OF CANADA  
INTERROGATORIES, ISSUE 9**

**INTERROGATORY 8:**

**Reference(s):**                      **none provided**

**ISSUE(S):**     **9**

Please provide all correspondence and presentations provided to THESL's senior management and Board of Directors regarding this application.

**RESPONSE:**

The following correspondence was presented to THESL personnel including senior management:

1) Appendix A: Email from Regulatory Counsel, dated June 14, 2013, advising that the application had been filed.

*The attachments originally included with this email were copies of the application documents filed with the OEB. As they are voluminous and already on the public record, we have not reproduced them with this interrogatory response.*

2) Appendix B: Email from Regulatory Counsel, dated January 30, 2014, advising of the information contained in Procedural Order No. 4, including determination of the Issues List in this proceeding.

3) Appendix C: Excerpts from a presentation given to THESL personnel including senior management on September 18, 2013. The remainder of the presentation did not pertain to this application or otherwise to pole attachments.

**RESPONSES TO CONSUMERS COUNCIL OF CANADA  
INTERROGATORIES, ISSUE 9**

- 1 No correspondence or presentations were made to THESL's Board of Directors regarding
- 2 this application.

## Anna-Christina Crespo - Filed: Wireless Attachments Forbearance Application

---

**From:** Rob Barrass  
**To:** Anthony Haines; Ave Lethbridge; Ben La Pianta; Blair Peberdy; Chris ...  
**Date:** 14-Jun-2013 7:29 PM  
**Subject:** Filed: Wireless Attachments Forbearance Application  
**CC:** Amanda Klein; Earl Galaski; Paul Sommerville; Sheikh Nahyaan  
**Attachments:** Letter to Ontario Energy Board June 14, 2013.pdf; Notice of Application - THESL - June 13, 2013.pdf; Expert Evidence of Jeffrey R. Church June 13, 2013.pdf; Expert Evidence of Charles L. Jackson June 11, 2013.pdf; Pre-filed Evidence of TorontoHydro-Electric System Limited June 13, 2013.pdf

---

Good evening everyone,

Please find attached the filed materials for THESL's wireless attachments application. As you are aware, this application requests that the OEB forbear from regulating the rate for wireless telecommunications attachments on the company's poles.

The company's case centres on the expert evidence of Dr. Jeffrey Church, a distinguished competition economist and veteran expert witness on regulatory economics and competition policy. Through Dr. Church's report and other supporting evidence, our goal is to persuade the OEB that there is sufficient competition in the relevant markets to protect the public interest, and therefore the OEB should refrain from regulating the terms, conditions and rates for the attachment of wireless telecommunications devices to THESL's poles. In the company's submission, THESL should instead be left to negotiate agreements with attachers at market rates.

The next steps and schedule for the case will depend on who intervenes, the OEB's schedule, and other factors. We will, of course, keep you up-to-date on the status of the application as it proceeds.

As a final note: The teams from Standards and Asset Attachments & Leases deserve congratulations for their extensive efforts in supporting this application. Their hard work has resulted in a compelling case.

Have an excellent weekend,  
Rob

**Rob Barrass**  
Lead Regulatory Counsel  
Toronto Hydro-Electric System Limited  
14 Carlton Street | Toronto, Ontario | M5B 1K5

Phone: 416.542.2546  
Mobile: 647.624.3377  
Fax: 416.542.3024  
E-mail: [rbarrass@torontohydro.com](mailto:rbarrass@torontohydro.com)

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## Anna-Christina Crespo - Wireless Forbearance Application - Procedural Order #4 and Decision on Issues List

---

**From:** Daliana Coban  
**To:** Andrew Herczeg; Earl Galaski; Michael Tat; Sheikh Nahyaan  
**Date:** 30-Jan-2014 7:39 PM  
**Subject:** Wireless Forbearance Application - Procedural Order #4 and Decision on Issues List  
**CC:** Amanda Klein; Arjun Devdas; Ben La Pianta; Darryl Seal; Paul Sommerv...  
**Attachments:** dec\_issues list\_po4\_THESL s29\_20140128\_2.pdf

---

Good evening all,

On Tuesday afternoon, the OEB issued Procedural Order #4 in the Wireless Forbearance case, as well as a Decision on the Issues List. Please find the document attached for your reference.

### The Procedural Order sets out the following milestones regarding the application process:

- **Interrogatories** will be received February 14th
- **Responses to Interrogatories** are due February 28th
- **OEB/Intervenors Evidence** must be filed by March 14th
- **Interrogatories on OEB/Intervenors Evidence** are due March 21st
- **OEB/Intervenors Responses to Interrogatories** are due April 4th
- **Technical Conference** will take place on April 9th and 10th
- **Settlement Conference** will take place on April 16th and 17th
- **Oral Hearing** has been scheduled from May 12 to May 16th

***Please note that these dates are subject to change at the OEB's direction.***

In the coming weeks, we will circulate an internal project management schedule for the interrogatory process. In order to help co-ordinate everyone's busy schedules, we will also send out appointments to mark the Technical Conference, Settlement Conference and Oral Hearing dates in your calendars.

If you have any questions or comments about the Procedural Order, or relating to this application more generally, please do not hesitate to contact us.

Thank you,

Daliana

Daliana Coban  
*Regulatory Counsel*

**Regulatory Affairs and Legal Services**  
Toronto Hydro-Electric System Limited  
14 Carlton Street  
Toronto, Ontario  
M5B 1K5

Office: 416.542.2627  
Mobile: 416.903.7403  
Fax: 416.542.3024

E-mail: [dcoban@torontohydro.com](mailto:dcoban@torontohydro.com)

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**EB-2013-0234**

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

**AND IN THE MATTER OF** an application by  
Toronto Hydro-Electric System Limited for an order  
pursuant to section 29 of the *Ontario Energy Board  
Act, 1998*.

**Before:** Cynthia Chaplin  
Presiding Member

Cathy Spoel  
Member

Christine Long  
Member

**DECISION ON ISSUES LIST AND  
PROCEDURAL ORDER NO. 4**

**January 28, 2014**

On June 14, 2013, Toronto Hydro-Electric System Limited ("THESL") filed an application with the Ontario Energy Board seeking an order pursuant to section 29 of the *Ontario Energy Board Act, 1998* that the Board refrain from regulating the terms, conditions and rates for the attachment of wireless telecommunications devices ("Wireless Attachments") to THESL's utility poles.

THESL is currently required by the Board's Decision and Order in EB-2003-0049 dated March 7, 2005 to give Canadian carriers' and cable companies' access to its distribution poles for Wireless Attachments at a regulated rate. THESL is proposing to charge a competitive rate for Wireless Attachments to its utility poles.

A record of all procedural matters that have been dealt with up to this point in this proceeding is available on the Board's website.

### Issues List

On January 23, 2014 the Board held an Issues Day to hear submissions on the list of issues arising from the Issues Conference held on January 13, 2014. The Board heard submissions on two disputed issues and rendered its decision orally. The Issues List approved by the Board is attached at Appendix A.

### Case Timetable

The Board will establish the dates for the remaining procedural steps for this proceeding, up to the start of the oral hearing. The Board has attempted to accommodate the parties in setting the schedule, however, not all preferences can be accommodated. The Board has set the schedule so that the application can be heard as expeditiously as possible while ensuring that all appropriate steps are included. Parties to the proceeding should be mindful that the schedule for this proceeding is subject to change. The Case Timetable is attached as Appendix B. Further information on the various conferences will be provided in due course.

The Board considers it necessary to make provisions for the following matters related to this proceeding. The Board may issue further procedural orders from time to time.

### THE BOARD ORDERS THAT:

1. Parties and Board Staff seeking further information that is in addition to the pre-filed evidence of THESL shall request it by written interrogatories filed with the Board and served on all parties on or before **February 14, 2014**.
2. Interrogatories must reference the pre-filed evidence and be filed by issue. Interrogatories should be numbered consecutively throughout and not have new starting points for each issue, or section of issues.
3. THESL shall file written responses to all interrogatories on or before **February 28, 2014**. THESL shall file the responses with the Board and serve all parties.

4. THESL shall file the responses to interrogatories by issue (instead of by intervenor). Interrogatory responses for each issue shall be grouped by intervenor.
5. Intervenors and Board staff who wish to file evidence shall do so on or before **March 14, 2014** and shall serve it on all parties.
6. Parties seeking information that is in addition to the evidence filed by intervenors and Board staff shall request it by written interrogatories filed with the Board and served on all parties on or before **March 21, 2014**.
7. Intervenors and Board staff shall file written responses to all interrogatories on or before **April 4, 2014**. Intervenors and Board staff shall file the responses with the Board and serve all parties.
8. A Technical Conference will be held on **April 9, 2014** beginning at **9:30 a.m.** in the Board's West Hearing Room on the 25<sup>th</sup> Floor at 2300 Yonge Street, Toronto, ON. The Technical Conference will continue on **April 10, 2014** if necessary.
9. A Settlement Conference for the purpose of settling or narrowing Issues that are not related to expert evidence will be held in the Board's West Hearing Room on the 25<sup>th</sup> Floor of the Board's offices located at 2300 Yonge Street, Toronto on **April 16, 2014** beginning at **9:30 a.m.** and will continue on **April 17, 2014** if necessary.
10. An Expert Conference will be held in the Board's ADR Room on the 25<sup>th</sup> Floor of the Board's offices located at 2300 Yonge Street, Toronto on **April 23, 2014** beginning at **9:30 a.m.** and will continue on **April 24, 2014** if necessary.
11. An Oral Hearing will be held in the North Hearing Room on the 25<sup>th</sup> floor of the Board's offices located at 2300 Yonge Street, Toronto commencing on **May 12, 2014 at 9:30 a.m.** and will continue on **May 13, 15-16, 2014** if necessary.

All filings to the Board must quote the file number EB-2013-0234 and be made electronically through the Board's web portal at in searchable/unrestricted PDF format at [www.pes.ontarioenergyboard.ca/eservice/](http://www.pes.ontarioenergyboard.ca/eservice/). Two paper copies must also be filed at the Board's address provided below. Filings must clearly state the sender's name, postal address and telephone number, fax number and e-mail address. Parties must use the document naming conventions and document submission standards outlined in



the RESS Document Guideline found at [www.ontarioenergyboard.ca/OEB/Industry](http://www.ontarioenergyboard.ca/OEB/Industry). If the web portal is not available, parties may email their documents to the address below. Those who do not have internet access are required to submit all filings on a CD in PDF format, along with two paper copies. Those who do not have computer access are required to file 7 paper copies.

All communications should be directed to the attention of the Board Secretary at the address below, and be received no later than 4:00 p.m. on the required date.

Ontario Energy Board  
P.O. Box 2319  
27<sup>th</sup> Floor  
2300 Yonge Street  
Toronto ON M4P 1E4  
Attention: Board Secretary  
Filings:  
[www.pes.ontarioenergyboard.ca/eservice/](http://www.pes.ontarioenergyboard.ca/eservice/)  
E-mail: [boardsec@ontarioenergyboard.ca](mailto:boardsec@ontarioenergyboard.ca)  
Tel: 1-888-632-6273 (Toll free)  
Fax: 416-440-7656

**DATED** at Toronto, January 28, 2014

**ONTARIO ENERGY BOARD**

*Original signed by*

Kirsten Walli  
Board Secretary

## **APPENDIX A**

### **TORONTO HYDRO-ELECTRIC SYSTEM LIMITED EB-2013-0234**

#### **Issues List**

##### **Technology**

1. What is the current and likely future state of modern wireless networks?
2. For the technical operation of a modern wireless network, are there certain kinds of wireless network elements for which pole access is an option?
  - (a) For each such element, what purpose(s) does it serve and/or for what services and applications is it used?
  - (b) For each such element, are there siting alternatives to pole access?
  - (c) For each such element, are there technological alternatives?
3. For each of the elements discussed in Issue 2, is there an expectation that this is likely to change in the foreseeable future?

##### **Competition**

4. What is the relevant antitrust market in which THESL supplies pole access for wireless attachments? Specifically:
  - (a) What is the relevant product market?
  - (b) What is the relevant geographic market?
5. What is the relevant downstream market to which THESL's supply of pole access for wireless attachments is an input?
6. Does THESL have market power in the provision of pole access to wireless service providers?
7. Given the relevant upstream and downstream markets, what effects, if any, would the exercise of market power by THESL in the supply of pole access to wireless service providers have in the downstream market, and what is the significance of those effects?
8. Is the "essential facilities" doctrine applicable in the circumstances of this case, and if so, to what extent?

## General

9. If the Board were to forbear from regulating the terms, conditions and rates for the attachment of wireless equipment to THESL's distribution poles, what are the potential impacts on THESL's ratepayers in terms of rates and of service?
10. If the Board does refrain, in whole or in part, from regulating the terms, conditions and rates of wireless attachments, what is the appropriate treatment of and/or disposition of the costs and revenues?
11. What is the public interest for purposes of this application?
12. What options does the Board have if it determines that it will refrain **in part** from regulating wireless attachments to THESL's poles?
13. If the Board determines, pursuant to section 29 of the *Ontario Energy Board Act, 1998*, to refrain in whole or in part from regulating wireless attachments to THESL's poles, does the Board have the authority to impose conditions and, if so, what conditions should the Board impose?

**APPENDIX B**

**TORONTO HYDRO-ELECTRIC SYSTEM LIMITED  
EB-2013-0234**

**Case Timetable (Subject to change)  
Date: January 28, 2014**

	<b>Event</b>	<b>Date</b>
1.	Interrogatories on application	February 14
2.	Interrogatory responses on application	February 28
3.	Intervenor / Board staff evidence	March 14
4.	Interrogatories on Intervenor / Board staff evidence	March 21
5.	Interrogatory responses to Intervenor / Board staff evidence	April 4
6.	Technical Conference	April 9-10
7.	Settlement Conference/Narrowing of Non-Expert Issues	April 16-17
8.	Experts Conference	April 23-24
9.	Filing of Joint Written Statement by Experts	May 2
10.	Oral Hearing	May 12-13, 15-16

# Pole Attachments: History

- **2005:** OEB ordered LDCs to provide cable companies and telcos with access to distribution poles at a regulated rate (\$22.35 annually, per pole).
- **2012:** OEB ordered that the regulated rate applies to all attachments made by cables companies or telcoms.

As a result, THESL currently required to attach wireless equipment to its poles at the regulated rate, which does not cover THESL's costs for such attachments.



# Pole Attachments: New Application

- **New case:** THESL has filed an application requesting that the OEB not regulate the rates that apply to wireless equipment on the company's distribution poles.
- **Economic issue:** OEB must refrain from regulating areas where there is sufficient competition to protect the public.
- **Goal:** If successful, would allow THESL to charge a competitive rate for wireless attachments, based on market price (as opposed to an OEB-set rate)



## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 **INTERROGATORY 9:**

2 **Reference(s):**            **none provided**

3

4 **ISSUE(S): 9**

5

6 Please provide all correspondence and presentations provide to THESL's shareholder  
7 regarding this application.

8

9 **RESPONSE:**

10 There have been no correspondence or presentations to THESL's shareholder regarding  
11 this application.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

**INTERROGATORY 10:**

**Reference(s):**            **none provided**

**ISSUE(S):**     **9**

Please explain why THESL is of the view that ratepayers will benefit if it moves to a market based pricing model. Has THESL done an analysis as to what revenue it could achieve with a cost-based approach relative to a market based pricing model. If so, please provide that analysis. If not, why not? Please provide all cost-benefit analyses undertaken regarding the move to market-based pricing for wireless attachments.

**RESPONSE:**

Please see THESL's response to CCC interrogatory 7 (Tab I, Schedule 2-7).

This interrogatory seeks the kind of information that is typically posed in a rate-setting proceeding. In THESL's respectful submission, the narrow question here is whether the statutory standard has been met.

Having said that, THESL notes that the statute contemplates that the OEB could decide to refrain "in whole or part" from regulating the activity. In our view, were the OEB to decide to refrain from regulating pricing, but to retain a measure of oversight with respect to access, it would *not* necessarily compromise the program or THESL's ability to operate within the relevant market. This position is dependent on the OEB adopting an approach to the regulation of access that takes into account the prevailing competitive principles and commercial realities. For example, access regulation that required THESL to make the distribution assets available subject to reasonable commercial considerations



## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

- 1 could be accommodated. In such a scenario, access would have to be extended to a
- 2 wireless provider if they were able to meet the prevailing commercial arrangements.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

**INTERROGATORY 28:**

**Reference(s): Evidence of Dr. Church**

**ISSUE(S): 9**

At paragraph 206, Dr. Church states:

“Moreover, on distributional grounds the OEB might determine that some of the burden of financial viability for THESL should be borne by those making and benefiting from wireless attachments instead of THESL ratepayers.”

See also Dr. Church’s evidence at paragraphs 216 and 217, recommending such a contribution on distributional grounds, i.e. independent of efficiency considerations.

- 1) Confirm that, in Dr. Church’s opinion, if the Board were to forbear from regulating the prices for attachments to THESL and THESL’s poles, revenues from such attachments should nevertheless make a contribution toward recovering the utility’s revenue requirement.
- 2) What criteria would Dr. Church recommend for determining how large such a contribution should be, on purely distributional grounds?

**RESPONSE:**

- 1) Dr. Church does not recommend a contribution on distributional grounds, only that the OEB might determine that such a contribution is appropriate. On efficiency grounds, section 7.1 of Dr. Church’s Evidence finds that if THESL has market power in the provision of pole access for wireless attachments, then some exercise of that market power is efficient. That is, the margin on pole access should be positive and that surplus used to reduce the burden of common cost recovery on other THESL

**RESPONSES TO VULNERABLE ENERGY CONSUMERS  
COALITION INTERROGATORIES**

1 services. In this case, the loss to the wireless sector in aggregate (wireless service  
2 providers and consumers) is less than the gain to THESL consumers ( i.e.,  
3 ratepayers).  
4

5 2) It is inappropriate for Dr. Church to make such a recommendation. Please refer to Dr.  
6 Church's response to VECC interrogatory 27 (Tab K, Schedule 3-27).

## **RESPONSES TO SCHOOL ENERGY COALITION INTERROGATORIES**

1 **INTERROGATORY 4:**

2 **Reference(s):**           **none provided**

3

4 **ISSUE(S):**    **9**

5

6 Please provide all studies, reports, documents, and information that THESL has on the  
7 current and expected market rate for the attachments to polls of wireless  
8 telecommunication attachments.

9

10 **RESPONSE:**

11 THESL does not have any such studies, reports, documents, or information.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

### **INTERROGATORY 18:**

**Reference(s):**       **THESL Prefiled Evidence Page 3, Para 16 and 17**

**ISSUE(S):**     **9**

16. As a result of the Decision and Order of the Ontario Energy Board dated March 7, 2005, THESL is authorized to charge \$22.35 for each pole attachment. That figure is intended to cover THESL's direct and indirect costs. THESL's direct and indirect costs for pole attachments are higher than that.

17. THESL proposes to charge a competitive rate for wireless attachments to its poles. Doing so will improve THESL's ability to recover its true costs, and provide a benefit to its ratepayers and to its shareholder.

a) Does the \$22.35/yr rate/charge apply to wireless only or to cable or other attached utilities? Please clarify and provide any other rates/charges for other types of attachments/connections.

b) Please provide a breakdown of THESL's costs and contribution to revenue requirement for the existing services/attachments.

c) Provide 2013 revenue and calculate the cost recovery ratio(s) for each type of Attachment/connection.

d) Discuss the Issue of cross subsidy and how this will change under forbearance.

e) Please List # 2013 applicants/customers renting attachments under the THESL OEB rate \$22.35/yr. Provide 2013 revenues and costs.

f) Please provide # (NO NAMES) 2013 applicants /customers renting attachments from THESI (specify rate(s)). Provide aggregate revenue

## RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES

**RESPONSE:**

a) Unless otherwise noted, the \$22.35/yr rate applies to all Canadian carriers as defined by the *Telecommunications Act* and all cable companies that operate in the Province of Ontario. Please also see THESL's response to CCC interrogatory 3 (Tab A, Schedule 2-3) and to OEB Staff interrogatory 22 (Tab F, Schedule 1-22).

b) THESL is only able to provide a breakdown of its costs in respect of telecommunications attachments (i.e., wireline and wireless) on a typical 40' distribution pole; please see THESL's response to CCC interrogatory 16 (Tab J, Schedule 2-16) for this breakdown.

The remainder of this response has been filed confidentially in accordance with the OEB's *Rules of Practice and Procedure* and the OEB's *Practice Direction on Confidential Filings*.

c) This response has been filed confidentially in accordance with the OEB's *Rules of Practice and Procedure* and the OEB's *Practice Direction on Confidential Filings*.

d) It is clear that wireless attachers are currently receiving a benefit or subsidy from the distribution system to the extent that the cost of providing the attachment or maintaining an attachment exceeds the current regulated rate of \$22.35. Under THESL's application, the rate for wireless attachments will be a negotiated rate, and in the unlikely event that that negotiated rate falls below the cost of providing the attachment or maintaining it, the attachment would not be permitted.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

- 1 e) This response has been filed confidentially in accordance with the OEB's *Rules of*  
2 *Practice and Procedure* and the OEB's *Practice Direction on Confidential Filings*.  
3
- 4 f) In 2013, there was only one customer with attachments on THESI poles.  
5
- 6 The remainder of this response has been filed confidentially in accordance with the  
7 OEB's *Rules of Practice and Procedure* and the OEB's *Practice Direction on*  
8 *Confidential Filings*.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 **INTERROGATORY 19:**

2 **Reference(s):** **THESL 2014 Rates**

3

4 **ISSUE(S):** **9**

5

6 a) With regard to Regulated Rates for Street-lighting and USL Rate Classes please  
7 provide:

8 i) Copy of Rate Schedules

9 ii) # customers/Class

10 iii) # of connections per class

11 b) Please provide Revenues and costs for regulated service and estimated Revenue/Cost  
12 Ratio.

13 c) Please discuss 2014 cross subsidy for these classes.

14

15 **RESPONSE:**

16 a) Please see attached Appendix A for the most recent (2014) OEB approved rate  
17 schedules for the Streetlighting and Unmetered Scattered Load classes. As of  
18 December 31, 2013, the following table provides number of customers and  
19 connections for each class.

	Customers	Connections
Streetlighting	1	163,689
Unmetered Scattered Load	855	11,707

20 b) The most recent (2011) OEB Approved revenues and costs are shown in the  
21 following table. Please refer to THESL's response in Energy Probe Interrogatory 20



## RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES

- 1 (Tab I, Schedule 5-20) for details of the Cost Allocation model used to develop these  
2 costs and revenues.

2011 OEB Approved Cost Allocation	Streetlighting	Unmetered Scattered Load
Allocated Revenue	<b>\$12,363,018</b>	<b>\$3,816,820</b>
Allocated Cost	\$17,331,487	\$4,627,832
Revenue/Cost Ratio	71.3%	82.5%

- 3 c) The Revenue/Cost ratios were approved by the OEB in THESL last rebasing  
4 application (2011) and have not been recalculated for 2014 since 2014 is an IRM rate  
5 year. The approved ratios were within the OEB's guidelines,<sup>1</sup> which recognize that,  
6 (1) the OEB's cost allocation model continues to evolve, and (2) the costs incurred by  
7 the utility in providing service to the respective rate classes, and the revenues  
8 generated by those classes are not perfectly coincidental.

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<sup>1</sup> EB-2007-0667 and recently affirmed in EB-2012-0383.

# Toronto Hydro-Electric System Limited

## TARIFF OF RATES AND CHARGES

### Effective and Implementation Date May 1, 2014

**This schedule supersedes and replaces all previously  
approved schedules of Rates, Charges and Loss Factors**

EB-2013-0287

## UNMETERED SCATTERED LOAD SERVICE CLASSIFICATION

This classification applies to an account taking electricity at 750 volts or less whose average monthly maximum demand at each location is less than, or is forecast to be less than, 50 kW and the consumption is unmetered. Such connections include cable TV power packs, bus shelters, telephone booths, traffic lights, railway crossings, etc. The level of the consumption will be agreed to by THESL and the customer, based on detailed manufacturer information/ documentation with regard to electrical consumption of the unmetered load or periodic monitoring of actual consumption. Further servicing details are available in the distributor's Conditions of Service.

### APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule.

No rates and charges for the distribution of electricity and charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein.

Unless specifically noted, this schedule does not contain any charges for the electricity commodity, be it under the Regulated Price Plan, a contract with a retailer or the wholesale market price, as applicable. In addition, the charges in the MONTHLY RATES AND CHARGES – Regulatory Component of this schedule do not apply to a customer that is an embedded wholesale market participant.

It should be noted that this schedule does not list any charges, assessments or credits that are required by law to be invoiced by a distributor and that are not subject to Board approval, such as the Debt Retirement Charge, the Global Adjustment, the Ontario Clean Energy Benefit and the HST.

### MONTHLY RATES AND CHARGES – Delivery Component

Service Charge	\$	4.94	(per 30 days)
Connection Charge (per connection)	\$	0.50	(per 30 days)
Rate Rider for Recovery of Foregone Revenue – effective until April 30, 2015	\$	0.02	(per 30 days)
Rate Rider for Recovery of Foregone Revenue (per connection) – effective until April 30, 2015	\$	0.00	(per 30 days)
Rate Rider for Recovery of Incremental Capital Module Costs – effective until April 30, 2015	\$	0.02	(per 30 days)
Rate Rider for Recovery of Incremental Capital Module Costs (per connection) – effective until April 30, 2015	\$	0.19	(per 30 days)
Distribution Volumetric Rate	\$/kWh	0.06195	
Rate Rider for Recovery of Foregone Revenue – effective until April 30, 2015	\$/kWh	0.00022	
Rate Rider for Recovery of Incremental Capital Module Costs – effective until April 30, 2015	\$/kWh	0.00245	
Rate Rider for Application of Tax Change – effective until April 30, 2015	\$/kWh	(0.00006)	
Retail Transmission Rate – Network Service Rate	\$/kWh	0.00490	
Retail Transmission Rate – Line and Transformation Connection Service Rate	\$/kWh	0.00354	

### MONTHLY RATES AND CHARGES – Regulatory Component

Wholesale Market Service Rate	\$/kWh	0.0044	
Rural or Remote Electricity Rate Protection Charge (RRRP)	\$/kWh	0.0013	
Standard Supply Service – Administration Charge (if applicable)	\$	0.25	(per 30 days)

# Toronto Hydro-Electric System Limited

## TARIFF OF RATES AND CHARGES

### Effective and Implementation Date May 1, 2014

**This schedule supersedes and replaces all previously approved schedules of Rates, Charges and Loss Factors**

EB-2013-0287

## STREET LIGHTING SERVICE CLASSIFICATION

This classification applies to an account for roadway lighting with a Municipality, Regional Municipality, Ministry of Transportation and private roadway lighting, controlled by photo cells. The consumption for these customers will be based on the calculated connected load times the required lighting times established in the approved OEB street lighting load shape template. Further servicing details are available in the distributor's Conditions of Service.

### APPLICATION

The application of these rates and charges shall be in accordance with the Licence of the Distributor and any Code or Order of the Board, and amendments thereto as approved by the Board, which may be applicable to the administration of this schedule.

No rates and charges for the distribution of electricity and charges to meet the costs of any work or service done or furnished for the purpose of the distribution of electricity shall be made except as permitted by this schedule, unless required by the Distributor's Licence or a Code or Order of the Board, and amendments thereto as approved by the Board, or as specified herein.

Unless specifically noted, this schedule does not contain any charges for the electricity commodity, be it under the Regulated Price Plan, a contract with a retailer or the wholesale market price, as applicable. In addition, the charges in the MONTHLY RATES AND CHARGES – Regulatory Component of this schedule do not apply to a customer that is an embedded wholesale market participant.

It should be noted that this schedule does not list any charges, assessments or credits that are required by law to be invoiced by a distributor and that are not subject to Board approval, such as the Debt Retirement Charge, the Global Adjustment, the Ontario Clean Energy Benefit and the HST.

### MONTHLY RATES AND CHARGES – Delivery Component

Service Charge	\$	1.32	(per 30 days)
Rate Rider for Recovery of Foregone Revenue – effective until April 30, 2015	\$	0.00	(per 30 days)
Rate Rider for Recovery of Incremental Capital Module Costs – effective until April 30, 2015	\$	0.05	(per 30 days)
Distribution Volumetric Rate	\$/kVA	29.3201	(per 30 days)
Rate Rider for Recovery of Foregone Revenue – effective until April 30, 2015	\$/kVA	0.1041	(per 30 days)
Rate Rider for Recovery of Incremental Capital Module Costs – effective until April 30, 2015	\$/kVA	1.1439	(per 30 days)
Rate Rider for Application of Tax Change – effective until April 30, 2015	\$/kVA	(0.0354)	(per 30 days)
Retail Transmission Rate – Network Service Rate	\$/kW	2.4829	(per 30 days)
Retail Transmission Rate – Line and Transformation Connection Service Rate	\$/kW	2.2957	(per 30 days)

### MONTHLY RATES AND CHARGES – Regulatory Component

Wholesale Market Service Rate	\$/kWh	0.0044	
Rural or Remote Electricity Rate Protection Charge (RRRP)	\$/kWh	0.0013	
Standard Supply Service – Administration Charge (if applicable)	\$	0.25	(per 30 days)

**RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION  
INTERROGATORIES, ISSUE 9**

1 **INTERROGATORY 20:**

2 **Reference(s):** **OEB Report EB-2013-0383: Review of the OEB's Cost**  
3 **Allocation Policy for Unmetered Loads**

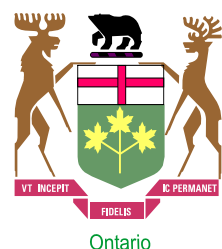
4  
5 **ISSUE(S): 9**

- 6
- 7 a) Please provide the latest OEB Cost Allocation Model inputs/outputs for each class  
8 (SL and USL).
- 9 b) Do the costs include a standard connection cost? Please explain in the context of the  
10 CA Model.
- 11 c) What changes to cost allocation is THESL proposing to make given the OEB Report?
- 12 d) How will these affect the Revenue/Cost ratios for each class?

13  
14 **RESPONSE:**

- 15 a) Please see Appendix A to this Schedule. This is the attached latest (2011) OEB-  
16 Approved cost allocation model.
- 17
- 18 b) Yes. Costs of basic connection are included in the Cost Allocation model for all  
19 classes, and are allocated to each class based on weighted (by class-relative cost of  
20 connection) number of secondary connections.
- 21
- 22 c) and d) THESL expects to update the Cost Allocation model for its 2015-2019  
23 rate filing. At this time, THESL is unable to identify the changes it may make, if any,  
24 or the potential impacts on the Revenue/Cost ratios, based on the OEB Report.

E3	PLCC	Backup documentation for calculating Peak Load Carrying Capability.
E4	Trial Balance Index	Exhibit showing 1. how accounts are grouped for reporting, how accounts are categorized and how accounts are allocated
E5	Reconciliation	Exhibit showing reconciliation of accounts included and excluded from the allocation study to TB balance



## 2011 COST ALLOCATION INFORMATION FILING Toronto Hydro-Electric System Limited

### Sheet I2 Class Selection -

#### Instructions:

- Step 1:** Please input your existing classes  
**Step 2:** If this is your first run, select "First Run" in the drop-down menu below  
**Step 3:** After all classes have been entered, Click the "Update" button in row E41

Click for Drop-Down  
Menu

If desired, provide a summary of this run  
(40 characters max.)

First Run			
		Utility's Class Definition	Current
1	Residential		YES
2	GS <50		YES
3	GS>50<1000		YES
4	GS> 50 RIMS		NO
5	GS >50-Intermediate	GS > 1000 < 5000	YES
6	Large Use >5MW		YES
7	Street Light		YES
8	Sentinel		NO
9	Unmetered Scattered Load		YES
10	Embedded Distributor		NO
11	Back-up/Standby Power		NO
12	Rate Class 1		NO
13	Rate class 2		NO
14	Rate class 3		NO
15	Rate class 4		NO
16	Rate class 5		NO
17	Rate class 6		NO
18	Rate class 7		NO
19	Rate class 8		NO
20	Rate class 9		NO

Update

#### \*\* Space available for additional information about this run

Please note that OEB has updated the generic Cost Allocation Model since THESL's 2011

Rate filing. The Quadlogic Cost Allocation study utilized the OEB's new model.

Comments are provided where there are significant differences between the two models.

[Uniform System of Accounts - Detail Accounts](#)

USoA Account #	Accounts	Financial Statement (EDR Sheet 1-2 Adj. Accounting Data, Column G)	Model Adjustments	Reclassify accounts	Direct Allocation	Reclassified Balance	
1005	Cash	-				\$0	Unclassified Asset
1010	Cash Advances and Working Funds	-				\$0	Unclassified Asset
1020	Interest Special Deposits	-				\$0	Unclassified Asset
1030	Dividend Special Deposits	-				\$0	Unclassified Asset
1040	Other Special Deposits	-				\$0	Unclassified Asset
1060	Term Deposits	-				\$0	Unclassified Asset
1070	Current Investments	-				\$0	Unclassified Asset
1100	Customer Accounts Receivable	-				\$0	Unclassified Asset
1102	Accounts Receivable - Services	-				\$0	Unclassified Asset
1104	Accounts Receivable - Recoverable Work	-				\$0	Unclassified Asset
1105	Accounts Receivable - Merchandise, Jobbing, etc.	-				\$0	Unclassified Asset
1110	Other Accounts Receivable	-				\$0	Unclassified Asset
1120	Accrued Utility Revenues	-				\$0	Unclassified Asset
1130	Accumulated Provision for Uncollectible Accounts--Credit	-				\$0	Unclassified Asset
1140	Interest and Dividends Receivable	-				\$0	Unclassified Asset
1150	Rents Receivable	-				\$0	Unclassified Asset
1170	Notes Receivable	-				\$0	Unclassified Asset
1180	Prepayments	-				\$0	Unclassified Asset
1190	Miscellaneous Current and Accrued Assets	-				\$0	Unclassified Asset
1200	Accounts Receivable from Associated Companies	-				\$0	Unclassified Asset
1210	Notes Receivable from Associated Companies	-				\$0	Unclassified Asset
1305	Fuel Stock	-				\$0	Unclassified Asset
1330	Plant Materials and Operating Supplies	-				\$0	Unclassified Asset
1340	Merchandise	-				\$0	Unclassified Asset
1350	Other Materials and Supplies	-				\$0	Unclassified Asset
1405	Long Term Investments in Non-Associated Companies	-				\$0	Unclassified Asset
1408	Long Term Receivable - Street Lighting Transfer	-				\$0	Unclassified Asset
1410	Other Special or Collateral Funds	-				\$0	Unclassified Asset
1415	Sinking Funds	-				\$0	Unclassified Asset
1425	Unamortized Debt Expense	-				\$0	Unclassified Asset
1445	Unamortized Discount on Long-Term Debt--Debit	-				\$0	Unclassified Asset
1455	Unamortized Deferred Foreign Currency Translation Gains and Losses	-				\$0	Unclassified Asset
1460	Other Non-Current Assets	-				\$0	Unclassified Asset
1465	O.M.E.R.S. Past Service Costs	-				\$0	Unclassified Asset
1470	Past Service Costs - Employee Future Benefits	-				\$0	Unclassified Asset
1475	Past Service Costs - Other Pension Plans	-				\$0	Unclassified Asset
1480	Portfolio Investments - Associated Companies	-				\$0	Unclassified Asset
1485	Investment in Associated Companies - Significant Influence	-				\$0	Unclassified Asset
1490	Investment in Subsidiary Companies	-				\$0	Unclassified Asset
1505	Unrecovered Plant and Regulatory Study Costs	-				\$0	Unclassified Asset
1508	Other Regulatory Assets	-				\$0	Unclassified Asset
1510	Preliminary Survey and Investigation Charges	-				\$0	Unclassified Asset
1515	Emission Allowance Inventory	-				\$0	Unclassified Asset
1516	Emission Allowances Withheld	-				\$0	Unclassified Asset
1518	RCVARetail	-				\$0	Unclassified Asset
1520	Power Purchase Variance Account	-				\$0	Unclassified Asset
1525	Miscellaneous Deferred Debits	-				\$0	Unclassified Asset
1530	Deferred Losses from Disposition of Utility Plant	-				\$0	Unclassified Asset

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CDM Expenditures and Recoveries

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Land and Buildings



[Uniform System of Accounts - Detail Accounts](#)

USoA Account #	Accounts	Financial Statement (EDR Sheet 1-2 Adj. Accounting Data, Column G)	Model Adjustments	Reclassify accounts	Direct Allocation	Reclassified Balance
1815	Transformer Station Equipment - Normally Primary above 50 kV	23,467,331		-1,480,358		\$21,986,973
1820	Distribution Station Equipment - Normally Primary below 50 kV	205,503,422		0		\$205,503,422
1825	Storage Battery Equipment	-				\$0
1830	Poles, Towers and Fixtures	371,101,654				\$371,101,654
1835	Overhead Conductors and Devices	400,954,423		-89,283,201		\$311,671,222
1840	Underground Conduit	1,160,571,505		-6,489	\$33,018,227	\$1,127,546,789
1845	Underground Conductors and Devices	789,240,935		-230,701,565	\$15,162,806	\$543,376,564
1850	Line Transformers	706,109,694		-218,793		\$705,890,901
1855	Services	88,957,729		319,317,293		\$408,275,022
1860	Meters	222,566,359		-1,762,123		\$220,804,236
1865	Other Installations on Customer's Premises	-				\$0
1870	Leased Property on Customer Premises	-				\$0
1875	Street Lighting and Signal Systems	-				\$0
1905	Land	1,889,782				\$1,889,782
1906	Land Rights	-				\$0
1908	Buildings and Fixtures	118,820,393		-894,585		\$117,925,808
1910	Leasehold Improvements	20,013,651				\$20,013,651
1915	Office Furniture and Equipment	14,036,215		-74,510		\$13,961,705
1920	Computer Equipment - Hardware	42,452,996				\$42,452,996
1925	Computer Software	180,893,920		-1,228,626		\$179,665,294
1930	Transportation Equipment	82,482,897		0		\$82,482,897
1935	Stores Equipment	5,592,933				\$5,592,933
1940	Tools, Shop and Garage Equipment	35,302,613				\$35,302,613
1945	Measurement and Testing Equipment	4,767,550				\$4,767,550
1950	Power Operated Equipment	-				\$0
1955	Communication Equipment	26,430,482				\$26,430,482
1960	Miscellaneous Equipment	-				\$0
1965	Water Heater Rental Units	-				\$0
1970	Load Management Controls - Customer Premises	15,138,331		-10,786,037		\$4,352,294
1975	Load Management Controls - Utility Premises	554,382				\$554,382
1980	System Supervisory Equipment	54,641,442				\$54,641,442
1985	Sentinel Lighting Rental Units	-				\$0
1990	Other Tangible Property	-				\$0
1995	Contributions and Grants - Credit	276,410,062				(\$276,410,062)
2005	Property Under Capital Leases	788,988		0		\$788,988
2010	Electric Plant Purchased or Sold	-				\$0
2020	Experimental Electric Plant Unclassified	-				\$0
2030	Electric Plant and Equipment Leased to Others	-				\$0
2040	Electric Plant Held for Future Use	-				\$0
2050	Completed Construction Not Classified--Electric	-				\$0
2055	Construction Work in Progress--Electric	-				\$0
2060	Electric Plant Acquisition Adjustment	-				\$0
2065	Other Electric Plant Adjustment	-				\$0
2070	Other Utility Plant	-				\$0
2075	Non-Utility Property Owned or Under Capital Leases	-				\$0
2105	Accum. Amortization of Electric Utility Plant - Property, Plant, & Equipment	2,342,055,840			-25,397,087	(\$2,316,658,753)
2120	Accumulated Amortization of Electric Utility Plant - Intangibles	14,489,365				(\$14,489,365)

TS Primary Above 50

DS  
Other Distribution Assets  
Poles, Wires  
Poles, Wires  
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Poles, Wires  
Line Transformers  
Services and Meters  
Services and Meters  
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Land and Buildings  
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Accumulated Amortization

Accumulated Amortization

[Uniform System of Accounts - Detail Accounts](#)

USoA Account #	Accounts	Financial Statement (EDR Sheet 1-2 Adj. Accounting Data, Column G)	Model Adjustments	Reclassify accounts	Direct Allocation	Reclassified Balance	
2140	Accumulated Amortization of Electric Plant Acquisition Adjustment	-				\$0	Unclassified Asset
2160	Accumulated Amortization of Other Utility Plant	-				\$0	Non-Distribution Asset
2180	Accumulated Amortization of Non-Utility Property	-				\$0	Non-Distribution Asset
2205	Accounts Payable	-				\$0	Liability
2208	Customer Credit Balances	-				\$0	Liability
2210	Current Portion of Customer Deposits	-				\$0	Liability
2215	Dividends Declared	-				\$0	Liability
2220	Miscellaneous Current and Accrued Liabilities	-				\$0	Liability
2225	Notes and Loans Payable	-				\$0	Liability
2240	Accounts Payable to Associated Companies	-				\$0	Liability
2242	Notes Payable to Associated Companies	-				\$0	Liability
2250	Debt Retirement Charges( DRC) Payable	-				\$0	Liability
2252	Transmission Charges Payable	-				\$0	Liability
2254	Electrical Safety Authority Fees Payable	-				\$0	Liability
2256	Independent Market Operator Fees and Penalties Payable	-				\$0	Liability
2260	Current Portion of Long Term Debt	-				\$0	Liability
2262	Ontario Hydro Debt - Current Portion	-				\$0	Liability
2264	Pensions and Employee Benefits - Current Portion	-				\$0	Liability
2268	Accrued Interest on Long Term Debt	-				\$0	Liability
2270	Matured Long Term Debt	-				\$0	Liability
2272	Matured Interest on Long Term Debt	-				\$0	Liability
2285	Obligations Under Capital Leases--Current	-				\$0	Liability
2290	Commodity Taxes	-				\$0	Liability
2292	Payroll Deductions / Expenses Payable	-				\$0	Liability
2294	Accrual for Taxes, Payments in Lieu of Taxes, Etc.	-				\$0	Liability
2296	Future Income Taxes - Current	-				\$0	Liability
2305	Accumulated Provision for Injuries and Damages	-				\$0	Liability
2306	Employee Future Benefits	-				\$0	Liability
2308	Other Pensions - Past Service Liability	-				\$0	Liability
2310	Vested Sick Leave Liability	-				\$0	Liability
2315	Accumulated Provision for Rate Refunds	-				\$0	Liability
2320	Other Miscellaneous Non-Current Liabilities	-				\$0	Liability
2325	Obligations Under Capital Lease--Non-Current	-				\$0	Liability
2330	Development Charge Fund	-				\$0	Liability
2335	Long Term Customer Deposits	-				\$0	Liability
2340	Collateral Funds Liability	-				\$0	Liability
2345	Unamortized Premium on Long Term Debt	-				\$0	Liability
2348	O.M.E.R.S. - Past Service Liability - Long Term Portion	-				\$0	Liability
2350	Future Income Tax - Non-Current	-				\$0	Liability
2405	Other Regulatory Liabilities	-				\$0	Liability
2410	Deferred Gains from Disposition of Utility Plant	-				\$0	Liability
2415	Unamortized Gain on Reacquired Debt	-				\$0	Liability
2425	Other Deferred Credits	-				\$0	Liability
2435	Accrued Rate-Payer Benefit	-				\$0	Liability
2505	Debentures Outstanding - Long Term Portion	-				\$0	Liability
2510	Debenture Advances	-				\$0	Liability
2515	Reacquired Bonds	-				\$0	Liability
2520	Other Long Term Debt	-				\$0	Liability
2525	Term Bank Loans - Long Term Portion	-				\$0	Liability

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 Distribution Services Revenue  
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 Other Revenue - Unclassified  
 Other Revenue - Unclassified  
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 Late Payment Charges  
 Other Revenue - Unclassified  
 Specific Service Charges  
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 Other Income & Deductions  
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 Other Income & Deductions

### I3 TB Data



Other Power Supply Expenses  
Power Supply Expenses (Working Capital)  
Non-Distribution Expenses  
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Non-Distribution Expenses  
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Operation (Working Capital)  
Operation (Working Capital)  
Operation (Working Capital)

**Uniform System of Accounts - Detail Accounts**

USoA Account #	Accounts	Financial Statement (EDR Sheet 1-2 Adj. Accounting Data, Column G)	Model Adjustments	Reclassify accounts	Direct Allocation	Reclassified Balance
5090	Underground Distribution Lines and Feeders - Rental Paid	-				\$0
5095	Overhead Distribution Lines and Feeders - Rental Paid	-				\$0
5096	Other Rent	-				\$0
5105	Maintenance Supervision and Engineering	6,075,269				\$6,075,269
5110	Maintenance of Buildings and Fixtures - Distribution Stations	16,560,453				\$16,560,453
5112	Maintenance of Transformer Station Equipment	-				\$0
5114	Maintenance of Distribution Station Equipment	2,983,582				\$2,983,582
5120	Maintenance of Poles, Towers and Fixtures	-				\$0
5125	Maintenance of Overhead Conductors and Devices	6,479,871				\$6,479,871
5130	Maintenance of Overhead Services	382,481				\$382,481
5135	Overhead Distribution Lines and Feeders - Right of Way	3,799,311				\$3,799,311
5145	Maintenance of Underground Conduit	-				\$0
5150	Maintenance of Underground Conductors and Devices	7,976,648			\$247,732	\$7,728,916
5155	Maintenance of Underground Services	-				\$0
5160	Maintenance of Line Transformers	-	\$0		\$0	\$0
5165	Maintenance of Street Lighting and Signal Systems	-				\$0
5170	Sentinel Lights - Labour	-				\$0
5172	Sentinel Lights - Materials and Expenses	-				\$0
5175	Maintenance of Meters	-				\$0
5178	Customer Installations Expenses- Leased Property	-				\$0
5185	Water Heater Rentals - Labour	-				\$0
5186	Water Heater Rentals - Materials and Expenses	-				\$0
5190	Water Heater Controls - Labour	-				\$0
5192	Water Heater Controls - Materials and Expenses	-				\$0
5195	Maintenance of Other Installations on Customer Premises	-				\$0
5205	Purchase of Transmission and System Services	-				\$0
5210	Transmission Charges	-				\$0
5215	Transmission Charges Recovered	-				\$0
5305	Supervision	318,617				\$318,617
5310	Meter Reading Expense	671,121				\$671,121
5315	Customer Billing	11,813,305				\$11,813,305
5320	Collecting	14,661,468				\$14,661,468
5325	Collecting- Cash Over and Short	-				\$0
5330	Collection Charges	-				\$0
5335	Bad Debt Expense	7,385,000				\$7,385,000
5340	Miscellaneous Customer Accounts Expenses	-				\$0

Operation (Working Capital)

Operation (Working Capital)  
Operation (Working Capital)  
Maintenance (Working Capital)

Maintenance (Working Capital)  
Maintenance (Working Capital)  
Maintenance (Working Capital)  
Maintenance (Working Capital)  
Maintenance (Working Capital)  
Maintenance (Working Capital)

Maintenance (Working Capital)  
Maintenance (Working Capital)

Maintenance (Working Capital)  
Maintenance (Working Capital)  
Maintenance (Working Capital)  
Non-Distribution Expenses  
Non-Distribution Expenses  
Non-Distribution Expenses  
Non-Distribution Expenses  
Maintenance (Working Capital)  
Non-Distribution Expenses  
Non-Distribution Expenses  
Non-Distribution Expenses  
Non-Distribution Expenses  
Non-Distribution Expenses  
Non-Distribution Expenses

Non-Distribution Expenses  
Other Power Supply Expenses  
Other Power Supply Expenses  
Other Power Supply Expenses  
Billing and Collection (Working Capital)  
Billing and Collection (Working Capital)  
Billing and Collection (Working Capital)  
Billing and Collection (Working Capital)  
Billing and Collection (Working Capital)  
Billing and Collection (Working Capital)  
Bad Debt Expense (Working Capital)  
Billing and Collection (Working Capital)

[Uniform System of Accounts - Detail Accounts](#)

USoA Account #	Accounts	Financial Statement (EDR Sheet 1-2 Adj. Accounting Data, Column G)	Model Adjustments	Reclassify accounts	Direct Allocation	Reclassified Balance
5405	Supervision	-				\$0
5410	Community Relations - Sundry	544,740				\$544,740
5415	Energy Conservation	-			\$0	\$0
5420	Community Safety Program	3,584,007				\$3,584,007
5425	Miscellaneous Customer Service and Informational Expenses	-				\$0
5505	Supervision	-				\$0
5510	Demonstrating and Selling Expense	-				\$0
5515	Advertising Expense	-				\$0
5520	Miscellaneous Sales Expense	-				\$0
5605	Executive Salaries and Expenses	1,841,406				\$1,841,406
5610	Management Salaries and Expenses	-				\$0
5615	General Administrative Salaries and Expenses	50,634,669				\$50,634,669
5620	Office Supplies and Expenses	2,110				\$2,110
5625	Administrative Expense Transferred Credit	1,644,231				(\$1,644,231)
5630	Outside Services Employed	9,723,640				\$9,723,640
5635	Property Insurance	3,268,553				\$3,268,553
5640	Injuries and Damages	-				\$0
5645	Employee Pensions and Benefits	-				\$0
5650	Franchise Requirements	-				\$0
5655	Regulatory Expenses	4,133,635				\$4,133,635
5660	General Advertising Expenses	-				\$0
5665	Miscellaneous General Expenses	-	\$0			\$0
5670	Rent	-				\$0
5675	Maintenance of General Plant	896,931				\$896,931
5680	Electrical Safety Authority Fees	369,900				\$369,900
5685	Independent Market Operator Fees and Penalties	-				\$0
5705	Amortization Expense - Property, Plant, and Equipment	135,421,898			\$1,304,933	\$134,116,965
5710	Amortization of Limited Term Electric Plant	3,393,883				\$3,393,883
5715	Amortization of Intangibles and Other Electric Plant	-				\$0
5720	Amortization of Electric Plant Acquisition Adjustments	-				\$0
5725	Miscellaneous Amortization	-				\$0
5730	Amortization of Unrecovered Plant and Regulatory Study Costs	-				\$0
5735	Amortization of Deferred Development Costs	-				\$0
5740	Amortization of Deferred Charges	-				\$0
6005	Interest on Long Term Debt	-	\$0		\$407,008	\$70,966,738
6010	Amortization of Debt Discount and Expense	-				\$0
6015	Amortization of Premium on Debt Credit	-				\$0
6020	Amortization of Loss on Reacquired Debt	-				\$0
6025	Amortization of Gain on Reacquired Debt--Credit	-				\$0
6030	Interest on Debt to Associated Companies	-				\$0
6035	Other Interest Expense	-				\$0
6040	Allowance for Borrowed Funds Used During Construction--Credit	-				\$0
6042	Allowance For Other Funds Used During Construction	-				\$0
6045	Interest Expense on Capital Lease Obligations	-				\$0
6105	Taxes Other Than Income Taxes	6,802,382				\$6,802,382
6110	Income Taxes	-	\$0		\$67,239	\$11,723,984

Community Relations (Working Capital)  
Community Relations (Working Capital)  
Community Relations - CDM (Working Capital)  
Community Relations (Working Capital)

Community Relations (Working Capital)  
Other Distribution Expenses  
Other Distribution Expenses  
Advertising Expenses  
Other Distribution Expenses  
Administrative and General Expenses (Working  
Administrative and General Expenses (Working  
Administrative and General Expenses (Working  
Administrative and General Expenses (Working  
Administrative and General Expenses (Working  
Administrative and General Expenses (Working  
Insurance Expense (Working Capital)  
Administrative and General Expenses (Working  
Administrative and General Expenses (Working  
Administrative and General Expenses (Working  
Administrative and General Expenses (Working  
Advertising Expenses  
Administrative and General Expenses (Working  
Administrative and General Expenses (Working  
Administrative and General Expenses (Working  
Power Supply Expenses (Working Capital)

Amortization of Assets  
Amortization of Assets  
Amortization of Assets

Other Amortization - Unclassified  
Other Amortization - Unclassified

Amortization of Assets  
Amortization of Assets  
Amortization of Assets

Interest Expense - Unclassified  
Interest Expense - Unclassified  
Interest Expense - Unclassified  
Interest Expense - Unclassified  
Interest Expense - Unclassified  
Interest Expense - Unclassified  
Interest Expense - Unclassified

Interest Expense - Unclassified

Interest Expense - Unclassified  
Interest Expense - Unclassified  
Other Distribution Expenses  
Income Tax Expense - Unclassified

Uniform System of Accounts - Detail Accounts

USoA Account #	Accounts	Financial Statement (EDR Sheet 1-2 Adj. Accounting Data, Column G)	Model Adjustments	Reclassify accounts	Direct Allocation	Reclassified Balance
6115	Provision for Future Income Taxes	-				\$0
6205	Donations	-				\$0
6210	Life Insurance	-				\$0
6215	Penalties	-				\$0
6225	Other Deductions	-				\$0
6305	Extraordinary Income	-				\$0
6310	Extraordinary Deductions	-				\$0
6315	Income Taxes, Extraordinary Items	-				\$0
6405	Discontinues Operations - Income/ Gains	-				\$0
6410	Discontinued Operations - Deductions/ Losses	-				\$0
6415	Income Taxes, Discontinued Operations	-				\$0
	Sum of Missing accounts 1550,1555,1556,1566	-				\$0

Income Tax Expense - Unclassified  
Charitable Contributions  
Insurance Expense (Working Capital)  
Other Distribution Expenses  
Other Distribution Expenses  
Unclassified Expenses  
Unclassified Expenses  
Unclassified Expenses  
Unclassified Expenses  
Unclassified Expenses  
Unclassified Expenses

0



Reclassification Equals to Zero. O.K. to Proceed.

Asset Accounts Directly Allocated	\$22,783,946
Income Statement Accounts Directly Allocated	\$2,274,838



Enter Net Fixed Assets from <b>approved</b> EDR, Sheet 3-1, cell F12	\$2,001,487,967
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RATE BASE AND DISTRIBUTION ASSETS		BALANCE SHEET ITEMS									EXPENSE ITEMS			
											5705	5710	5715	5720
Account	Description	Break out Functions	BREAK OUT (%)	BREAK OUT (\$)	After BO	Contributed Capital - 1995	Accumulated Depreciation - 2105 Capital Contribution	Accumulated Depreciation - 2105 Fixed Assets Only	Accumulated Depreciation - 2120	Asset net of Accumulated Depreciation and Contributed Capital	Amortization Expense - Property, Plant, and Equipment	Amortization of Limited Term Electric Plant	Amortization of Intangibles and Other Electric Plant	Amortization of Electric Plant Acquisition Adjustments
1565	Conservation and Demand Management	\$15,702,253		-	15,702,253	\$0	\$0	\$(6,938,951)	\$-	8,763,302	\$1,079,206			
1805	Land	\$2,110,921		(\$2,110,921)	-									
1805-1	Land Station >50 kV		21.53%	\$454,416	454,416	\$0	\$0	\$-	\$-	454,416				
1805-2	Land Station <50 kV		78.47%	\$1,656,505	1,656,505	\$0	\$0	\$-	\$-	1,656,505				
1806	Land Rights	\$0		\$0	-									
1806-1	Land Rights Station >50 kV			\$0	-	\$0	\$0	\$-	\$-	0				
1806-2	Land Rights Station <50 kV		100.00%	\$0	-	\$0	\$0	\$-	\$-	0				
1808	Buildings and Fixtures	\$61,469,428		(\$61,469,428)	-									
1808-1	Buildings and Fixtures > 50 kV		2.37%	\$1,453,925	1,453,925	\$0	\$0	\$(608,296)	\$-	845,629	\$34,600			
1808-2	Buildings and Fixtures < 50 KV		97.63%	\$60,015,503	60,015,503	\$0	\$0	\$(18,343,617)	\$-	41,671,886	\$1,799,360			
1810	Leasehold Improvements	\$0		\$0	-									
1810-1	Leasehold Improvements >50 kV			\$0	-					0				
1810-2	Leasehold Improvements <50 kV		100.00%	\$0	-					0				
1815	Transformer Station Equipment - Normally Primary above 50 kV	\$21,986,973		\$0	21,986,973			\$(3,775,058)	\$-	18,211,915	\$137,638			
1820	Distribution Station Equipment - Normally Primary below 50 kV	\$205,503,422		(\$205,503,422)	-					0				
1820-1	Distribution Station Equipment - Normally Primary below 50 kV (Bulk)		0.00%	\$0	-			\$-		0	\$0			
1820-2	Distribution Station Equipment - Normally Primary below 50 kV Primary)		97.19%	\$199,734,227	199,734,227			(\$93,305,757)		106,428,470	\$10,298,265			
1820-3	Distribution Station Equipment - Normally Primary below 50 kV (Wholesale Meters)		2.81%	\$5,769,195	5,769,195			\$(651,725)		5,117,470	\$323,776			
1825	Storage Battery Equipment	\$0		\$0	-									
1825-1	Storage Battery Equipment > 50 kV			\$0	-					0				
1825-2	Storage Battery Equipment <50 kV		100.00%	\$0	-					0				
1830	Poles, Towers and Fixtures	\$371,101,654		(\$371,101,654)	-									
1830-3	Poles, Towers and Fixtures - Subtransmission Bulk Delivery			\$0	-					0	\$0			
1830-4	Poles, Towers and Fixtures - Primary		52.77%	\$195,830,343	195,830,343	(\$7,481,875)	\$1,774,042	\$(91,929,976)		98,192,534	\$2,904,527			
1830-5	Poles, Towers and Fixtures - Secondary		47.23%	\$175,271,311	175,271,311	\$0	\$0	\$(82,278,809)		92,992,502	\$2,730,477			
1835	Overhead Conductors and Devices	\$311,671,222		(\$311,671,222)	-									
1835-3	Overhead Conductors and Devices - Subtransmission Bulk Delivery			\$0	-	\$0	\$0	\$0		0	\$0			
1835-4	Overhead Conductors and Devices - Primary		52.77%	\$164,468,904	164,468,904	(\$7,811,798)	\$1,789,456	\$(99,912,987)		58,533,575	\$1,552,214			
1835-5	Overhead Conductors and Devices - Secondary		47.23%	\$147,202,318	147,202,318	\$0	\$0	\$(89,445,882)		57,756,436	\$1,519,859			
1840	Underground Conduit	\$1,127,546,789		(\$1,127,546,789)	-									
1840-3	Underground Conduit - Bulk Delivery			\$0	-	\$0	\$0	\$0		0	\$0			
1840-4	Underground Conduit - Primary		73.52%	\$828,972,399	828,972,399	(\$49,596,898)	\$9,418,774	\$(432,062,003)		356,732,272	\$24,904,766			
1840-5	Underground Conduit - Secondary		26.48%	\$298,574,390	298,574,390	(\$54,510,781)	\$10,351,953	\$(155,617,544)		98,798,017	\$7,991,843			

Enter Net Fixed Assets from <b>approved</b> EDR, Sheet 3-1, cell F12	\$2,001,487,967
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RATE BASE AND DISTRIBUTION ASSETS		BALANCE SHEET ITEMS									EXPENSE ITEMS			
		Break out Functions	BREAK OUT (%)	BREAK OUT (\$)	After BO	Contributed Capital - 1995	Accumulated Depreciation - 2105 Capital Contribution	Accumulated Depreciation - 2105 Fixed Assets Only	Accumulated Depreciation - 2120	Asset net of Accumulated Depreciation and Contributed Capital	5705 Amortization Expense - Property, Plant, and Equipment	5710 Amortization of Limited Term Electric Plant	5715 Amortization of Intangibles and Other Electric Plant	5720 Amortization of Electric Plant Acquisition Adjustments
Account	Description													
1845	Underground Conductors and Devices	\$543,376,564		(\$543,376,564)	-									
1845-3	Underground Conductors and Devices - Bulk Delivery			\$0	-	\$0	\$0	\$0		0	\$0			
1845-4	Underground Conductors and Devices - Primary		73.52%	\$399,490,450	399,490,450	(\$55,976,980)	\$10,846,769	(\$175,007,905)		179,352,334	\$4,983,444			
1845-5	Underground Conductors and Devices - Secondary		26.48%	\$143,886,114	143,886,114	(\$18,658,993)	\$3,615,590	(\$63,033,315)		65,809,396	\$1,817,606			
1850	Line Transformers	\$705,890,901		\$0	705,890,901	(\$72,834,467)	\$16,453,272	(\$367,273,950)		282,235,756	\$18,026,101			
1855	Services	\$408,275,022		\$0	408,275,022	(\$7,215,167)	\$1,055,729	(\$206,265,791)		195,849,793	\$5,736,522			
1860	Meters	\$220,804,236		\$0	220,804,236	(\$2,323,103)	\$742,461	(\$119,943,723)		99,279,871	\$10,056,590			
Total		\$3,995,439,385		\$0.0	\$3,995,439,385	(\$276,410,062)	\$56,048,046	(\$2,006,395,289)	\$0	1,768,682,079	\$95,896,795	\$0	\$0	\$0
SUB TOTAL from I3		\$3,995,439,385												

General Plant		Break out Functions				Contributed Capital - 1995	Accumulated Depreciation - 2105 Capital Contribution	Accumulated Depreciation - 2105 Fixed Assets Only	Accumulated Depreciation - 2120	Net Asset	5705	5710	5715	5720
											Amortization Expense - Property, Plant, and Equipment	Amortization of Limited Term Electric Plant	Amortization of Intangibles and Other Electric Plant	Amortization of Electric Plant Acquisition Adjustments
1905	Land	\$1,889,782			1,889,782			\$-		1,889,782				
1906	Land Rights	\$0			-			\$-	\$-	0				
1908	Buildings and Fixtures	\$117,925,808			117,925,808			\$ (42,407,300)		75,518,508	\$8,389,285			
1910	Leasehold Improvements	\$20,013,651			20,013,651			\$-	\$ (14,489,365)	5,524,286		\$3,393,883		
1915	Office Furniture and Equipment	\$13,961,705			13,961,705			\$ (7,374,338)		6,587,366	954,474			
1920	Computer Equipment - Hardware	\$42,452,996			42,452,996			\$ (32,789,260)		9,663,736	4,215,115			
1925	Computer Software	\$179,665,294			179,665,294			\$ (134,641,742)		45,023,552	15,291,194			
1930	Transportation Equipment	\$82,482,897			82,482,897			\$ (48,811,264)		33,671,633	\$ 3,837,629			
1935	Stores Equipment	\$5,592,933			5,592,933			\$ (5,488,704)		104,229	17,195			
1940	Tools, Shop and Garage Equipment	\$35,302,613			35,302,613			\$ (26,220,068)		9,082,545	1,534,692			
1945	Measurement and Testing Equipment	\$4,767,550			4,767,550			\$ (4,353,829)		413,721	104,966			
1950	Power Operated Equipment	\$0			-					0				
1955	Communication Equipment	\$26,430,482			26,430,482			\$ (22,039,906)		4,390,576	2,125,263			
1960	Miscellaneous Equipment	\$0			-			\$-		0	-			
1970	Load Management Controls - Customer Premises	\$4,352,294			4,352,294			\$ (4,080,403)		271,891	77,060			
1975	Load Management Controls - Utility Premises	\$554,382			554,382			\$ (554,382)		-0	-			
1980	System Supervisory Equipment	\$54,641,442			54,641,442			\$ (36,944,011)		17,697,431	1,554,727			
1990	Other Tangible Property	\$0			-					0				
2005	Property Under Capital Leases	\$788,988			788,988			\$ (606,301)		182,687	\$ 118,571			
2010	Electric Plant Purchased or Sold	\$0			-					0				

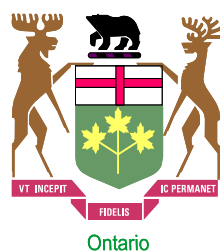
Enter Net Fixed Assets from 

approved

 EDR,  
Sheet 3-1, cell F12

\$2,001,487,967

RATE BASE AND DISTRIBUTION ASSETS		BALANCE SHEET ITEMS									EXPENSE ITEMS			
		Break out Functions	BREAK OUT (%)	BREAK OUT (\$)	After BO	Contributed Capital - 1995	Accumulated Depreciation - 2105 Capital Contribution	Accumulated Depreciation - 2105 Fixed Assets Only	Accumulated Depreciation - 2120	Asset net of Accumulated Depreciation and Contributed Capital	5705	5710	5715	5720
Account	Description										Amortization Expense - Property, Plant, and Equipment	Amortization of Limited Term Electric Plant	Amortization of Intangibles and Other Electric Plant	Amortization of Electric Plant Acquisition Adjustments
	Total	\$590,822,817		\$0	\$590,822,817	\$0	\$0	(\$366,311,510)	(\$14,489,365)	210,021,942	\$38,220,171	\$3,393,883	\$0	\$0
	SUB TOTAL from I3	\$590,822,817												
	I3 Directly Allocated	\$22,783,946												
	Grand Total	\$4,609,046,148		\$0	\$4,586,262,202	(\$276,410,062.00)	\$56,048,046	(\$2,372,706,799)	(\$14,489,365)	1,978,704,022	\$134,116,965	\$3,393,883	\$0	\$0
To be Prorated														
1995	Contributed Capital - 1995	(\$276,410,062.00)				\$276,410,062.00	Balanced							
2105	Accumulated Depreciation - 2105	(\$2,316,658,753)						\$2,316,658,753	Balanced					
2120	Accumulated Depreciation - 2120	(\$14,489,365)							\$14,489,364.93	Balanced				
	Total	(\$2,607,558,180)												
	Net Assets	\$2,001,487,967												
Amortization Expenses														
5705	Amortization Expense - Property, Plant, and Equipment	\$134,116,965									(\$134,116,965)	Balanced		
5710	Amortization of Limited Term Electric Plant	\$3,393,883									-0	(\$3,393,883)	Balanced	
5715	Amortization of Intangibles and Other Electric Plant	\$0											\$0	Balanced
5720	Amortization of Electric Plant Acquisition Adjustments	\$0												\$0
	Total Amortization Expense	\$137,510,848												Balanced



# 2011 COST ALLOCATION INFORMATION FILING Toronto Hydro-Electric System Limited

## Sheet I5 Miscellaneous Data Worksheet - First Run

kMs of Roads in Service Area Where  
Distribution Lines Exist

5365

Deemed Equity Component  
of Rate Base (%)

40%

1	2	3	5	6	7	9
Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
18.25	24.30	35.49	659.80	2874.02	1.32	4.92

### Instructions (Cont'd):

**Step 3:** Insert Approved Monthly Service Charge (Please refer to Approved EDR Sheet 8-5 column W)

**Step 4:** Insert Smart Meter Adder Included in Approved Monthly Service Charge (Please refer to Approved EDR Sheet 8-5 column T)

0.000000	0.0000	0.000	0.0000	0.0000
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Total kWhs	24,412,564,088
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Total kVAs	42,838,067
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Total Approved Distribution Revenue (\$) EDR (Sheet 6-1, cell AK120)	522,044,344
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**NOTE: In the OEB's new model, information on this worksheet is split into three worksheets**

- I5.2 - Weighting Factors
- I6.1 - Revenue
- I6.2 - Customer Data

			1	2	3	5	6	7	9
	ID	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
<b>Billing Data</b>									
kWh from approved EDR model, Sheet 7-1, Col M	CEN	24,412,564,088	4,986,768,673	2,139,318,076	10,116,374,153	4,626,928,262	2,376,778,323	110,165,016	56,231,585
kW from approved EDR model, Sheet 7-1, Col S	CDEM	42,838,067			26,935,191	10,587,119	4,993,733	322,023	
kW, included in CDEM, from customers with line transformer allowance from approved EDR model, Sheet 6-3, Col P		18,262,231			5,223,181	8,303,336	4,735,714		
Optional - kWh, included in CEN, from customers that receive a line transformation allowance on a kWh basis. In most cases this will not be applicable and will be left blank.		-							
KWh excluding KWh from Wholesale Market Participants	CEN EWMP	24,658,665,326	4,986,768,673	2,139,318,076	10,134,340,212	4,626,928,262	2,604,913,502	110,165,016	56,231,585
kWh - 30 year weather normalized amount		-	-	-	-	-	-	-	-
Approved Distribution Rev from approved EDR, Sheet 7-1, Col AK + Sheet 7-3 Col H	CREV	\$522,044,344	214,055,884	67,475,771	155,345,275	46,693,792	22,927,757	11,938,817	3,607,047
Bad Debt 3 Year Historical Average from Approved EDR Model	BDHA	\$7,385,000	\$4,490,007	\$1,895,014	\$905,601	\$94,378	\$0	\$0	\$0
Late Payment 3 Year Historical Average	LPHA	\$4,900,000	\$2,596,580	\$1,047,547	\$985,738	\$227,605	\$42,530	\$0	\$0
Weighting Factor - Services			1.0	2.0	10.0	10.0	30.0	1.0	1.0
Weighting Factor - Billings			1.0	2.0	7.0	7.0	15.0	1.0	5.0
Number of Bills	CNB	4,697,743	3,740,437	789,506	147,309	6,168	564	204	13,556
Number of Connections (Unmetered)	CCON	111,978						90,196	21,782
Total Number of Customer from Approved EDR, Sheet 7-1, Col H excluding connections	CCA	703,956	623,406	65,792	13,067	514	47	1	1,130
Bulk Customer Base	CCB	-	-	-	-	-	-	-	-
Primary Customer Base	CCP	703,956	623,406	65,792	13,067	514	47	1	1,130
Line Transformer Customer Base	CCLT	700,976	623,406	65,792	10,533	111	3	1	1,130
Secondary Customer Base	CCS	693,500	623,406	65,792	3,160	11	0	1	1,130



	ID	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
<b>Billing Data</b>									
Weighted - Services	<b>CWCS</b>	898,144	623,406	131,584	31,055	111	10	90,196	21,782
Weighted Meter -Capital	<b>CWMC</b>	163,787,234	110,865,447	20,067,997	26,231,789	5,602,000	1,020,000	-	-
Weighted Meter Reading	<b>CWMR</b>	1,608,519	368,823	1,011,450	228,246	-	-	-	-
Weighted Bills	<b>CWNB</b>	6,470,230	3,740,437	1,579,012	1,031,162	43,176	8,460	204	67,780
<b>Data Mismatch Analysis</b>									
<b>Revenue with 30 year weather normalized kWh</b>		-	-	-	-	-	-	-	-

**2011 COST ALLOCATION INFORMATION FILING**  
**Toronto Hydro-Electric System Limited**

**Sheet I7.1 Meter Capital Worksheet - First Run**

	Residential			GS <50		
	1	2	3	1	2	3
	Number of	Weighted	Weighted	Number of	Weighted	Weighted
Allocation Percentage Weighted Factor			63.17%			11%
Cost Relative to Residential Average Cost			1.00			1.72
<b>Total</b>	<b>623,406</b>	<b>110,865,447</b>	<b>178</b>	<b>65,792</b>	<b>20,067,997</b>	<b>305</b>

**Meter Types**

Single Phase 200 Amp - Urban

Single Phase 200 Amp - Rural  
Central Meter

Network Meter (Costs to be updated)

Three-phase - No demand  
Smart Meters

Demand without IT (usually three-phase)

Demand with IT  
Demand with IT and Interval Capability - Secondary

Demand with IT and Interval Capability - Primary

Demand with IT and Interval Capability -Special (WMP)

LDC Specific 1

LDC Specific 2

LDC Specific 3

**Cost per Meter (Installed)**

50	14,943	747,170		6,985	349,231	
150		-			-	
250		-			-	
150		-		2,434	365,039	
210		-			-	
225	-	-		-	-	
500		-		15,331	7,665,293	
2,100		-		2,665	5,595,819	
2,300	-	-		-	-	
10,000	-	-		-	-	
40,000	-	-		-	-	
158.75	573,894	91,105,750		38,379	6,092,615	
550	34,568	19,012,528		-	-	
550		-			-	

**2011 COST ALLOCATION INFORM**  
**Toronto Hydro-Electric Syst**

**Sheet I7.1 Meter Capital Wo**

		GS>50<1000			GS > 1000 < 5000		
		1	2	3	1	2	3
		Number of	Weighted	Weighted	Number of	Weighted	Weighted
Allocation Percentage Weighted Factor							
				22%			3%
	Cost Relative to Residential Average Cost			16.33			47.16
	Total	13,067	37,940,975	2,904	668	5,602,000	8,386
Meter Types		Cost per Meter (Installed)					
Single Phase 200 Amp - Urban	50		-			-	
Single Phase 200 Amp - Rural	150		-			-	
Central Meter	250		-			-	
Network Meter (Costs to be updated)	150		-			-	
Three-phase - No demand	210		-			-	
Smart Meters	225		-			-	
Demand without IT (usually three-phase)	500	2,028	1,014,194			-	
Demand with IT	2,100	8,718	18,308,436			-	
Demand with IT and Interval Capability - Secondary	2,300	595	1,368,121		140	322,000	
Demand with IT and Interval Capability - Primary	10,000	1,725	17,250,224		528	5,280,000	
Demand with IT and Interval Capability -Special (WMP)	40,000		-			-	
LDC Specific 1	158.75		-			-	
LDC Specific 2	550		-			-	
LDC Specific 3	550		-			-	



## 2011 COST ALLOCATION INFORM Toronto Hydro-Electric Syst

### Sheet I7.1 Meter Capital Wo

	Large Use >5MW			Street Light		
	1	2	3	1	2	3
	Number of	Weighted	Weighted	Number of	Weighted	Weighted
Allocation Percentage Weighted Factor			1%			0%
Cost Relative to Residential Average Cost			56.23			-
Total	102	1,020,000	10,000	-	-	-

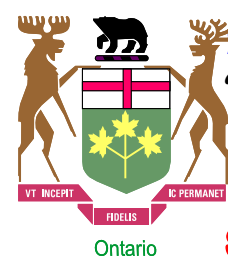
#### Meter Types

Meter Types	Cost per Meter (Installed)					
Single Phase 200 Amp - Urban	50	-			0	
Single Phase 200 Amp - Rural	150	-			0	
Central Meter	250	-			0	
Network Meter (Costs to be updated)	150	-			0	
Three-phase - No demand	210	-			0	
Smart Meters	225	-			0	
Demand without IT (usually three-phase)	500	-			0	
Demand with IT	2,100	-			0	
Demand with IT and Interval Capability - Secondary	2,300	-			0	
Demand with IT and Interval Capability - Primary	10,000	102	1,020,000		0	
Demand with IT and Interval Capability -Special (WMP)	40,000	-			0	
LDC Specific 1	158.75	-			0	
LDC Specific 2	550	-			0	
LDC Specific 3	550	-			0	

# 2011 COST ALLOCATION INFORM Toronto Hydro-Electric Syst

## Sheet I7.1 Meter Capital Wo

		Unmetered Scattered Load			TOTAL		
		1	2	3	1	2	3
		Number of	Weighted	Weighted	Number of	Weighted	Weighted
Allocation Percentage Weighted Factor				0%			100%
Cost Relative to Residential Average Cost				-			1.40
Total		-	-	-	703,035	175,496,420	250
<b>Meter Types</b>	<b>Cost per Meter (Installed)</b>						
Single Phase 200 Amp - Urban	50		0	21,928	1096400.638		
Single Phase 200 Amp - Rural	150		0	0	0		
Central Meter	250		0	0	0		
Network Meter (Costs to be updated)	150		0	2,434	365039.2883		
Three-phase - No demand	210		0	0	0		
Smart Meters	225		0	0	0		
Demand without IT (usually three-phase)	500		0	17,359	8679487.484		
Demand with IT	2,100		0	11,383	23904254.83		
Demand with IT and Interval Capability - Secondary	2,300		0	735	1690121.215		
Demand with IT and Interval Capability - Primary	10,000		0	2,355	23550224.02		
Demand with IT and Interval Capability -Special (WMP)	40,000		0	0	0		
LDC Specific 1	158.75		0	612,273	97198364.59		
LDC Specific 2	550		0	34,568	19012528.24		
LDC Specific 3	550		0	0	0		

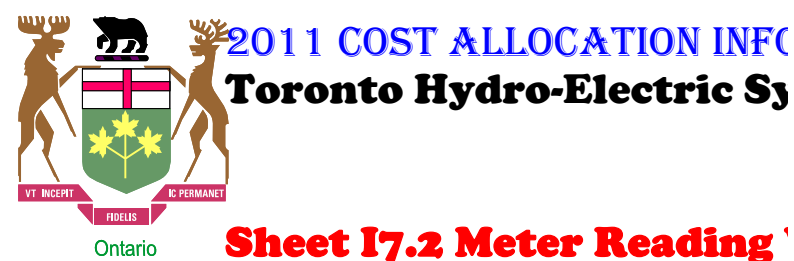


**2011 COST ALLOCATION INFORMATION FILING**  
**Toronto Hydro-Electric System Limited**

**Sheet I7.2 Meter Reading Worksheet - First Run**

Weighting Factors based on  
Contractor Pricing

Description		1			2			3		
		Residential			GS <50			GS>50<1000		
		Units	Weighted Factor	Weighted Average Costs	Units	Weighted Factor	Weighted Average Costs	Units	Weighted Factor	Weighted Average Costs
	Allocation Percentage	25.42%			69.72%			4.86%		
	Cost Relative to Residential Average	1.00			1.00			1.00		
	Total	122,941	368,823	3.00	337,150	1,011,450	3.00	23,518	70,554	3.00
	Factor									
Residential - Urban - Outside	1.00	0	0		0	0		0		
Residential - Urban - Outside with other services	1.00		0		0	0		0		
Residential - Urban - Inside	2.00	0	0		0	0		0		
Residential - Urban - Inside - with other services	1.00		0		0	0		0		
Residential - Rural - Outside	3.00	122,941	368,823		0	0		0		
Residential - Rural - Outside with other services	2.00		0		0	0		0		
LDC Specific 1			0		0	0		0		
LDC Specific 2			0		0	0		0		
GS - Walking	2.00		0		0	0		0		
GS - Walking - with other services	3.00		0		337,150	1,011,450		23,518	70,554	
GS - Vehicle with other services --- TOU Read	3.00		0		0	0		0		
GS - Vehicle with other services	3.00		0		0	0		0		
LDC Specific 3			0		0	0		0		
LDC Specific 4	0.00		0			0		0		
Interval	49.00		0			0		0		
LDC Specific 5			0			0		0		
LDC Specific 6			0			0		0		



**Weighting Factors based on  
Contractor Pricing**

Description		5			6			7		
		GS > 1000 < 5000			Large Use >5MW			Street Light		
		Units	Weighted Factor	Weighted Average Costs	Units	Weighted Factor	Weighted Average Costs	Units	Weighted Factor	Weighted Average Costs
	Allocation Percentage	0.00%			0.00%			0.00%		
	Cost Relative to Residential Average	0.00			0.00			0.00		
	Total	-	-	0	-	-	0	-	-	0
	Factor									
Residential - Urban - Outside	1.00		0			0			0	
Residential - Urban - Outside with other services	1.00		0			0			0	
Residential - Urban - Inside	2.00		0			0			0	
Residential - Urban - Inside - with other services	1.00		0			0			0	
Residential - Rural - Outside	3.00		0			0			0	
Residential - Rural - Outside with other services	2.00		0			0			0	
LDC Specific 1			0			0			0	
LDC Specific 2			0			0			0	
GS - Walking	2.00		0			0			0	
GS - Walking - with other services	3.00		0			0			0	
GS - Vehicle with other services --- TOU Read	3.00		0			0			0	
GS - Vehicle with other services	3.00		0			0			0	
LDC Specific 3			0			0			0	
LDC Specific 4	0.00		0			0			0	
Interval	49.00	0	0		0	0			0	
LDC Specific 5			0			0			0	
LDC Specific 6			0			0			0	



**Weighting Factors based on  
Contractor Pricing**

Description		9					
		Unmetered Scattered Load			TOTAL		
		Units	Weighted Factor	Weighted Average Costs	Units	Weighted Factor	Weighted Average Costs
	Allocation Percentage	0.00%			100.00%		
	Cost Relative to Residential Average	0.00			3.00		
	Total	-	-	0	483,609	1,450,827	9
	Factor						
Residential - Urban - Outside	1.00		0		-	-	
Residential - Urban - Outside with other services	1.00		0		-	-	
Residential - Urban - Inside	2.00		0		-	-	
Residential - Urban - Inside - with other services	1.00		0		-	-	
Residential - Rural - Outside	3.00		0		122,941	368,823	
Residential - Rural - Outside with other services	2.00		0		-	-	
LDC Specific 1			0		-	-	
LDC Specific 2			0		-	-	
GS - Walking	2.00		0		-	-	
GS - Walking - with other services	3.00		0		360,668	1,082,004	
GS - Vehicle with other services --- TOU Read	3.00		0		-	-	
GS - Vehicle with other services	3.00		0		-	-	
LDC Specific 3			0		-	-	
LDC Specific 4	0.00		0		-	-	
Interval	49.00		0		-	-	
LDC Specific 5			0		-	-	
LDC Specific 6			0		-	-	

CP TEST RESULTS	4 CP
NCP TEST RESULTS	4 NCP

Co-incident Peak	Indicator
1 CP	CP 1
4 CP	CP 4
12 CP	CP 12

Non-co-incident Peak	Indicator
1 NCP	NCP 1
4 NCP	NCP 4
12 NCP	NCP 12

Customer Classes		Total	1	2	3	5	6	7	9
			Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
CO-INCIDENT PEAK									
1 CP									
Transformation CP	TCP1	4,654,856	1,078,327	544,540	2,031,975	628,028	365,957	-	6,029
Bulk Delivery CP	BCP1	4,654,856	1,078,327	544,540	2,031,975	628,028	365,957	-	6,029
Total Sytem CP	DCP1	4,654,856	1,078,327	544,540	2,031,975	628,028	365,957	-	6,029
4 CP									
Transformation CP	TCP4	17,153,184	4,039,891	1,856,974	7,092,595	2,703,544	1,406,121	28,063	25,998
Bulk Delivery CP	BCP4	17,153,184	4,039,891	1,856,974	7,092,595	2,703,544	1,406,121	28,063	25,998
Total Sytem CP	DCP4	17,153,184	4,039,891	1,856,974	7,092,595	2,703,544	1,406,121	28,063	25,998
12 CP									
Transformation CP	TCP12	46,220,533	11,089,806	4,603,337	19,151,385	7,262,800	3,885,052	149,188	78,966
Bulk Delivery CP	BCP12	46,220,533	11,089,806	4,603,337	19,151,385	7,262,800	3,885,052	149,188	78,966
Total Sytem CP	DCP12	46,220,533	11,089,806	4,603,337	19,151,385	7,262,800	3,885,052	149,188	78,966
NON CO INCIDENT PEAK									
1 NCP									
Classification NCP from Load Data Provider	DNCP1	5,014,960	1,236,302	548,059	2,049,911	761,671	382,501	28,797	7,718
Primary NCP	PNCP1	4,875,349	1,236,302	548,059	1,910,701	761,671	382,501	28,797	7,318
Line Transformer NCP	LTNCP1	3,718,126	1,236,302	548,059	1,713,584	164,303	19,763	28,797	7,318
Secondary NCP	SNCP1	2,350,982	1,236,302	548,059	514,075	16,430	-	28,797	7,318
4 NCP									
Classification NCP from Load Data Provider	DNCP4	18,463,083	4,605,538	1,879,642	7,432,455	2,905,098	1,497,834	112,216	30,300
Primary NCP	PNCP4	17,919,247	4,605,538	1,879,642	6,888,620	2,905,098	1,497,834	112,216	30,300
Line Transformer NCP	LTNCP4	13,509,714	4,605,538	1,879,642	6,177,958	626,669	77,391	112,216	30,300
Secondary NCP	SNCP4	8,543,750	4,605,538	1,879,642	1,853,387	62,667	-	112,216	30,300
12 NCP									
Classification NCP from Load Data Provider	DNCP12	49,989,075	12,236,419	4,738,942	20,383,858	8,008,427	4,217,726	316,422	87,280
Primary NCP	PNCP12	41,919,238	12,236,419	4,738,942	12,314,021	8,008,427	4,217,726	316,422	87,280
Line Transformer NCP	LTNCP12	30,368,163	12,236,419	4,738,942	11,043,650	1,727,525	217,924	316,422	87,280
Secondary NCP	SNCP12	20,864,911	12,236,419	4,738,942	3,313,095	172,752	-	316,422	87,280

USoA Account #	Accounts	Direct Allocation	Total Allocated to Rate Classifications?	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Sentinel	Metered Scattered L
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**Instructions:**  
To Allocate Capital Contributions by Rate Classification, Input Allocation on Next Line

1995	Contributions and Grants - Credit	\$0	Yes								
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**Instructions:**  
The Following is Used to Allocate Directly Allocated Costs from I3 to Rate Classifications

1805	Land	\$0	Yes								
1806	Land Rights	\$0	Yes								
1808	Buildings and Fixtures	\$0	Yes								
1810	Leasehold Improvements	\$0	Yes								
1815	Transformer Station Equipment - Normally Primary above 50 kV	\$0	Yes								
1820	Distribution Station Equipment - Normally Primary below 50 kV	\$0	Yes								
1825	Storage Battery Equipment	\$0	Yes								
1830	Poles, Towers and Fixtures	\$0	Yes								
1835	Overhead Conductors and Devices	\$0	Yes								
1840	Underground Conduit	\$33,018,227	Yes			\$1,155,638	\$5,282,916	\$26,579,673			
1845	Underground Conductors and Devices	\$15,162,806	Yes			\$530,698	\$2,426,049	\$12,206,059			
1850	Line Transformers	\$0	Yes								
1855	Services	\$0	Yes								
1860	Meters	\$0	Yes								
1905	Land	\$0	Yes								
1906	Land Rights	\$0	Yes								
1908	Buildings and Fixtures	\$0	Yes								
1910	Leasehold Improvements	\$0	Yes								
1915	Office Furniture and Equipment	\$0	Yes								
1920	Computer Equipment - Hardware	\$0	Yes								
1925	Computer Software	\$0	Yes								
1930	Transportation Equipment	\$0	Yes								
1935	Stores Equipment	\$0	Yes								
1940	Tools, Shop and Garage Equipment	\$0	Yes								
1945	Measurement and Testing Equipment	\$0	Yes								
1950	Power Operated Equipment	\$0	Yes								
1955	Communication Equipment	\$0	Yes								
1960	Miscellaneous Equipment	\$0	Yes								
1970	Load Management Controls - Customer Premises	\$0	Yes								
1975	Load Management Controls - Utility Premises	\$0	Yes								
1980	System Supervisory Equipment	\$0	Yes								
1990	Other Tangible Property	\$0	Yes								
2005	Property Under Capital Leases	\$0	Yes								
2010	Electric Plant Purchased or Sold	\$0	Yes								
2050	Completed Construction Not Classified-- Electric	\$0	Yes								
2105	Accum. Amortization of Electric Utility Plant - Property, Plant, & Equipment	(\$25,397,087)	Yes			-888,898	-4,063,534	-20,444,655			

USoA Account #	Accounts	Direct Allocation	Total Allocated to Rate Classifications?	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Sentinel	Metered Scattered L
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**Instructions:**  
To Allocate Capital Contributions by Rate Classification, Input Allocation on  
Next Line

1995	Contributions and Grants - Credit	\$0	Yes								
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**Instructions:**  
The Following is Used to Allocate Directly Allocated Costs from I3 to Rate  
Classifications

2120	Accumulated Amortization of Electric Utility Plant - Intangibles	\$0	Yes								
	Directly Allocated Net Fixed Assets			\$0	\$0	\$797,438	\$3,645,431	\$18,341,077	\$0	\$0	\$0



USoA Account #	Accounts	Direct Allocation	Total Allocated to Rate Classifications?	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Sentinel	Metered Scattered L
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**Instructions:**  
To Allocate Capital Contributions by Rate Classification, Input Allocation on Next Line

1995	Contributions and Grants - Credit	\$0	Yes								
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**Instructions:**  
The Following is Used to Allocate Directly Allocated Costs from I3 to Rate Classifications

5005	Operation Supervision and Engineering	\$0	Yes								
5010	Load Dispatching	\$0	Yes								
5012	Station Buildings and Fixtures Expense	\$0	Yes								
5014	Transformer Station Equipment - Operation Labour	\$0	Yes								
5015	Transformer Station Equipment - Operation Supplies and Expenses	\$0	Yes								
5016	Distribution Station Equipment - Operation Labour	\$0	Yes								
5017	Distribution Station Equipment - Operation Supplies and Expenses	\$0	Yes								
5020	Overhead Distribution Lines and Feeders - Operation Labour	\$0	Yes								
5025	Overhead Distribution Lines & Feeders - Operation Supplies and Expenses	\$0	Yes								
5030	Overhead Subtransmission Feeders - Operation	\$0	Yes								
5035	Overhead Distribution Transformers- Operation	\$0	Yes								
5040	Underground Distribution Lines and Feeders - Operation Labour	\$42,390	Yes			\$1,484	\$6,782	\$34,124			
5045	Underground Distribution Lines & Feeders - Operation Supplies & Expenses	\$205,536	Yes			\$7,194	\$32,886	\$165,456			
5050	Underground Subtransmission Feeders - Operation	\$0	Yes								
5055	Underground Distribution Transformers - Operation	\$0	Yes								
5065	Meter Expense	\$0	Yes								
5070	Customer Premises - Operation Labour	\$0	Yes								
5075	Customer Premises - Materials and Expenses	\$0	Yes								
5085	Miscellaneous Distribution Expense	\$0	Yes								
5090	Underground Distribution Lines and Feeders - Rental Paid	\$0	Yes								
5095	Overhead Distribution Lines and Feeders - Rental Paid	\$0	Yes								
5096	Other Rent	\$0	Yes								

USoA Account #	Accounts	Direct Allocation	Total Allocated to Rate Classifications?	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Sentinel	Metered Scattered L
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**Instructions:**  
To Allocate Capital Contributions by Rate Classification, Input Allocation on Next Line

1995	Contributions and Grants - Credit	\$0	Yes								
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**Instructions:**  
The Following is Used to Allocate Directly Allocated Costs from I3 to Rate Classifications

5105	Maintenance Supervision and Engineering	\$0	Yes								
5110	Maintenance of Buildings and Fixtures - Distribution Stations	\$0	Yes								
5112	Maintenance of Transformer Station Equipment	\$0	Yes								
5114	Maintenance of Distribution Station Equipment	\$0	Yes								
5120	Maintenance of Poles, Towers and Fixtures	\$0	Yes								
5125	Maintenance of Overhead Conductors and Devices	\$0	Yes								
5130	Maintenance of Overhead Services	\$0	Yes								
5135	Overhead Distribution Lines and Feeders - Right of Way	\$0	Yes								
5145	Maintenance of Underground Conduit	\$0	Yes								
5150	Maintenance of Underground Conductors and Devices	\$247,732	Yes			\$8,671	\$39,637	\$199,424			
5155	Maintenance of Underground Services	\$0	Yes								
5160	Maintenance of Line Transformers	\$0	Yes								
5175	Maintenance of Meters	\$0	Yes								
5305	Supervision	\$0	Yes								
5310	Meter Reading Expense	\$0	Yes								
5315	Customer Billing	\$0	Yes								
5320	Collecting	\$0	Yes								
5325	Collecting- Cash Over and Short	\$0	Yes								
5330	Collection Charges	\$0	Yes								
5335	Bad Debt Expense	\$0	Yes								
5340	Miscellaneous Customer Accounts Expenses	\$0	Yes								
5405	Supervision	\$0	Yes								
5410	Community Relations - Sundry	\$0	Yes								
5415	Energy Conservation	\$0	Yes								
5420	Community Safety Program	\$0	Yes								
5425	Miscellaneous Customer Service and Informational Expenses	\$0	Yes								
5505	Supervision	\$0	Yes								
5510	Demonstrating and Selling Expense	\$0	Yes								
5515	Advertising Expense	\$0	Yes								
5520	Miscellaneous Sales Expense	\$0	Yes								
5605	Executive Salaries and Expenses	\$0	Yes								
5610	Management Salaries and Expenses	\$0	Yes								

[illegible]

5615	General Administrative Salaries and Expenses	\$0	Yes								
5620	Office Supplies and Expenses	\$0	Yes								
5625	Administrative Expense Transferred Credit	\$0	Yes								
5630	Outside Services Employed	\$0	Yes								
5635	Property Insurance	\$0	Yes								
5640	Injuries and Damages	\$0	Yes								
5645	Employee Pensions and Benefits	\$0	Yes								
5650	Franchise Requirements	\$0	Yes								
5655	Regulatory Expenses	\$0	Yes								
5660	General Advertising Expenses	\$0	Yes								
5665	Miscellaneous General Expenses	\$0	Yes								
5670	Rent	\$0	Yes								
5675	Maintenance of General Plant	\$0	Yes								
5680	Electrical Safety Authority Fees	\$0	Yes								
5705	Amortization Expense - Property, Plant, and Equipment	\$1,304,933	Yes			\$45,673	\$208,789	\$1,050,471			
5710	Amortization of Limited Term Electric Plant	\$0	Yes								
5715	Amortization of Intangibles and Other Electric Plant	\$0	Yes								
5720	Amortization of Electric Plant Acquisition Adjustments	\$0	Yes								
6105	Taxes Other Than Income Taxes	\$0	Yes								
6205	Donations	\$0	Yes								
6210	Life Insurance	\$0	Yes								
6215	Penalties	\$0	Yes								
6225	Other Deductions	\$0	Yes								
	Total Expenses			\$0	\$0	\$63,022	\$288,094	\$1,449,475	\$0	\$0	\$0
	Depreciation Expense			\$0	\$0	\$45,673	\$208,789	\$1,050,471	\$0	\$0	\$0

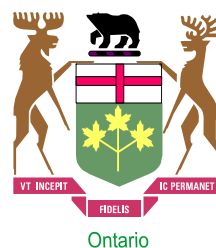
Total Net Fixed Assets Excluding Gen Plant	\$3,995,439,385	Allocated	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Sentinel	metered Scattered L
Approved Total PILs	\$11,791,223	\$67,239	\$0	\$0	\$2,353	\$10,758	\$54,128	\$0	\$0	\$0
Approved Total Return on Debt	\$71,373,746	\$407,008	\$0	\$0	\$14,245	\$65,121	\$327,641	\$0	\$0	\$0
Approved Total Return on Equity	\$88,068,069	\$502,207	\$0	\$0	\$17,577	\$80,353	\$404,277	\$0	\$0	\$0
		Total	\$0	\$0	\$97,198	\$444,327	\$2,235,521	\$0	\$0	\$0

2011 COST  
Toronto Hydro-Electric System Limited

NOTE: In the OEB's new model, the new revenue requirement is derived by a deficiency factor change between the new revenue requirement over the existing revenue.

Sheet O1 Revenue to Cost Summary Worksheet - First Run

			1	2	3	5	6	7	9	
		Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	
Rate Base Assets										
	crev	Distribution Revenue (sale)	\$522,044,344	\$214,055,884	\$67,475,771	\$155,345,275	\$46,693,792	\$22,927,757	\$11,938,817	\$3,607,047
	mi	Miscellaneous Revenue (mi)	\$26,021,082	\$13,676,327	\$4,911,823	\$5,324,001	\$1,061,581	\$413,377	\$424,201	\$209,773
Total Revenue		\$548,065,425	\$227,732,211	\$72,387,594	\$160,669,276	\$47,755,372	\$23,341,134	\$12,363,018	\$3,816,820	
Expenses										
	di	Distribution Costs (di)	\$110,399,283	\$45,426,198	\$13,775,384	\$32,001,881	\$10,068,764	\$4,945,622	\$3,352,705	\$828,729
	cu	Customer Related Costs (cu)	\$46,963,922	\$28,735,924	\$10,149,339	\$6,553,183	\$534,258	\$82,310	\$506,190	\$402,718
	ad	General and Administration (ad)	\$80,157,742	\$37,822,164	\$11,834,134	\$19,695,670	\$5,429,842	\$2,566,267	\$2,160,623	\$649,041
	dep	Depreciation and Amortization (dep)	\$137,510,848	\$64,048,381	\$17,081,095	\$35,822,493	\$10,077,498	\$4,633,572	\$4,705,009	\$1,142,801
INPUT	PILs (INPUT)	\$11,723,984	\$5,564,408	\$1,476,383	\$2,911,931	\$822,085	\$383,727	\$454,960	\$110,490	
INT	Interest	\$70,966,738	\$33,682,058	\$8,936,730	\$17,626,282	\$4,976,184	\$2,322,747	\$2,753,928	\$668,809	
Total Expenses		\$457,722,518	\$215,279,134	\$63,253,065	\$114,611,439	\$31,908,632	\$14,934,245	\$13,933,415	\$3,802,588	
Direct Allocation		\$2,777,045	\$0	\$0	\$97,198	\$444,327	\$2,235,521	\$0	\$0	
NI	Allocated Net Income (NI)	\$87,565,862	\$41,560,293	\$11,027,032	\$21,749,070	\$6,140,114	\$2,866,037	\$3,398,072	\$825,244	
Revenue Requirement (includes NI)		\$548,065,426	\$256,839,427	\$74,280,097	\$136,457,707	\$38,493,073	\$20,035,803	\$17,331,487	\$4,627,832	
Revenue Requirement Input equals Output										
Rate Base Calculation										
Net Assets										
dp	Distribution Plant - Gross	\$3,995,439,385	\$1,915,714,315	\$506,857,430	\$986,668,949	\$268,115,874	\$123,461,316	\$156,656,621	\$37,964,881	
gp	General Plant - Gross	\$590,822,817	\$280,402,259	\$74,731,793	\$147,650,045	\$40,690,965	\$18,863,484	\$22,921,774	\$5,562,497	
accum dep	Accumulated Depreciation	(\$2,331,148,118)	(\$1,125,848,018)	(\$296,345,128)	(\$570,752,918)	(\$153,493,324)	(\$70,324,690)	(\$92,088,179)	(\$22,295,861)	
co	Capital Contribution	(\$276,410,062)	(\$131,145,426)	(\$35,951,552)	(\$71,786,006)	(\$16,829,045)	(\$7,405,537)	(\$10,706,830)	(\$2,585,667)	
Total Net Plant		\$1,978,704,022	\$939,123,130	\$249,292,542	\$491,780,070	\$138,484,470	\$64,594,574	\$76,783,386	\$18,645,849	
Directly Allocated Net Fixed Assets		\$22,783,946	\$0	\$0	\$797,438	\$3,645,431	\$18,341,077	\$0	\$0	
COP	Cost of Power (COP)	\$2,241,936,161	\$453,842,541	\$194,697,933	\$922,156,646	\$421,093,701	\$235,001,694	\$10,026,046	\$5,117,600	
	OM&A Expenses	\$237,520,948	\$111,984,287	\$35,758,857	\$58,250,734	\$16,032,864	\$7,594,199	\$6,019,518	\$1,880,488	
	Directly Allocated Expenses	\$495,658	\$0	\$0	\$17,349	\$79,305	\$399,004	\$0	\$0	
Subtotal		\$2,479,952,766	\$565,826,828	\$230,456,790	\$980,424,729	\$437,205,871	\$242,994,898	\$16,045,563	\$6,998,088	
0.119655228	Working Capital	\$296,739,314	\$67,704,138	\$27,575,360	\$117,312,945	\$52,313,968	\$29,075,610	\$1,919,936	\$837,358	
Total Rate Base		\$2,298,227,282	\$1,006,827,269	\$276,867,902	\$609,890,453	\$194,443,869	\$112,011,261	\$78,703,322	\$19,483,207	
Rate Base Input equals Output										
Equity Component of Rate Base		\$919,290,913	\$402,730,907	\$110,747,161	\$243,956,181	\$77,777,548	\$44,804,504	\$31,481,329	\$7,793,283	
Net Income on Allocated Assets		\$87,565,862	\$12,453,078	\$9,134,529	\$45,960,639	\$15,402,414	\$6,171,368	(\$1,570,397)	\$14,232	
Net Income on Direct Allocation Assets		\$502,207	\$0	\$0	\$17,577	\$80,353	\$404,277	\$0	\$0	
Net Income		\$88,068,069	\$12,453,078	\$9,134,529	\$45,978,216	\$15,482,767	\$6,575,645	(\$1,570,397)	\$14,232	
RATIOS ANALYSIS										
REVENUE TO EXPENSES %		100.0%	88.7%	97.5%	117.7%	124.1%	116.5%	71.3%	82.5%	
EXISTING REVENUE MINUS ALLOCATED COSTS		\$396	(\$29,106,819)	(\$1,892,503)	\$24,211,569	\$9,262,300	\$3,305,331	(\$4,968,469)	(\$811,012)	
RETURN ON EQUITY COMPONENT OF RATE BASE		9.58%	3.09%	8.25%	18.85%	19.91%	14.68%	-4.99%	0.18%	



## 2011 COST ALLOCATION INFORMATION FILING Toronto Hydro-Electric System Limited

### Sheet 02 Monthly Fixed Charge Min. & Max. Worksheet - First Run

Output sheet showing minimum and maximum level for  
Monthly Fixed Charge

#### Summary

	1	2	3	5	6	7	9
	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
Customer Unit Cost per month - Avoided Cost	\$4.35	\$11.11	\$45.74	\$134.46	\$269.34	\$0.47	\$1.42
Customer Unit Cost per month - Directly Related	\$6.29	\$16.75	\$67.42	\$189.07	\$379.56	\$0.73	\$2.23
Customer Unit Cost per month - Minimum System with PLCC Adjustment	\$19.37	\$34.76	\$88.23	\$244.70	\$552.93	\$15.96	\$17.09
Fixed Charge per approved 2009 EDR	\$18.25	\$24.30	\$35.49	\$659.80	\$2,874.02	\$1.32	\$4.92

#### Information to be Used to Allocate PILs, ROD, ROE and A&G

	Total	1 Residential	2 GS <50	3 GS>50<1000	5 GS > 1000 < 5000	6 Large Use >5MW	7 Street Light	9 Unmetered Scattered Load
General Plant - Gross Assets	\$590,822,817	\$280,402,259	\$74,731,793	\$147,650,045	\$40,690,965	\$18,863,484	\$22,921,774	\$5,562,497
General Plant - Accumulated Depreciation	(\$380,800,875)	(\$180,726,645)	(\$48,166,610)	(\$95,164,345)	(\$26,226,399)	(\$12,158,012)	(\$14,773,687)	(\$3,585,176)
General Plant - Net Fixed Assets	\$210,021,942	\$99,675,614	\$26,565,183	\$52,485,700	\$14,464,566	\$6,705,471	\$8,148,087	\$1,977,321
General Plant - Depreciation	\$41,614,054	\$19,749,871	\$5,263,664	\$10,399,593	\$2,866,030	\$1,328,632	\$1,614,474	\$391,789
Total Net Fixed Assets Excluding General Plant	\$1,768,682,079	\$839,447,516	\$222,727,359	\$439,294,370	\$124,019,904	\$57,889,102	\$68,635,299	\$16,668,528
Total Administration and General Expense	\$80,157,742	\$37,822,164	\$11,834,134	\$19,695,670	\$5,429,842	\$2,566,267	\$2,160,623	\$649,041
Total O&M	\$157,363,206	\$74,162,123	\$23,924,723	\$38,555,064	\$10,603,022	\$5,027,932	\$3,858,895	\$1,231,447



## Scenario 1

Accounts included in Avoided Costs Plus General Administration Allocation

			1	2	3	5	6	7	9
USoA Account #	Accounts	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
1860	<b><u>Distribution Plant</u></b> Meters	\$220,804,236	\$149,459,514	\$27,053,994	\$35,363,502	\$7,552,147	\$1,375,079	\$0	\$0
	<b><u>Accumulated Amortization</u></b> Accum. Amortization of Electric Utility Plant - Meters only	(\$121,524,365)	(\$82,258,261)	(\$14,889,748)	(\$19,463,065)	(\$4,156,487)	(\$756,804)	\$0	\$0
	<b>Meter Net Fixed Assets</b>	<b>\$99,279,871</b>	<b>\$67,201,253</b>	<b>\$12,164,246</b>	<b>\$15,900,437</b>	<b>\$3,395,660</b>	<b>\$618,274</b>	<b>\$0</b>	<b>\$0</b>
	<b><u>Misc Revenue</u></b>								
4082	Retail Services Revenues	(\$887,500)	(\$513,063)	(\$216,588)	(\$141,441)	(\$5,922)	(\$1,160)	(\$28)	(\$9,297)
4084	Service Transaction Requests (STR) Revenues	(\$30,000)	(\$17,343)	(\$7,321)	(\$4,781)	(\$200)	(\$39)	(\$1)	(\$314)
4090	Electric Services Incidental to Energy Sales	(\$1,700,000)	(\$982,769)	(\$414,872)	(\$270,929)	(\$11,344)	(\$2,223)	(\$54)	(\$17,809)
4220	Other Electric Revenues	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4225	Late Payment Charges	(\$4,900,000)	(\$2,596,580)	(\$1,047,547)	(\$985,738)	(\$227,605)	(\$42,530)	\$0	\$0
	<b>Sub-total</b>	<b>(\$7,517,500)</b>	<b>(\$4,109,755)</b>	<b>(\$1,686,328)</b>	<b>(\$1,402,890)</b>	<b>(\$245,072)</b>	<b>(\$45,952)</b>	<b>(\$83)</b>	<b>(\$27,420)</b>
	<b><u>Operation</u></b>								
5065	Meter Expense	\$7,549,277	\$5,110,007	\$924,974	\$1,209,075	\$258,207	\$47,014	\$0	\$0
5070	Customer Premises - Operation Labour	\$3,537,466	\$2,706,513	\$285,636	\$56,728	\$2,232	\$204	\$391,586	\$94,567
5075	Customer Premises - Materials and Expenses	\$1,027,668	\$786,268	\$82,980	\$16,480	\$648	\$59	\$113,759	\$27,473
	<b>Sub-total</b>	<b>\$12,114,411</b>	<b>\$8,602,789</b>	<b>\$1,293,590</b>	<b>\$1,282,283</b>	<b>\$261,087</b>	<b>\$47,277</b>	<b>\$505,345</b>	<b>\$122,039</b>
	<b><u>Maintenance</u></b>								
5175	Maintenance of Meters	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	<b><u>Billing and Collection</u></b>								
5310	Meter Reading Expense	\$671,121	\$153,884	\$422,007	\$95,231	\$0	\$0	\$0	\$0
5315	Customer Billing	\$11,813,305	\$6,829,265	\$2,882,950	\$1,882,689	\$78,830	\$15,446	\$372	\$123,752
5320	Collecting	\$14,661,468	\$8,475,787	\$3,578,023	\$2,336,601	\$97,836	\$19,170	\$462	\$153,589
5325	Collecting- Cash Over and Short	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5330	Collection Charges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	<b>Sub-total</b>	<b>\$27,145,895</b>	<b>\$15,458,936</b>	<b>\$6,882,979</b>	<b>\$4,314,521</b>	<b>\$176,667</b>	<b>\$34,616</b>	<b>\$835</b>	<b>\$277,341</b>
	<b>Total Operation, Maintenance and Billing</b>	<b>\$39,260,305</b>	<b>\$24,061,725</b>	<b>\$8,176,569</b>	<b>\$5,596,804</b>	<b>\$437,754</b>	<b>\$81,894</b>	<b>\$506,180</b>	<b>\$399,380</b>
	<b>Amortization Expense - Meters</b>	<b>\$10,056,590</b>	<b>\$6,807,175</b>	<b>\$1,232,182</b>	<b>\$1,610,640</b>	<b>\$343,965</b>	<b>\$62,628</b>	<b>\$0</b>	<b>\$0</b>
	<b>Allocated PILs</b>	<b>\$588,195</b>	<b>\$398,175</b>	<b>\$72,040</b>	<b>\$94,150</b>	<b>\$20,158</b>	<b>\$3,673</b>	<b>\$0</b>	<b>\$0</b>
	<b>Allocated Debt Return</b>	<b>\$3,560,420</b>	<b>\$2,410,202</b>	<b>\$436,068</b>	<b>\$569,900</b>	<b>\$122,017</b>	<b>\$22,232</b>	<b>\$0</b>	<b>\$0</b>
	<b>Allocated Equity Return</b>	<b>\$4,393,202</b>	<b>\$2,973,948</b>	<b>\$538,065</b>	<b>\$703,200</b>	<b>\$150,557</b>	<b>\$27,433</b>	<b>\$0</b>	<b>\$0</b>
	<b>Total</b>	<b>\$50,341,212</b>	<b>\$32,541,470</b>	<b>\$8,768,595</b>	<b>\$7,171,805</b>	<b>\$829,378</b>	<b>\$151,907</b>	<b>\$506,097</b>	<b>\$371,960</b>

## Scenario 2

Accounts included in Directly Related Customer Costs Plus General Administration Allocation

USoA Account #	Accounts	Total	1	2	3	5	6	7	9
			Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
1860	<b>Distribution Plant</b>								
	Meters	\$220,804,236	\$149,459,514	\$27,053,994	\$35,363,502	\$7,552,147	\$1,375,079	\$0	\$0
	<b>Accumulated Amortization</b>								
	Accum. Amortization of Electric Utility Plant - Meters only	(\$121,524,365)	(\$82,258,261)	(\$14,889,748)	(\$19,463,065)	(\$4,156,487)	(\$756,804)	\$0	\$0
	<b>Meter Net Fixed Assets</b>	\$99,279,871	\$67,201,253	\$12,164,246	\$15,900,437	\$3,395,660	\$618,274	\$0	\$0
	<b>Allocated General Plant Net Fixed Assets</b>	\$11,797,699	\$7,979,446	\$1,450,856	\$1,899,741	\$396,039	\$71,617	\$0	\$0
	<b>Meter Net Fixed Assets Including General Plant</b>	\$111,077,570	\$75,180,698	\$13,615,102	\$17,800,179	\$3,791,700	\$689,891	\$0	\$0
	<b>Misc Revenue</b>								
4082	Retail Services Revenues	(\$887,500)	(\$513,063)	(\$216,588)	(\$141,441)	(\$5,922)	(\$1,160)	(\$28)	(\$9,297)
4084	Service Transaction Requests (STR) Revenues	(\$30,000)	(\$17,343)	(\$7,321)	(\$4,781)	(\$200)	(\$39)	(\$1)	(\$314)
4090	Electric Services Incidental to Energy Sales	(\$1,700,000)	(\$982,769)	(\$414,872)	(\$270,929)	(\$11,344)	(\$2,223)	(\$54)	(\$17,809)
4220	Other Electric Revenues	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4225	Late Payment Charges	(\$4,900,000)	(\$2,596,580)	(\$1,047,547)	(\$985,738)	(\$227,605)	(\$42,530)	\$0	\$0
	<b>Sub-total</b>	(\$7,517,500)	(\$4,109,755)	(\$1,686,328)	(\$1,402,890)	(\$245,072)	(\$45,952)	(\$83)	(\$27,420)
	<b>Operation</b>								
5065	Meter Expense	\$7,549,277	\$5,110,007	\$924,974	\$1,209,075	\$258,207	\$47,014	\$0	\$0
5070	Customer Premises - Operation Labour	\$3,537,466	\$2,706,513	\$285,636	\$56,728	\$2,232	\$204	\$391,586	\$94,567
5075	Customer Premises - Materials and Expenses	\$1,027,668	\$786,268	\$82,980	\$16,480	\$648	\$59	\$113,759	\$27,473
	<b>Sub-total</b>	\$12,114,411	\$8,602,789	\$1,293,590	\$1,282,283	\$261,087	\$47,277	\$505,345	\$122,039
	<b>Maintenance</b>								
5175	Maintenance of Meters	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	<b>Billing and Collection</b>								
5310	Meter Reading Expense	\$671,121	\$153,884	\$422,007	\$95,231	\$0	\$0	\$0	\$0
5315	Customer Billing	\$11,813,305	\$6,829,265	\$2,882,950	\$1,882,689	\$78,830	\$15,446	\$372	\$123,752
5320	Collecting	\$14,661,468	\$8,475,787	\$3,578,023	\$2,336,601	\$97,836	\$19,170	\$462	\$153,589
5325	Collecting- Cash Over and Short	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5330	Collection Charges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	<b>Sub-total</b>	\$27,145,895	\$15,458,936	\$6,882,979	\$4,314,521	\$176,667	\$34,616	\$835	\$277,341
	<b>Total Operation, Maintenance and Billing</b>	\$39,260,305	\$24,061,725	\$8,176,569	\$5,596,804	\$437,754	\$81,894	\$506,180	\$399,380
	<b>Amortization Expense - Meters</b>	\$10,056,590	\$6,807,175	\$1,232,182	\$1,610,640	\$343,965	\$62,628	\$0	\$0
	<b>Amortization Expense - General Plant assigned to Meters</b>	\$2,337,613	\$1,581,059	\$287,475	\$376,417	\$78,472	\$14,190	\$0	\$0

<b>Admin and General</b>	<b>\$19,934,756</b>	\$12,271,312	\$4,044,461	<b>\$2,859,101</b>	\$224,175	\$41,799	\$283,414	\$210,496
<b>Allocated PILs</b>	<b>\$658,092</b>	\$445,454	\$80,633	<b>\$105,399</b>	\$22,509	\$4,098	\$0	\$0
<b>Allocated Debt Return</b>	<b>\$3,983,513</b>	\$2,696,388	\$488,079	<b>\$637,990</b>	\$136,248	\$24,808	\$0	\$0
<b>Allocated Equity Return</b>	<b>\$4,915,257</b>	\$3,327,074	\$602,241	<b>\$787,216</b>	\$168,116	\$30,610	\$0	\$0
<b>Total</b>	<b>\$73,628,627</b>	<b>\$47,080,431</b>	<b>\$13,225,310</b>	<b>\$10,570,678</b>	<b>\$1,166,166</b>	<b>\$214,075</b>	<b>\$789,511</b>	<b>\$582,456</b>



## Scenario 3

### Minimum System Customer Costs Adjusted for PLCC - High Limit Fixed Customer Charge

			1	2	3	5	6	7	9
USoA Account #	Accounts	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
<b>Distribution Plant</b>									
1565	Conservation and Demand Management								
	Expenditures and Recoveries	\$15,702,253	\$7,400,157	\$2,387,293	\$3,847,160	\$1,058,007	\$501,705	\$385,054	\$122,878
1830	Poles, Towers and Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Poles, Towers and Fixtures - Subtransmission Bulk								
1830-3	Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1830-4	Poles, Towers and Fixtures - Primary	\$68,540,620	\$52,440,391	\$5,534,380	\$1,099,147	\$43,237	\$3,954	\$7,587,220	\$1,832,291
1830-5	Poles, Towers and Fixtures - Secondary	\$61,344,959	\$47,545,138	\$5,017,752	\$240,989	\$846	\$24	\$6,878,961	\$1,661,249
1835	Overhead Conductors and Devices	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Overhead Conductors and Devices -								
1835-3	Subtransmission Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1835-4	Overhead Conductors and Devices - Primary	\$57,564,116	\$44,042,274	\$4,648,071	\$923,123	\$36,313	\$3,320	\$6,372,157	\$1,538,857
1835-5	Overhead Conductors and Devices - Secondary	\$51,520,811	\$39,930,976	\$4,214,179	\$202,396	\$710	\$20	\$5,777,323	\$1,395,206
1840	Underground Conduit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1840-3	Underground Conduit - Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1840-4	Underground Conduit - Primary	\$290,140,340	\$221,986,216	\$23,427,669	\$4,652,816	\$183,028	\$16,736	\$32,117,576	\$7,756,299
1840-5	Underground Conduit - Secondary	\$104,501,036	\$80,993,064	\$8,547,732	\$410,524	\$1,441	\$41	\$11,718,299	\$2,829,934
1845	Underground Conductors and Devices	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Underground Conductors and Devices - Bulk								
1845-3	Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1845-4	Underground Conductors and Devices - Primary	\$139,821,657	\$106,977,474	\$11,290,038	\$2,242,240	\$88,203	\$8,065	\$15,477,795	\$3,737,841
1845-5	Underground Conductors and Devices - Secondary	\$50,360,140	\$39,031,403	\$4,119,241	\$197,836	\$694	\$20	\$5,647,171	\$1,363,775
1850	Line Transformers	\$211,767,270	\$162,617,958	\$17,162,145	\$2,747,504	\$28,923	\$783	\$23,528,014	\$5,681,945
1855	Services	\$408,275,022	\$283,385,726	\$59,815,127	\$14,116,761	\$50,402	\$4,353	\$41,001,027	\$9,901,625
1860	Meters	\$220,804,236	\$149,459,514	\$27,053,994	\$35,363,502	\$7,552,147	\$1,375,079	\$0	\$0
<b>Sub-total</b>		<b>\$1,680,342,461</b>	<b>\$1,235,810,291</b>	<b>\$173,217,621</b>	<b>\$66,043,998</b>	<b>\$9,043,951</b>	<b>\$1,914,101</b>	<b>\$156,490,598</b>	<b>\$37,821,901</b>
<b>Accumulated Amortization</b>									
	Accum. Amortization of Electric Utility Plant -Line								
	Transformers, Services and Meters	(\$939,572,021)	(\$692,582,858)	(\$95,615,113)	(\$36,074,037)	(\$4,991,118)	(\$1,062,848)	(\$87,984,140)	(\$21,261,906)
	<b>Customer Related Net Fixed Assets</b>	<b>\$740,770,440</b>	<b>\$543,227,433</b>	<b>\$77,602,508</b>	<b>\$29,969,961</b>	<b>\$4,052,832</b>	<b>\$851,253</b>	<b>\$68,506,458</b>	<b>\$16,559,995</b>
	<b>Allocated General Plant Net Fixed Assets</b>	<b>\$88,007,655</b>	<b>\$64,502,577</b>	<b>\$9,255,822</b>	<b>\$3,580,730</b>	<b>\$472,686</b>	<b>\$98,603</b>	<b>\$8,132,791</b>	<b>\$1,964,446</b>
	<b>Customer Related NFA Including General Plant</b>	<b>\$828,778,095</b>	<b>\$607,730,010</b>	<b>\$86,858,331</b>	<b>\$33,550,691</b>	<b>\$4,525,518</b>	<b>\$949,856</b>	<b>\$76,639,249</b>	<b>\$18,524,441</b>
<b>Misc Revenue</b>									
4082	Retail Services Revenues	(\$887,500)	(\$513,063)	(\$216,588)	(\$141,441)	(\$5,922)	(\$1,160)	(\$28)	(\$9,297)
4084	Service Transaction Requests (STR) Revenues	(\$30,000)	(\$17,343)	(\$7,321)	(\$4,781)	(\$200)	(\$39)	(\$1)	(\$314)
4090	Electric Services Incidental to Energy Sales	(\$1,700,000)	(\$982,769)	(\$414,872)	(\$270,929)	(\$11,344)	(\$2,223)	(\$54)	(\$17,809)
4220	Other Electric Revenues	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4225	Late Payment Charges	(\$4,900,000)	(\$2,596,580)	(\$1,047,547)	(\$985,738)	(\$227,605)	(\$42,530)	\$0	\$0
4235	Miscellaneous Service Revenues	(\$7,580,526)	(\$4,382,298)	(\$1,849,971)	(\$1,208,110)	(\$50,585)	(\$9,912)	(\$239)	(\$79,411)

<i>Sub-total</i>		<i>(\$15,098,026)</i>	<i>(\$8,492,053)</i>	<i>(\$3,536,300)</i>	<i>(\$2,610,999)</i>	<i>(\$295,657)</i>	<i>(\$55,864)</i>	<i>(\$322)</i>	<i>(\$106,831)</i>
<b>Operating and Maintenance</b>									
5005	Operation Supervision and Engineering	\$13,446,921	\$10,019,563	\$1,338,397	\$271,090	\$14,167	\$5,556	\$1,448,318	\$349,829
5010	Load Dispatching	\$3,241,451	\$2,415,268	\$322,628	\$65,348	\$3,415	\$1,339	\$349,125	\$84,328
5020	Overhead Distribution Lines and Feeders - Operation Labour	\$309,398	\$238,174	\$25,136	\$3,192	\$105	\$9	\$34,460	\$8,322
5025	Overhead Distribution Lines & Feeders - Operation Supplies and Expenses	\$519,754	\$400,105	\$42,226	\$5,363	\$176	\$16	\$57,888	\$13,980
5035	Overhead Distribution Transformers- Operation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5040	Underground Distribution Lines and Feeders - Operation Labour	\$462,877	\$355,366	\$37,504	\$5,939	\$216	\$20	\$51,415	\$12,417
5045	Underground Distribution Lines & Feeders - Operation Supplies & Expenses	\$2,061,238	\$1,582,481	\$167,010	\$26,446	\$963	\$88	\$228,958	\$55,293
5055	Underground Distribution Transformers - Operation	\$545,308	\$418,747	\$44,193	\$7,075	\$74	\$2	\$60,585	\$14,631
5065	Meter Expense	\$7,549,277	\$5,110,007	\$924,974	\$1,209,075	\$258,207	\$47,014	\$0	\$0
5070	Customer Premises - Operation Labour	\$3,537,466	\$2,706,513	\$285,636	\$56,728	\$2,232	\$204	\$391,586	\$94,567
5075	Customer Premises - Materials and Expenses	\$1,027,668	\$786,268	\$82,980	\$16,480	\$648	\$59	\$113,759	\$27,473
5085	Miscellaneous Distribution Expense	\$1,166,676	\$869,313	\$116,121	\$23,520	\$1,229	\$482	\$125,658	\$30,352
5090	Underground Distribution Lines and Feeders - Rental Paid	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5095	Overhead Distribution Lines and Feeders - Rental Paid	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5096	Other Rent	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5105	Maintenance Supervision and Engineering	\$2,126,344	\$1,584,381	\$211,639	\$42,867	\$2,240	\$879	\$229,021	\$55,318
5120	Maintenance of Poles, Towers and Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5125	Maintenance of Overhead Conductors and Devices	\$2,267,955	\$1,745,865	\$184,253	\$23,400	\$770	\$69	\$252,597	\$61,001
5130	Maintenance of Overhead Services	\$382,481	\$265,482	\$56,036	\$13,225	\$47	\$4	\$38,411	\$9,276
5135	Overhead Distribution Lines and Feeders - Right of Way	\$1,329,759	\$1,023,644	\$108,032	\$13,720	\$451	\$41	\$148,104	\$35,767
5145	Maintenance of Underground Conduit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5150	Maintenance of Underground Conductors and Devices	\$2,705,121	\$2,076,811	\$219,180	\$34,707	\$1,264	\$115	\$300,479	\$72,565
5155	Maintenance of Underground Services	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5160	Maintenance of Line Transformers	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5175	Maintenance of Meters	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<i>Sub-total</i>		<i>\$42,679,693</i>	<i>\$31,597,988</i>	<i>\$4,165,944</i>	<i>\$1,818,176</i>	<i>\$286,207</i>	<i>\$55,898</i>	<i>\$3,830,363</i>	<i>\$925,118</i>
<b>Billing and Collection</b>									
5305	Supervision	\$318,617	\$184,192	\$77,756	\$50,778	\$2,126	\$417	\$10	\$3,338
5310	Meter Reading Expense	\$671,121	\$153,884	\$422,007	\$95,231	\$0	\$0	\$0	\$0
5315	Customer Billing	\$11,813,305	\$6,829,265	\$2,882,950	\$1,882,689	\$78,830	\$15,446	\$372	\$123,752
5320	Collecting	\$14,661,468	\$8,475,787	\$3,578,023	\$2,336,601	\$97,836	\$19,170	\$462	\$153,589
5325	Collecting- Cash Over and Short	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5330	Collection Charges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5335	Bad Debt Expense	\$7,385,000	\$4,490,007	\$1,895,014	\$905,601	\$94,378	\$0	\$0	\$0
5340	Miscellaneous Customer Accounts Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<i>Sub-total</i>		<i>\$34,849,512</i>	<i>\$20,133,136</i>	<i>\$8,855,749</i>	<i>\$5,270,900</i>	<i>\$273,171</i>	<i>\$35,033</i>	<i>\$845</i>	<i>\$280,678</i>
<i>Sub Total Operating, Maintenance and Biling</i>		<i>\$77,529,205</i>	<i>\$51,731,124</i>	<i>\$13,021,693</i>	<i>\$7,089,076</i>	<i>\$559,378</i>	<i>\$90,931</i>	<i>\$3,831,207</i>	<i>\$1,205,796</i>

<b>Amortization Expense - Customer Related</b>	<b>\$39,545,582</b>	<b>\$28,527,387</b>	<b>\$4,076,472</b>	<b>\$2,489,836</b>	<b>\$487,144</b>	<b>\$129,409</b>	<b>\$3,087,310</b>	<b>\$748,023</b>
<b>Amortization Expense - General Plant assigned to Meters</b>	<b>\$17,437,965</b>	<b>\$12,780,635</b>	<b>\$1,833,962</b>	<b>\$709,491</b>	<b>\$93,659</b>	<b>\$19,537</b>	<b>\$1,611,443</b>	<b>\$389,238</b>
<b>Admin and General</b>	<b>\$39,558,500</b>	<b>\$26,382,512</b>	<b>\$6,441,055</b>	<b>\$3,621,420</b>	<b>\$286,459</b>	<b>\$46,411</b>	<b>\$2,145,121</b>	<b>\$635,522</b>
<b>Allocated PILs</b>	<b>\$4,910,312</b>	<b>\$3,600,867</b>	<b>\$514,400</b>	<b>\$198,661</b>	<b>\$26,865</b>	<b>\$5,643</b>	<b>\$454,106</b>	<b>\$109,770</b>
<b>Allocated Debt Return</b>	<b>\$29,722,731</b>	<b>\$21,796,500</b>	<b>\$3,113,729</b>	<b>\$1,202,517</b>	<b>\$162,616</b>	<b>\$34,156</b>	<b>\$2,748,758</b>	<b>\$664,455</b>
<b>Allocated Equity Return</b>	<b>\$36,674,880</b>	<b>\$26,894,703</b>	<b>\$3,842,031</b>	<b>\$1,483,786</b>	<b>\$200,652</b>	<b>\$42,145</b>	<b>\$3,391,693</b>	<b>\$819,870</b>
 <b>PLCC Adjustment for Line Transformer</b>	 <b>\$4,239,584</b>	 <b>\$3,776,481</b>	 <b>\$398,568</b>	 <b>\$63,847</b>	 <b>\$671</b>	 <b>\$18</b>	 <b>\$0</b>	 <b>\$0</b>
<b>PLCC Adjustment for Primary Costs</b>	<b>\$7,574,113</b>	<b>\$6,719,994</b>	<b>\$708,294</b>	<b>\$139,867</b>	<b>\$5,461</b>	<b>\$499</b>	<b>\$0</b>	<b>\$0</b>
<b>PLCC Adjustment for Secondary Costs</b>	<b>\$8,727,728</b>	<b>\$7,822,683</b>	<b>\$754,138</b>	<b>\$145,245</b>	<b>\$5,663</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Total</b>	<b>\$209,739,724</b>	<b>\$144,902,517</b>	<b>\$27,446,043</b>	<b>\$13,834,829</b>	<b>\$1,509,322</b>	<b>\$311,851</b>	<b>\$17,269,317</b>	<b>\$4,465,844</b>

Below: Grouping to avoid disclosure

## Scenario 1

Accounts included in Avoided Costs Plus General Administration Allocation

Accounts	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
<b><u>Distribution Plant</u></b>								
CWMC	\$ 220,804,236	\$ 149,459,514	\$ 27,053,994	\$ 35,363,502	\$ 7,552,147	\$ 1,375,079	\$ -	\$ -
<b><u>Accumulated Amortization</u></b>								
Accum. Amortization of Electric Utility Plant - Meters only	\$ (121,524,365)	\$ (82,258,261)	\$ (14,889,748)	\$ (19,463,065)	\$ (4,156,487)	\$ (756,804)	\$ -	\$ -
<b>Meter Net Fixed Assets</b>	\$ 99,279,871	\$ 67,201,253	\$ 12,164,246	\$ 15,900,437	\$ 3,395,660	\$ 618,274	\$ -	\$ -
<b><u>Misc Revenue</u></b>								
CWNB	\$ (2,617,500)	\$ (1,513,175)	\$ (638,781)	\$ (417,152)	\$ (17,467)	\$ (3,422)	\$ (83)	\$ (27,420)
NFA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
LPHA	\$ (4,900,000)	\$ (2,596,580)	\$ (1,047,547)	\$ (985,738)	\$ (227,605)	\$ (42,530)	\$ -	\$ -
<b>Sub-total</b>	\$ (7,517,500)	\$ (4,109,755)	\$ (1,686,328)	\$ (1,402,890)	\$ (245,072)	\$ (45,952)	\$ (83)	\$ (27,420)
<b><u>Operation</u></b>								
CWMC	\$ 7,549,277	\$ 5,110,007	\$ 924,974	\$ 1,209,075	\$ 258,207	\$ 47,014	\$ -	\$ -
CCA	\$ 4,565,134	\$ 3,492,782	\$ 368,616	\$ 73,208	\$ 2,880	\$ 263	\$ 505,345	\$ 122,039
<b>Sub-total</b>	\$ 12,114,411	\$ 8,602,789	\$ 1,293,590	\$ 1,282,283	\$ 261,087	\$ 47,277	\$ 505,345	\$ 122,039
<b><u>Maintenance</u></b>								
1860	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b><u>Billing and Collection</u></b>								
CWMR	\$ 671,121	\$ 153,884	\$ 422,007	\$ 95,231	\$ -	\$ -	\$ -	\$ -
CWNB	\$ 26,474,773	\$ 15,305,052	\$ 6,460,972	\$ 4,219,290	\$ 176,667	\$ 34,616	\$ 835	\$ 277,341
<b>Sub-total</b>	\$ 27,145,895	\$ 15,458,936	\$ 6,882,979	\$ 4,314,521	\$ 176,667	\$ 34,616	\$ 835	\$ 277,341
<b>Total Operation, Maintenance and Billing</b>	\$ 39,260,305	\$ 24,061,725	\$ 8,176,569	\$ 5,596,804	\$ 437,754	\$ 81,894	\$ 506,180	\$ 399,380
<b>Amortization Expense - Meters</b>	\$ 10,056,590	\$ 6,807,175	\$ 1,232,182	\$ 1,610,640	\$ 343,965	\$ 62,628	\$ -	\$ -
<b>Allocated PILs</b>	\$ 588,195	\$ 398,175	\$ 72,040	\$ 94,150	\$ 20,158	\$ 3,673	\$ -	\$ -
<b>Allocated Debt Return</b>	\$ 3,560,420	\$ 2,410,202	\$ 436,068	\$ 569,900	\$ 122,017	\$ 22,232	\$ -	\$ -
<b>Allocated Equity Return</b>	\$ 4,393,202	\$ 2,973,948	\$ 538,065	\$ 703,200	\$ 150,557	\$ 27,433	\$ -	\$ -
<b>Total</b>	\$ 50,341,212	\$ 32,541,470	\$ 8,768,595	\$ 7,171,805	\$ 829,378	\$ 151,907	\$ 506,097	\$ 371,960

## Scenario 2

Accounts included in Directly Related Customer Costs Plus General Administration Allocation

Accounts	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
<b><u>Distribution Plant</u></b>								
CWMC	\$ 220,804,236	\$ 149,459,514	\$ 27,053,994	\$ 35,363,502	\$ 7,552,147	\$ 1,375,079	\$ -	\$ -
<b><u>Accumulated Amortization</u></b>								
Accum. Amortization of Electric Utility Plant - Meters only	\$ (121,524,365)	\$ (82,258,261)	\$ (14,889,748)	\$ (19,463,065)	\$ (4,156,487)	\$ (756,804)	\$ -	\$ -
<b>Meter Net Fixed Assets</b>	\$ 99,279,871	\$ 67,201,253	\$ 12,164,246	\$ 15,900,437	\$ 3,395,660	\$ 618,274	\$ -	\$ -
<b>Allocated General Plant Net Fixed Assets</b>	\$ 11,797,699	\$ 7,979,446	\$ 1,450,856	\$ 1,899,741	\$ 396,039	\$ 71,617	\$ -	\$ -
<b>Meter Net Fixed Assets Including General Plant</b>	\$ 111,077,570	\$ 75,180,698	\$ 13,615,102	\$ 17,800,179	\$ 3,791,700	\$ 689,891	\$ -	\$ -
<b><u>Misc Revenue</u></b>								
CWNB	\$ (2,617,500)	\$ (1,513,175)	\$ (638,781)	\$ (417,152)	\$ (17,467)	\$ (3,422)	\$ (83)	\$ (27,420)
NFA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
LPHA	\$ (4,900,000)	\$ (2,596,580)	\$ (1,047,547)	\$ (985,738)	\$ (227,605)	\$ (42,530)	\$ -	\$ -
<b>Sub-total</b>	\$ (7,517,500)	\$ (4,109,755)	\$ (1,686,328)	\$ (1,402,890)	\$ (245,072)	\$ (45,952)	\$ (83)	\$ (27,420)
<b><u>Operation</u></b>								
CWMC	\$ 7,549,277	\$ 5,110,007	\$ 924,974	\$ 1,209,075	\$ 258,207	\$ 47,014	\$ -	\$ -
CCA	\$ 4,565,134	\$ 3,492,782	\$ 368,616	\$ 73,208	\$ 2,880	\$ 263	\$ 505,345	\$ 122,039
<b>Sub-total</b>	\$ 12,114,411	\$ 8,602,789	\$ 1,293,590	\$ 1,282,283	\$ 261,087	\$ 47,277	\$ 505,345	\$ 122,039
<b><u>Maintenance</u></b>								
1860	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b><u>Billing and Collection</u></b>								
CWMR	\$ 671,121	\$ 153,884	\$ 422,007	\$ 95,231	\$ -	\$ -	\$ -	\$ -
CWNB	\$ 26,474,773	\$ 15,305,052	\$ 6,460,972	\$ 4,219,290	\$ 176,667	\$ 34,616	\$ 835	\$ 277,341
<b>Sub-total</b>	\$ 27,145,895	\$ 15,458,936	\$ 6,882,979	\$ 4,314,521	\$ 176,667	\$ 34,616	\$ 835	\$ 277,341
<b>Total Operation, Maintenance and Billing</b>	\$ 39,260,305	\$ 24,061,725	\$ 8,176,569	\$ 5,596,804	\$ 437,754	\$ 81,894	\$ 506,180	\$ 399,380
<b>Amortization Expense - Meters</b>	\$ 10,056,590	\$ 6,807,175	\$ 1,232,182	\$ 1,610,640	\$ 343,965	\$ 62,628	\$ -	\$ -
<b>Amortization Expense - General Plant assigned to Meters</b>	\$ 2,337,613	\$ 1,581,059	\$ 287,475	\$ 376,417	\$ 78,472	\$ 14,190	\$ -	\$ -
<b>Admin and General</b>	\$ 19,934,756	\$ 12,271,312	\$ 4,044,461	\$ 2,859,101	\$ 224,175	\$ 41,799	\$ 283,414	\$ 210,496
<b>Allocated PILs</b>	\$ 658,092	\$ 445,454	\$ 80,633	\$ 105,399	\$ 22,509	\$ 4,098	\$ -	\$ -
<b>Allocated Debt Return</b>	\$ 3,983,513	\$ 2,696,388	\$ 488,079	\$ 637,990	\$ 136,248	\$ 24,808	\$ -	\$ -
<b>Allocated Equity Return</b>	\$ 4,915,257	\$ 3,327,074	\$ 602,241	\$ 787,216	\$ 168,116	\$ 30,610	\$ -	\$ -
<b>Total</b>	\$ 73,628,627	\$ 47,080,431	\$ 13,225,310	\$ 10,570,678	\$ 1,166,166	\$ 214,075	\$ 789,511	\$ 582,456



## Scenario 3

### Minimum System Customer Costs Adjusted for PLCC - High Limit Fixed Customer Charge

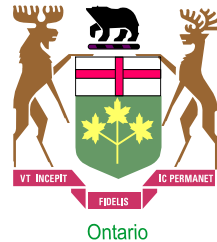
USoA Account #	Accounts	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
<b><u>Distribution Plant</u></b>									
	CDMPP	\$ 15,702,253	\$ 7,400,157	\$ 2,387,293	\$ 3,847,160	\$ 1,058,007	\$ 501,705	\$ 385,054	\$ 122,878
	Poles, Towers and Fixtures	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	BCP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	PNCP	\$ 556,066,733	\$ 425,446,355	\$ 44,900,158	\$ 8,917,326	\$ 350,782	\$ 32,075	\$ 61,554,749	\$ 14,865,288
	SNCP	\$ 267,726,947	\$ 207,500,582	\$ 21,898,904	\$ 1,051,745	\$ 3,691	\$ 106	\$ 30,021,755	\$ 7,250,164
	Overhead Conductors and Devices	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	LTNCP	\$ 211,767,270	\$ 162,617,958	\$ 17,162,145	\$ 2,747,504	\$ 28,923	\$ 783	\$ 23,528,014	\$ 5,681,945
	CWCS	\$ 408,275,022	\$ 283,385,726	\$ 59,815,127	\$ 14,116,761	\$ 50,402	\$ 4,353	\$ 41,001,027	\$ 9,901,625
	CWMC	\$ 220,804,236	\$ 149,459,514	\$ 27,053,994	\$ 35,363,502	\$ 7,552,147	\$ 1,375,079	\$ -	\$ -
	<i>Sub-total</i>	<i>\$ 1,680,342,461</i>	<i>\$ 1,235,810,291</i>	<i>\$ 173,217,621</i>	<i>\$ 66,043,998</i>	<i>\$ 9,043,951</i>	<i>\$ 1,914,101</i>	<i>\$ 156,490,598</i>	<i>\$ 37,821,901</i>
<b><u>Accumulated Amortization</u></b>									
	Accum. Amortization of Electric Utility Plant -Line Transformers, Services and Meters	\$ (939,572,021)	\$ (692,582,858)	\$ (95,615,113)	\$ (36,074,037)	\$ (4,991,118)	\$ (1,062,848)	\$ (87,984,140)	\$ (21,261,906)
	<b>Customer Related Net Fixed Assets</b>	\$ 740,770,440	\$ 543,227,433	\$ 77,602,508	\$ 29,969,961	\$ 4,052,832	\$ 851,253	\$ 68,506,458	\$ 16,559,995
	<b>Allocated General Plant Net Fixed Assets</b>	\$ 88,007,655	\$ 64,502,577	\$ 9,255,822	\$ 3,580,730	\$ 472,686	\$ 98,603	\$ 8,132,791	\$ 1,964,446
	<b>Customer Related NFA Including General Plant</b>	\$ 828,778,095	\$ 607,730,010	\$ 86,858,331	\$ 33,550,691	\$ 4,525,518	\$ 949,856	\$ 76,639,249	\$ 18,524,441
<b><u>Misc Revenue</u></b>									
	CWNB	\$ (10,198,026)	\$ (5,895,473)	\$ (2,488,753)	\$ (1,625,261)	\$ (68,052)	\$ (13,334)	\$ (322)	\$ (106,831)
	NFA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	LPHA	\$ (4,900,000)	\$ (2,596,580)	\$ (1,047,547)	\$ (985,738)	\$ (227,605)	\$ (42,530)	\$ -	\$ -
	<i>Sub-total</i>	<i>\$ (15,098,026)</i>	<i>\$ (8,492,053)</i>	<i>\$ (3,536,300)</i>	<i>\$ (2,610,999)</i>	<i>\$ (295,657)</i>	<i>\$ (55,864)</i>	<i>\$ (322)</i>	<i>\$ (106,831)</i>
<b><u>Operating and Maintenance</u></b>									
	1815-1855	\$ 19,981,392	\$ 14,888,525	\$ 1,988,785	\$ 402,825	\$ 21,051	\$ 8,257	\$ 2,152,121	\$ 519,827
	1830 & 1835	\$ 2,158,911	\$ 1,661,923	\$ 175,394	\$ 22,275	\$ 733	\$ 66	\$ 240,452	\$ 58,068
	1850	\$ 545,308	\$ 418,747	\$ 44,193	\$ 7,075	\$ 74	\$ 2	\$ 60,585	\$ 14,631
	1840 & 1845	\$ 2,524,115	\$ 1,937,847	\$ 204,514	\$ 32,385	\$ 1,180	\$ 107	\$ 280,373	\$ 67,709
	CWMC	\$ 7,549,277	\$ 5,110,007	\$ 924,974	\$ 1,209,075	\$ 258,207	\$ 47,014	\$ -	\$ -
	CCA	\$ 4,565,134	\$ 3,492,782	\$ 368,616	\$ 73,208	\$ 2,880	\$ 263	\$ 505,345	\$ 122,039
	O&M	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	1830	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	1835	\$ 2,267,955	\$ 1,745,865	\$ 184,253	\$ 23,400	\$ 770	\$ 69	\$ 252,597	\$ 61,001
	1855	\$ 382,481	\$ 265,482	\$ 56,036	\$ 13,225	\$ 47	\$ 4	\$ 38,411	\$ 9,276
	1840	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	1845	\$ 2,705,121	\$ 2,076,811	\$ 219,180	\$ 34,707	\$ 1,264	\$ 115	\$ 300,479	\$ 72,565
	1860	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	<i>Sub-total</i>	<i>\$ 42,679,693</i>	<i>\$ 31,597,988</i>	<i>\$ 4,165,944</i>	<i>\$ 1,818,176</i>	<i>\$ 286,207</i>	<i>\$ 55,898</i>	<i>\$ 3,830,363</i>	<i>\$ 925,118</i>
<b><u>Billing and Collection</u></b>									
	CWNB	\$ 26,793,390	\$ 15,489,245	\$ 6,538,728	\$ 4,270,068	\$ 178,793	\$ 35,033	\$ 845	\$ 280,678
	CWMR	\$ 671,121	\$ 153,884	\$ 422,007	\$ 95,231	\$ -	\$ -	\$ -	\$ -

BDHA	\$	7,385,000	\$	4,490,007	\$	1,895,014	\$	905,601	\$	94,378	\$	-	\$	-	\$	-
<b>Sub-total</b>	\$	<b>34,849,512</b>	\$	<b>20,133,136</b>	\$	<b>8,855,749</b>	\$	<b>5,270,900</b>	\$	<b>273,171</b>	\$	<b>35,033</b>	\$	<b>845</b>	\$	<b>280,678</b>
<b>Sub Total Operating, Maintenance and Biling</b>	\$	<b>77,529,205</b>	\$	<b>51,731,124</b>	\$	<b>13,021,693</b>	\$	<b>7,089,076</b>	\$	<b>559,378</b>	\$	<b>90,931</b>	\$	<b>3,831,207</b>	\$	<b>1,205,796</b>
<b>Amortization Expense - Customer Related</b>	\$	<b>39,545,582</b>	\$	<b>28,527,387</b>	\$	<b>4,076,472</b>	\$	<b>2,489,836</b>	\$	<b>487,144</b>	\$	<b>129,409</b>	\$	<b>3,087,310</b>	\$	<b>748,023</b>
<b>Amortization Expense - General Plant assigned to Meters</b>	\$	<b>17,437,965</b>	\$	<b>12,780,635</b>	\$	<b>1,833,962</b>	\$	<b>709,491</b>	\$	<b>93,659</b>	\$	<b>19,537</b>	\$	<b>1,611,443</b>	\$	<b>389,238</b>
<b>Admin and General</b>	\$	<b>39,558,500</b>	\$	<b>26,382,512</b>	\$	<b>6,441,055</b>	\$	<b>3,621,420</b>	\$	<b>286,459</b>	\$	<b>46,411</b>	\$	<b>2,145,121</b>	\$	<b>635,522</b>
<b>Allocated PILs</b>	\$	<b>4,910,312</b>	\$	<b>3,600,867</b>	\$	<b>514,400</b>	\$	<b>198,661</b>	\$	<b>26,865</b>	\$	<b>5,643</b>	\$	<b>454,106</b>	\$	<b>109,770</b>
<b>Allocated Debt Return</b>	\$	<b>29,722,731</b>	\$	<b>21,796,500</b>	\$	<b>3,113,729</b>	\$	<b>1,202,517</b>	\$	<b>162,616</b>	\$	<b>34,156</b>	\$	<b>2,748,758</b>	\$	<b>664,455</b>
<b>Allocated Equity Return</b>	\$	<b>36,674,880</b>	\$	<b>26,894,703</b>	\$	<b>3,842,031</b>	\$	<b>1,483,786</b>	\$	<b>200,652</b>	\$	<b>42,145</b>	\$	<b>3,391,693</b>	\$	<b>819,870</b>
<b>PLCC Adjustment for Line Transformer</b>	\$	<b>4,239,584</b>	\$	<b>3,776,481</b>	\$	<b>398,568</b>	\$	<b>63,847</b>	\$	<b>671</b>	\$	<b>18</b>	\$	<b>-</b>	\$	<b>-</b>
<b>PLCC Adjustment for Primary Costs</b>	\$	<b>7,574,113</b>	\$	<b>6,719,994</b>	\$	<b>708,294</b>	\$	<b>139,867</b>	\$	<b>5,461</b>	\$	<b>499</b>	\$	<b>-</b>	\$	<b>-</b>
<b>PLCC Adjustment for Secondary Costs</b>	\$	<b>8,727,728</b>	\$	<b>7,822,683</b>	\$	<b>754,138</b>	\$	<b>145,245</b>	\$	<b>5,663</b>	\$	<b>-</b>	\$	<b>-</b>	\$	<b>-</b>
<b>Total</b>	\$	<b>209,739,724</b>	\$	<b>144,902,517</b>	\$	<b>27,446,043</b>	\$	<b>13,834,829</b>	\$	<b>1,509,322</b>	\$	<b>311,851</b>	\$	<b>17,269,317</b>	\$	<b>4,465,844</b>

Line Transformers Demand Unit Cost for PLCC  
Adjustment to Customer Related Cost  
Allocation by rate classification

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Description	Total	Residential	GS <50	GS>50<1000	GS> 50 RIMS	GS > 1000 < 5000	Large Use >5MW	Street Light	Sentinel	Unmetered Scattered Load	Embedded Distributor	Back-up/Standby Power	Rate Class 1	Rate class 2	Rate class 3	Rate class 4	Rate class 5	Rate class 6	Rate class 7	Rate class 8	Rate class 9
Depreciation on Acct 1850 Line Transformers	\$12,618,270	\$3,717,333	\$1,828,098	\$6,347,650	\$0	\$645,460	\$79,729	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Depreciation on General Plant Assigned to Line Transformers	\$4,660,765	\$1,369,344	\$676,432	\$2,352,794	\$0	\$233,544	\$28,651	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 5035 - Overhead Distribution Transformers - Operation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 5055 - Underground Distribution Transformers - Operation	\$1,272,385	\$374,844	\$184,339	\$640,076	\$0	\$65,086	\$8,040	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 5160 - Maintenance of Line Transformers	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Allocation of General Expenses	\$8,164,804	\$2,405,345	\$1,182,893	\$4,107,324	\$0	\$417,653	\$51,590	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Admin and General Assigned to Line Transformers	\$646,764	\$191,168	\$91,182	\$326,980	\$0	\$33,331	\$4,103	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
PLIs on Line Transformers	\$1,309,590	\$385,804	\$189,730	\$658,792	\$0	\$66,989	\$8,275	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Debt Return on Line Transformers	\$7,927,115	\$2,335,322	\$1,148,457	\$3,987,753	\$0	\$405,494	\$50,088	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Equity Return on Line Transformers	\$9,781,267	\$2,881,554	\$1,417,082	\$4,920,489	\$0	\$500,339	\$61,804	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$46,380,961	\$13,660,714	\$6,718,213	\$23,341,859	\$0	\$2,367,896	\$292,279	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Line Tranformer NCP	12,247,446	3,608,089	1,774,374	6,161,106	0	626,491	77,386	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLCC Amount	1,262,268	997,450	105,267	16,852	0	177	5	112,216	0	30,300	0	0	0	0	0	0	0	0	0	0	0
Adjustment to Customer Related Cost for PLCC	\$4,239,584	\$3,776,481	\$398,568	\$63,847	\$0	\$671	\$18	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
General Plant - Gross Assets	\$590,822,817	\$280,402,259	\$74,731,793	\$147,650,045	\$0	\$40,690,965	\$18,863,484	\$22,921,774	\$0	\$5,562,497	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
General Plant - Accumulated Depreciation	(\$380,800,875)	(\$180,728,645)	(\$48,166,610)	(\$95,164,345)	\$0	(\$26,226,399)	(\$12,158,012)	(\$14,773,687)	\$0	(\$3,585,176)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
General Plant - Net Fixed Assets	\$210,021,942	\$99,675,614	\$26,565,183	\$52,485,700	\$0	\$14,464,566	\$6,705,471	\$8,148,087	\$0	\$1,977,321	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
General Plant - Depreciation	\$41,614,054	\$19,749,871	\$5,263,664	\$10,399,593	\$0	\$2,866,030	\$1,328,632	\$1,614,474	\$0	\$391,789	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Net Fixed Assets Excluding General Plant	\$1,768,682,079	\$839,447,516	\$222,727,359	\$439,294,370	\$0	\$124,019,904	\$57,889,102	\$68,635,299	\$0	\$16,668,528	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Administration and General Expense	\$80,157,742	\$37,822,164	\$11,834,134	\$19,695,670	\$0	\$5,429,842	\$2,566,267	\$2,160,623	\$0	\$649,041	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total O&M	\$157,363,206	\$74,162,123	\$23,924,723	\$38,555,064	\$0	\$10,603,022	\$5,027,932	\$3,858,895	\$0	\$1,231,447	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Line Transformer Rate Base																					
Acct 1850 - Line Transformers - Gross Assets	\$494,123,630	\$145,568,453	\$71,587,192	\$248,570,027	\$0	\$25,275,806	\$3,122,153	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Line Transformers - Accumulated Depreciation	(\$296,558,602)	(\$87,365,943)	(\$42,964,546)	(\$149,184,485)	\$0	(\$15,169,802)	(\$1,873,825)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Line Transformers - Net Fixed Assets	\$197,565,029	\$58,202,510	\$28,622,646	\$99,385,541	\$0	\$10,106,004	\$1,248,328	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
General Plant Assigned to Line Transformers - NFA	\$23,522,412	\$6,910,939	\$3,413,886	\$11,874,315	\$0	\$1,178,673	\$144,598	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Line Transformer Net Fixed Assets Including General Plant	\$221,087,440	\$65,113,450	\$32,036,532	\$111,259,856	\$0	\$11,284,677	\$1,392,925	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
General Expenses																					
Acct 5005 - Operation Supervision and Engineering	\$24,972,854	\$7,380,956	\$3,627,934	\$9,918,482	\$0	\$2,757,303	\$1,287,410	\$400	\$0	\$371	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 5010 - Load Dispatching	\$6,019,837	\$1,779,218	\$874,532	\$2,390,902	\$0	\$664,662	\$310,337	\$96	\$0	\$89	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 5085 - Miscellaneous Distribution Expense	\$2,166,684	\$640,383	\$314,765	\$860,543	\$0	\$239,228	\$111,698	\$35	\$0	\$32	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 5105 - Maintenance Supervision and Engineering	\$3,948,925	\$1,167,141	\$573,680	\$1,568,397	\$0	\$436,009	\$203,576	\$63	\$0	\$59	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$37,108,300	\$10,967,698	\$5,390,911	\$14,738,323	\$0	\$4,097,202	\$1,913,020	\$594	\$0	\$551	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1850 - Line Transformers - Gross Assets	\$494,123,630	\$145,568,453	\$71,587,192	\$248,570,027	\$0	\$25,275,806	\$3,122,153	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1815 - 1855	\$2,245,747,379	\$663,751,204	\$326,251,146	\$891,944,683	\$0	\$247,957,473	\$115,773,578	\$35,971	\$0	\$33,325	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0





2011 COST ALLOCATION INFORMATION FILING  
Toronto Hydro-Electric System Limited

Sheet O2.2 Primary Cost PLCC Adjustment Worksheet - First Run

Primary Conductors and Poles Cost Pool Demand Unit Cost for  
PLCC Adjustment to Customer Related Cost

Allocation by Rate Classification

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Description	Total	Residential	GS <50	GS>50<1000	GS> 50 RIMS	GS > 1000 < 5000	Large Use >5MW	Street Light	Sentinel	Unmetered Scattered Load	Embedded Distributor	Back-up/Standby Power	Rate Class 1	Rate class 2	Rate class 3	Rate class 4	Rate class 5	Rate class 6	Rate class 7	Rate class 8	Rate class 9
Depreciation on Acct 1830-4 Primary Poles, Towers & Fixtures	\$1,887,943	\$409,067	\$201,170	\$778,626	\$0	\$329,272	\$169,808	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Depreciation on Acct 1835-4 Primary Overhead Conductors	\$1,008,939	\$218,610	\$107,507	\$416,107	\$0	\$175,967	\$90,748	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Depreciation on Acct 1840-4 Primary Underground Conduit	\$16,188,098	\$3,507,528	\$1,724,921	\$6,676,304	\$0	\$2,823,331	\$1,456,015	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Depreciation on Acct 1845-4 Primary Underground Conductors	\$3,239,239	\$701,856	\$345,157	\$1,335,928	\$0	\$564,949	\$291,349	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Depreciation on General Plant Assigned to Primary C&P	\$10,571,018	\$2,295,641	\$1,134,007	\$4,396,721	\$0	\$1,815,028	\$929,621	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Primary C&P Operations and Maintenance	\$11,993,824	\$2,705,749	\$1,330,625	\$4,915,375	\$0	\$2,009,683	\$1,032,393	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Allocation of General Expenses	\$17,064,061	\$3,697,325	\$1,818,259	\$7,037,569	\$0	\$2,976,106	\$1,534,802	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Admin and General Assigned to Primary C&P	\$6,105,190	\$1,379,913	\$658,181	\$2,510,996	\$0	\$1,029,165	\$526,936	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
PILs on Primary C&P	\$2,985,062	\$646,783	\$318,073	\$1,231,101	\$0	\$520,618	\$268,487	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Debt Return on Primary C&P	\$18,068,954	\$3,915,059	\$1,925,335	\$7,452,008	\$0	\$3,151,367	\$1,625,185	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Equity Return on Primary C&P	\$22,295,284	\$4,830,792	\$2,375,671	\$9,195,033	\$0	\$3,888,472	\$2,005,316	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$111,407,611	\$24,308,323	\$11,938,906	\$45,945,767	\$0	\$19,283,956	\$9,930,659	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Primary NCP	16,652,210	3,608,089	1,774,374	6,867,713	0	2,904,276	1,497,758	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLCC Amount	1,267,037	997,450	105,267	20,906	0	822	75	112,216	0	30,300	0	0	0	0	0	0	0	0	0	0	0
Adjustment to Customer Related Cost for PLCC	\$7,574,113	\$6,719,994	\$708,294	\$139,867	\$0	\$5,461	\$499	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
General Plant - Gross Assets	\$590,822,817	\$280,402,259	\$74,731,793	\$147,650,045	\$0	\$40,690,965	\$18,863,484	\$22,921,774	\$0	\$5,562,497	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
General Plant - Accumulated Depreciation	(\$380,800,875)	(\$180,726,645)	(\$48,166,610)	(\$95,164,345)	\$0	(\$26,228,399)	(\$12,158,012)	(\$14,773,687)	\$0	(\$3,585,176)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
General Plant - Net Fixed Assets	\$210,021,942	\$99,675,614	\$26,565,183	\$52,485,700	\$0	\$14,464,566	\$6,705,471	\$8,148,087	\$0	\$1,977,321	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
General Plant - Depreciation	\$41,614,054	\$19,749,871	\$5,263,664	\$10,399,593	\$0	\$2,866,030	\$1,328,632	\$1,614,474	\$0	\$391,789	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Net Fixed Assets Excluding General Plant	\$1,768,682,079	\$839,447,516	\$222,727,359	\$439,294,370	\$0	\$124,019,904	\$57,889,102	\$68,635,299	\$0	\$16,668,528	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Administration and General Expense	\$80,157,742	\$37,822,164	\$11,834,134	\$19,695,670	\$0	\$5,429,842	\$2,566,267	\$2,160,623	\$0	\$649,041	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total O&M	\$157,363,206	\$74,162,123	\$23,924,723	\$38,555,064	\$0	\$10,603,022	\$5,027,932	\$3,858,895	\$0	\$1,231,447	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Primary Conductors and Poles Gross Assets																					
Acct 1830-4 Primary Poles, Towers & Fixtures	\$127,289,723	\$27,580,278	\$13,563,342	\$52,496,894	\$0	\$22,200,323	\$11,448,886	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1835-4 Primary Overhead Conductors	\$106,904,788	\$23,163,408	\$11,391,227	\$44,089,728	\$0	\$18,645,031	\$9,615,393	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1840-4 Primary Underground Conduit	\$538,832,059	\$116,750,494	\$57,415,187	\$222,225,400	\$0	\$93,976,525	\$48,464,453	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1845-4 Primary Underground Conductors	\$259,668,792	\$56,263,281	\$27,668,978	\$107,092,739	\$0	\$45,288,268	\$23,355,526	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$1,032,695,362	\$223,757,461	\$110,038,734	\$425,904,761	\$0	\$180,110,147	\$92,884,258	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Primary Conductors and Poles Accumulated Depreciation																					
Acct 1830-4 Primary Poles, Towers & Fixtures	(\$63,464,576)	(\$13,751,076)	(\$6,762,460)	(\$26,174,093)	\$0	(\$11,068,718)	(\$5,708,227)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1835-4 Primary Overhead Conductors	(\$68,857,964)	(\$14,919,679)	(\$7,337,152)	(\$28,398,437)	\$0	(\$12,009,367)	(\$6,193,328)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1840-4 Primary Underground Conduit	(\$306,956,083)	(\$66,509,172)	(\$32,707,670)	(\$126,594,988)	\$0	(\$53,535,541)	(\$27,608,711)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1845-4 Primary Underground Conductors	(\$143,089,775)	(\$31,003,727)	(\$15,246,914)	(\$59,013,160)	\$0	(\$24,955,976)	(\$12,869,998)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	(\$582,368,397)	(\$126,183,654)	(\$62,054,197)	(\$240,180,679)	\$0	(\$101,569,603)	(\$52,380,265)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Primary Conductor & Pools - Net Fixed Assets	\$450,326,965	\$97,573,808	\$47,984,537	\$185,724,082	\$0	\$78,540,545	\$40,503,993	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
General Plant Assigned to Primary C&P - NFA	\$53,350,864	\$11,585,869	\$5,723,222	\$22,189,810	\$0	\$9,160,262	\$4,691,701	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Primary C&P Net Fixed Assets Including General Plant	\$503,677,829	\$109,159,677	\$53,707,759	\$207,913,892	\$0	\$87,700,807	\$45,195,694	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1830-3 Bulk Poles, Towers & Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1835-3 Bulk Overhead Conductors	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1840-3 Bulk Underground Conduit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1845-3 Bulk Underground Conductors	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$0	\$0	\$0	\$0	\$0	\$0															

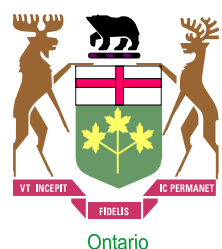


Sheet O2.3 Secondary Cost PLCC Adjustment Worksheet - First Run

Secondary Conductors and Poles Cost Pool Demand Unit Cost for PLCC Adjustment to Customer Related Cost

Allocation by Rate Classification

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Description	Total	Residential	GS <50	GS>50<1000	GS> 50 RIMS	GS > 1000 < 5000	Large Use >5MW	Street Light	Sentinel	Unmetered Scattered Load	Embedded Distributor	Back-up/Standby Power	Rate Class 1	Rate class 2	Rate class 3	Rate class 4	Rate class 5	Rate class 6	Rate class 7	Rate class 8	Rate class 9
Depreciation on Acct 1830-5 Secondary Poles, Towers & Fixtures	\$1,774,810	\$878,004	\$431,782	\$449,779	\$0	\$15,245	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Depreciation on Acct 1835-5 Secondary Overhead Conductors	\$1,519,859	\$901,007	\$283,853	\$252,449	\$0	\$8,493	\$0	\$59,651	\$0	\$14,405	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Depreciation on Acct 1840-5 Secondary Underground Conduit	\$7,991,843	\$4,737,747	\$1,492,578	\$1,327,448	\$0	\$44,660	\$1	\$313,660	\$0	\$75,748	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Depreciation on Acct 1845-5 Secondary Underground Conductors	\$1,817,606	\$1,077,519	\$339,461	\$301,905	\$0	\$10,157	\$0	\$71,337	\$0	\$17,228	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Depreciation on General Plant Assigned to Secondary C&P	\$4,834,770	\$2,385,779	\$1,178,534	\$1,229,767	\$0	\$40,690	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Secondary C&P Operations and Maintenance	\$5,938,935	\$2,974,349	\$1,462,716	\$1,454,216	\$0	\$47,655	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Allocation of General Expenses	\$8,215,756	\$4,064,359	\$1,998,758	\$2,082,068	\$0	\$70,572	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Admin and General Assigned to Primary C&P	\$3,007,699	\$1,516,897	\$723,518	\$742,879	\$0	\$24,404	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
PLIs on Secondary C&P	\$1,358,753	\$672,179	\$330,562	\$344,340	\$0	\$11,671	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Debt Return on Secondary C&P	\$8,224,699	\$4,068,783	\$2,000,933	\$2,084,334	\$0	\$70,648	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Equity Return on Secondary C&P	\$10,148,456	\$5,020,472	\$2,468,952	\$2,571,860	\$0	\$87,173	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$54,833,187	\$28,297,095	\$12,711,648	\$12,841,045	\$0	\$431,369	\$2	\$444,647	\$0	\$107,381	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Secondary NCP	7,293,444	3,608,089	1,774,374	1,848,332	0	62,649	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLCC Amount	1,266,962	997,450	105,267	20,906	0	822	0	112,216	0	30,300	0	0	0	0	0	0	0	0	0	0	0
Adjustment to Customer Related Cost for PLCC	\$8,727,728	\$7,822,683	\$754,138	\$145,245	\$0	\$5,663	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
General Plant - Gross Assets	\$590,822,817	\$280,402,259	\$74,731,793	\$147,650,045	\$0	\$40,690,965	\$18,863,484	\$22,921,774	\$0	\$5,562,497	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
General Plant - Accumulated Depreciation	(\$380,800,875)	(\$180,726,645)	(\$48,166,610)	(\$95,164,345)	\$0	(\$26,226,399)	(\$12,158,012)	(\$14,773,687)	\$0	(\$3,585,176)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
General Plant - Net Fixed Assets	\$210,021,942	\$99,675,614	\$26,565,183	\$52,485,700	\$0	\$14,464,566	\$6,705,471	\$8,148,087	\$0	\$1,977,321	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
General Plant - Depreciation	\$41,614,054	\$19,749,871	\$5,263,664	\$10,399,593	\$0	\$2,866,030	\$1,328,632	\$1,614,474	\$0	\$391,789	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Net Fixed Assets Excluding General Plant	\$1,768,682,079	\$839,447,516	\$222,727,359	\$439,294,370	\$0	\$124,019,904	\$57,889,102	\$68,635,299	\$0	\$16,668,528	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Administration and General Expense	\$80,157,742	\$37,822,164	\$11,834,134	\$19,695,670	\$0	\$5,429,842	\$2,566,267	\$2,160,623	\$0	\$649,041	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total O&M	\$157,363,206	\$74,162,123	\$23,924,723	\$38,555,064	\$0	\$10,603,022	\$5,027,932	\$3,858,895	\$0	\$1,231,447	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Secondary Conductors and Poles Gross Plant																					
Acct 1830-5 Secondary Poles, Towers & Fixtures	\$113,926,352	\$56,359,709	\$27,716,399	\$28,871,642	\$0	\$978,603	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1835-5 Secondary Overhead Conductors	\$95,681,507	\$47,333,929	\$23,277,729	\$24,247,965	\$0	\$821,884	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1840-5 Secondary Underground Conduit	\$194,073,353	\$96,008,671	\$47,214,839	\$49,182,795	\$0	\$1,667,048	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1845-5 Secondary Underground Conductors	\$93,525,974	\$46,267,580	\$22,753,324	\$23,701,702	\$0	\$803,368	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$497,207,186	\$245,969,889	\$120,962,291	\$126,004,104	\$0	\$4,270,903	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Secondary Conductors and Poles Accumulated Depreciation																					
Acct 1830-5 Secondary Poles, Towers & Fixtures	(\$53,481,226)	(\$26,457,323)	(\$13,011,098)	(\$13,553,412)	\$0	(\$459,392)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1835-5 Secondary Overhead Conductors	(\$58,139,824)	(\$28,761,945)	(\$14,144,458)	(\$14,734,011)	\$0	(\$499,409)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1840-5 Secondary Underground Conduit	(\$129,854,642)	(\$64,239,481)	(\$31,591,488)	(\$32,908,249)	\$0	(\$1,115,423)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1845-5 Secondary Underground Conductors	(\$50,749,867)	(\$25,106,112)	(\$12,346,604)	(\$12,861,221)	\$0	(\$435,930)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	(\$292,225,558)	(\$144,564,861)	(\$71,093,649)	(\$74,056,894)	\$0	(\$2,510,155)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Secondary Conductor & Pools - Net Fixed Assets	\$204,981,628	\$101,405,027	\$49,868,642	\$51,947,211	\$0	\$1,760,748	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
General Plant Assigned to Secondary C&P - NFA	\$24,400,599	\$12,040,787	\$5,947,943	\$6,206,512	\$0	\$205,358	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Secondary C&P Net Fixed Assets Including General Plant	\$229,382,227	\$113,445,814	\$55,816,585	\$58,153,722	\$0	\$1,966,106	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1830-3 Bulk Poles, Towers & Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1835-3 Bulk Overhead Conductors	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1840-3 Bulk Underground Conduit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1845-3 Bulk Underground Conductors	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$0	\$0	\$0	\$0																	



**2011 COST ALLOCATION INFORMATION FILING**  
**Toronto Hydro-Electric System Limited**

**Sheet O3.1 Line Transformers Unit Cost Worksheet - First Run**

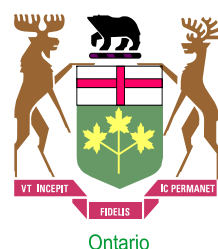
**ALLOCATION BY RATE CLASSIFICATION**

<u>Description</u>	Total	1	2	3	5	6	7	9
		Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
Depreciation on Acct 1850 Line Transformers	\$18,026,101	\$7,870,054	\$2,266,362	\$6,417,812	\$646,198	\$79,749	\$600,827	\$145,098
Depreciation on General Plant Assigned to Line Transformers	\$6,653,616	\$2,899,070	\$838,599	\$2,378,800	\$233,811	\$28,658	\$221,281	\$53,398
Acct 5035 - Overhead Distribution Transformers- Operation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 5055 - Underground Distribution Transformers - Operation	\$1,817,693	\$793,591	\$228,533	\$647,151	\$65,161	\$8,042	\$60,585	\$14,631
Acct 5160 - Maintenance of Line Transformers	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Allocation of General Expenses	\$10,964,149	\$4,569,429	\$1,391,918	\$4,130,878	\$417,706	\$51,559	\$324,326	\$78,334
Admin and General Assigned to Line Transformers	\$927,468	\$404,726	\$113,041	\$330,594	\$33,369	\$4,104	\$33,922	\$7,711
PILs on Line Transformers	\$1,870,844	\$816,796	\$235,215	\$666,074	\$67,066	\$8,277	\$62,357	\$15,059
Debt Return on Line Transformers	\$11,324,450	\$4,944,166	\$1,423,786	\$4,031,831	\$405,958	\$50,101	\$377,455	\$91,154
Equity Return on Line Transformers	\$13,973,239	\$6,100,606	\$1,756,809	\$4,974,876	\$500,912	\$61,819	\$465,741	\$112,475
Less: Transformer Ownership Allowance Credit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total</b>	<b>\$65,557,560</b>	<b>\$28,398,436</b>	<b>\$8,254,262</b>	<b>\$23,578,017</b>	<b>\$2,370,181</b>	<b>\$292,309</b>	<b>\$2,146,494</b>	<b>\$517,861</b>
Billed kW without Line Transformer Allowance		0	0	21,712,010	2,283,783	258,020	322,023	0
Billed kWh without Line Transformer Allowance		4,986,768,673	2,139,318,076	10,116,374,153	4,626,928,262	2,376,778,323	110,165,016	56,231,585
Line Transformation Unit Cost (\$/kW)	N/A	\$0.0000	\$0.0000	\$1.0859	\$1.0378	\$1.1329	N/A	N/A
General Plant - Gross Assets	\$590,822,817	\$280,402,259	\$74,731,793	\$147,650,045	\$40,690,965	\$18,863,484	\$22,921,774	\$5,562,497
General Plant - Accumulated Depreciation	(\$380,800,875)	(\$180,726,645)	(\$48,166,610)	(\$95,164,345)	(\$26,226,399)	(\$12,158,012)	(\$14,773,687)	(\$3,585,176)
General Plant - Net Fixed Assets	\$210,021,942	\$99,675,614	\$26,565,183	\$52,485,700	\$14,464,566	\$6,705,471	\$8,148,087	\$1,977,321
General Plant - Depreciation	\$41,614,054	\$19,749,871	\$5,263,664	\$10,399,593	\$2,866,030	\$1,328,632	\$1,614,474	\$391,789
<b>Total Net Fixed Assets Excluding General Plant</b>	<b>\$1,768,682,079</b>	<b>\$839,447,516</b>	<b>\$222,727,359</b>	<b>\$439,294,370</b>	<b>\$124,019,904</b>	<b>\$57,889,102</b>	<b>\$68,635,299</b>	<b>\$16,668,528</b>
<b>Total Administration and General Expense</b>	<b>\$80,157,742</b>	<b>\$37,822,164</b>	<b>\$11,834,134</b>	<b>\$19,695,670</b>	<b>\$5,429,842</b>	<b>\$2,566,267</b>	<b>\$2,160,623</b>	<b>\$649,041</b>
<b>Total O&amp;M</b>	<b>\$157,363,206</b>	<b>\$74,162,123</b>	<b>\$23,924,723</b>	<b>\$38,555,064</b>	<b>\$10,603,022</b>	<b>\$5,027,932</b>	<b>\$3,858,895</b>	<b>\$1,231,447</b>
<u>Line Transformer Rate Base</u>								
Acct 1850 - Line Transformers - Gross Assets	\$705,890,901	\$308,186,411	\$88,749,337	\$251,317,531	\$25,304,728	\$3,122,936	\$23,528,014	\$5,681,945
Line Transformers - Accumulated Depreciation	(\$423,655,145)	(\$184,964,502)	(\$53,264,765)	(\$150,833,457)	(\$15,187,160)	(\$1,874,295)	(\$14,120,828)	(\$3,410,138)
Line Transformers - Net Fixed Assets	\$282,235,756	\$123,221,909	\$35,484,571	\$100,484,074	\$10,117,568	\$1,248,641	\$9,407,186	\$2,271,807
General Plant Assigned to Line Transformers - NFA	\$33,580,133	\$14,631,313	\$4,232,323	\$12,005,565	\$1,180,022	\$144,634	\$1,116,780	\$269,495

## ALLOCATION BY RATE CLASSIFICATION

<b>Description</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>9</b>
	<b>Total</b>	<b>Residential</b>	<b>GS &lt;50</b>	<b>GS&gt;50&lt;1000</b>	<b>GS &gt; 1000 &lt; 5000</b>	<b>Large Use &gt;5MW</b>	<b>Street Light</b>	<b>Unmetered Scattered Load</b>
<b>Line Transformer Net Fixed Assets Including General Plant</b>	<b>\$315,815,888</b>	\$137,853,222	\$39,716,895	\$112,489,638	\$11,297,590	\$1,393,275	\$10,523,966	\$2,541,303
<b>General Expenses</b>								
<b>Acct 5005 - Operation Supervision and Engineering</b>	<b>\$38,419,775</b>	\$17,400,519	\$4,966,331	\$10,189,572	\$2,771,470	\$1,292,966	\$1,448,718	\$350,200
<b>Acct 5010 - Load Dispatching</b>	<b>\$9,261,288</b>	\$4,194,486	\$1,197,160	\$2,456,250	\$668,077	\$311,676	\$349,221	\$84,418
<b>Acct 5085 - Miscellaneous Distribution Expense</b>	<b>\$3,333,359</b>	\$1,509,696	\$430,887	\$884,063	\$240,457	\$112,180	\$125,693	\$30,384
<b>Acct 5105 - Maintenance Supervision and Engineering</b>	<b>\$6,075,269</b>	\$2,751,522	\$785,319	\$1,611,264	\$438,249	\$204,455	\$229,084	\$55,377
<b>Total</b>	<b>\$57,089,692</b>	<b>\$25,856,223</b>	<b>\$7,379,697</b>	<b>\$15,141,148</b>	<b>\$4,118,253</b>	<b>\$1,921,277</b>	<b>\$2,152,716</b>	<b>\$520,378</b>
<b>Acct 1850 - Line Transformers - Gross Assets</b>	<b>\$705,890,901</b>	\$308,186,411	\$88,749,337	\$251,317,531	\$25,304,728	\$3,122,936	\$23,528,014	\$5,681,945
<b>Acct 1815 - 1855</b>	<b>\$3,695,352,547</b>	\$1,743,880,302	\$470,533,045	\$921,168,729	\$249,484,708	\$116,372,577	\$156,167,549	\$37,745,636





## 2010 COST ALLOCATION INFORMATION FILING Toronto Hydro-Electric System Limited

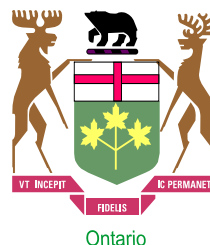
### Sheet O3.2 Substation Transformers Unit Cost Worksheet - First Run

#### ALLOCATION BY RATE CLASSIFICATION

Description	Total	1	2	3	5	6	7	9
		Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
Depreciation on Acct 1820-2 Distribution Station Equipment	\$10,298,265	\$2,231,359	\$1,097,330	\$4,247,216	\$1,796,098	\$926,262	\$0	\$0
Depreciation on Acct 1825-2 Storage Battery Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Depreciation on Acct 1805-2 Land Station <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Depreciation on Acct 1806-2 Land Rights Station <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Depreciation on Acct 1808-2 Buildings and Fixtures < 50 KV	\$1,799,360	\$423,782	\$194,796	\$744,010	\$283,600	\$147,501	\$2,944	\$2,727
Depreciation on Acct 1810-2 Leasehold Improvements <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Depreciation on General Plant Assigned to Substation Transformers	\$3,515,922	\$782,629	\$378,860	\$1,463,228	\$586,772	\$301,222	\$1,667	\$1,544
Acct 5012 - Station Buildings and Fixtures Expense	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 5016 - Distributon Station Equipment - Labour	\$3,163,351	\$685,414	\$337,070	\$1,304,631	\$551,713	\$284,523	\$0	\$0
Acct 5017 - Distributon Station Equipment - Other	\$813,170	\$176,192	\$86,647	\$335,368	\$141,823	\$73,139	\$0	\$0
Acct 5114 - Maintenance of Distribution Station Equipment	\$2,983,582	\$646,462	\$317,915	\$1,230,490	\$520,360	\$268,354	\$0	\$0
Allocation of General Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Admin and General Assigned to SubstationTransformers	\$3,543,482	\$769,104	\$366,842	\$1,466,376	\$621,640	\$319,520	\$0	\$0
PILs on SubstationTransformers	\$992,687	\$220,501	\$106,265	\$409,710	\$168,308	\$86,997	\$470	\$435
Debt Return on Substation Transformers	\$6,008,856	\$1,334,721	\$643,234	\$2,480,027	\$1,018,791	\$526,603	\$2,844	\$2,635
Equity Return on Substation Transformers	\$7,414,328	\$1,646,912	\$793,687	\$3,060,106	\$1,257,087	\$649,776	\$3,509	\$3,251
<b>Total</b>	<b>\$40,533,003</b>	<b>\$8,917,077</b>	<b>\$4,322,647</b>	<b>\$16,741,162</b>	<b>\$6,946,194</b>	<b>\$3,583,897</b>	<b>\$11,435</b>	<b>\$10,592</b>
Billed kW without Substation Transformer Allowance		0	0	26,935,191	10,587,119	4,993,733	322,023	0
Billed kWh without Substation Transformer Allowance		4,986,768,673	2,139,318,076	10,116,374,153	4,626,928,262	2,376,778,323	110,165,016	56,231,585
Substation Transformation Unit Cost (\$/kW)		\$0.0000	\$0.0000	\$0.6215	\$0.6561	\$0.7177	\$0.0355	\$0.0000
Substation Transformation Unit Cost (\$/kWh)		\$0.0018	\$0.0020	\$0.0017	\$0.0015	\$0.0015	\$0.0001	\$0.0002
General Plant - Gross Assets	\$590,822,817	\$280,402,259	\$74,731,793	\$147,650,045	\$40,690,965	\$18,863,484	\$22,921,774	\$5,562,497
General Plant - Accumulated Depreciation	(\$380,800,875)	(\$180,726,645)	(\$48,166,610)	(\$95,164,345)	(\$26,226,399)	(\$12,158,012)	(\$14,773,687)	(\$3,585,176)
General Plant - Net Fixed Assets	\$210,021,942	\$99,675,614	\$26,565,183	\$52,485,700	\$14,464,566	\$6,705,471	\$8,148,087	\$1,977,321
General Plant - Depreciation	\$41,614,054	\$19,749,871	\$5,263,664	\$10,399,593	\$2,866,030	\$1,328,632	\$1,614,474	\$391,789
<b>Total Net Fixed Assets Excluding General Plant</b>	<b>\$1,768,682,079</b>	<b>\$839,447,516</b>	<b>\$222,727,359</b>	<b>\$439,294,370</b>	<b>\$124,019,904</b>	<b>\$57,889,102</b>	<b>\$68,635,299</b>	<b>\$16,668,528</b>
<b>Total Administration and General Expense</b>	<b>\$80,157,742</b>	<b>\$37,822,164</b>	<b>\$11,834,134</b>	<b>\$19,695,670</b>	<b>\$5,429,842</b>	<b>\$2,566,267</b>	<b>\$2,160,623</b>	<b>\$649,041</b>
<b>Total O&amp;M</b>	<b>\$157,363,206</b>	<b>\$74,162,123</b>	<b>\$23,924,723</b>	<b>\$38,555,064</b>	<b>\$10,603,022</b>	<b>\$5,027,932</b>	<b>\$3,858,895</b>	<b>\$1,231,447</b>

## ALLOCATION BY RATE CLASSIFICATION

<b>Description</b>	<b>Total</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>9</b>
		<b>Residential</b>	<b>GS &lt;50</b>	<b>GS&gt;50&lt;1000</b>	<b>GS &gt; 1000 &lt; 5000</b>	<b>Large Use &gt;5MW</b>	<b>Street Light</b>	<b>Unmetered Scattered Load</b>
<b>Substation Transformer Rate Base Gross Plant</b>								
Acct 1820-2 Distribution Station Equipment	\$199,734,227	\$43,277,064	\$21,282,657	\$82,374,494	\$34,835,211	\$17,964,800	\$0	\$0
Acct 1825-2 Storage Battery Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1805-2 Land Station <50 kV	\$1,656,505	\$390,137	\$179,330	\$684,941	\$261,085	\$135,791	\$2,710	\$2,511
Acct 1806-2 Land Rights Station <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1808-2 Buildings and Fixtures < 50 KV	\$60,015,503	\$14,134,755	\$6,497,174	\$24,815,546	\$9,459,149	\$4,919,730	\$98,185	\$90,963
Acct 1810-2 Leasehold Improvements <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Subtotal</b>	<b>\$261,406,235</b>	<b>\$57,801,957</b>	<b>\$27,959,162</b>	<b>\$107,874,981</b>	<b>\$44,555,445</b>	<b>\$23,020,321</b>	<b>\$100,895</b>	<b>\$93,474</b>
<b>Substation Transformers - Accumulated Depreciation</b>								
Acct 1820-2 Distribution Station Equipment	(\$93,305,757)	(\$20,216,862)	(\$9,942,184)	(\$38,481,209)	(\$16,273,254)	(\$8,392,248)	\$0	\$0
Acct 1825-2 Storage Battery Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1805-2 Land Station <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1806-2 Land Rights Station <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1808-2 Buildings and Fixtures < 50 KV	(\$18,343,617)	(\$4,320,259)	(\$1,985,848)	(\$7,584,821)	(\$2,891,170)	(\$1,503,705)	(\$30,010)	(\$27,803)
Acct 1810-2 Leasehold Improvements <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Subtotal</b>	<b>(\$111,649,374)</b>	<b>(\$24,537,121)</b>	<b>(\$11,928,032)</b>	<b>(\$46,066,030)</b>	<b>(\$19,164,423)</b>	<b>(\$9,895,954)</b>	<b>(\$30,010)</b>	<b>(\$27,803)</b>
<b>Substation Transformers - Net Fixed Assets</b>	<b>\$149,756,862</b>	<b>\$33,264,836</b>	<b>\$16,031,129</b>	<b>\$61,808,951</b>	<b>\$25,391,022</b>	<b>\$13,124,367</b>	<b>\$70,885</b>	<b>\$65,671</b>
<b>General Plant Assigned to SubstationTransformers - NFA</b>	<b>\$17,744,507</b>	<b>\$3,949,851</b>	<b>\$1,912,068</b>	<b>\$7,384,766</b>	<b>\$2,961,380</b>	<b>\$1,520,235</b>	<b>\$8,415</b>	<b>\$7,790</b>
<b>Substation Transformer NFA Including General Plant</b>	<b>\$167,501,368</b>	<b>\$37,214,688</b>	<b>\$17,943,198</b>	<b>\$69,193,717</b>	<b>\$28,352,402</b>	<b>\$14,644,602</b>	<b>\$79,301</b>	<b>\$73,462</b>
<b>General Expenses</b>								
Acct 5005 - Operation Supervision and Engineering	\$38,419,775	\$17,400,519	\$4,966,331	\$10,189,572	\$2,771,470	\$1,292,966	\$1,448,718	\$350,200
Acct 5010 - Load Dispatching	\$9,261,288	\$4,194,486	\$1,197,160	\$2,456,250	\$668,077	\$311,676	\$349,221	\$84,418
Acct 5085 - Miscellaneous Distribution Expense	\$3,333,359	\$1,509,696	\$430,887	\$884,063	\$240,457	\$112,180	\$125,693	\$30,384
Acct 5105 - Maintenance Supervision and Engineering	\$6,075,269	\$2,751,522	\$785,319	\$1,611,264	\$438,249	\$204,455	\$229,084	\$55,377
<b>Total</b>	<b>\$57,089,692</b>	<b>\$25,856,223</b>	<b>\$7,379,697</b>	<b>\$15,141,148</b>	<b>\$4,118,253</b>	<b>\$1,921,277</b>	<b>\$2,152,716</b>	<b>\$520,378</b>
<b>Acct 1820-2 Distribution Station Equipment</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Acct 1825-2 Storage Battery Equipment</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Total</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Acct 1815 - 1855</b>	<b>\$3,695,352,547</b>	<b>\$1,743,880,302</b>	<b>\$470,533,045</b>	<b>\$921,168,729</b>	<b>\$249,484,708</b>	<b>\$116,372,577</b>	<b>\$156,167,549</b>	<b>\$37,745,636</b>



**2011 COST ALLOCATION INFORMATION FILING**  
**Toronto Hydro-Electric System Limited**

**Sheet O3.3 Primary Conductors and Poles Cost Pool Worksheet - First Run**

**ALLOCATION BY RATE CLASSIFICATION**

<u>Description</u>	Total	1	2	3	5	6	7	9
		Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
Depreciation on Acct 1830-4 Primary Poles, Towers & Fixtures	\$2,904,527	\$1,186,855	\$283,255	\$794,929	\$329,913	\$169,867	\$112,533	\$27,176
Depreciation on Acct 1835-4 Primary Overhead Conductors	\$1,552,214	\$634,270	\$151,375	\$424,819	\$176,310	\$90,779	\$60,139	\$14,523
Depreciation on Acct 1840-4 Primary Underground Conduit	\$24,904,766	\$10,176,646	\$2,428,757	\$6,816,088	\$2,828,830	\$1,456,517	\$964,906	\$233,022
Depreciation on Acct 1845-4 Primary Underground Conductors	\$4,983,444	\$2,036,347	\$485,994	\$1,363,899	\$566,049	\$291,449	\$193,078	\$46,628
Depreciation on General Plant Assigned to Primary C&P	\$16,278,278	\$6,660,510	\$1,596,727	\$4,488,777	\$1,818,563	\$929,942	\$631,394	\$152,365
Primary C&P Operations and Maintenance	\$18,534,065	\$7,714,174	\$1,860,869	\$5,016,521	\$2,013,589	\$1,032,750	\$721,841	\$174,322
Allocation of General Expenses	\$24,769,121	\$9,625,637	\$2,430,014	\$7,147,122	\$2,978,875	\$1,534,021	\$848,511	\$204,939
Admin and General Assigned to Primary C&P	\$9,471,626	\$3,934,175	\$920,461	\$2,562,666	\$1,031,165	\$527,118	\$404,164	\$91,878
PILs on Primary C&P	\$4,592,403	\$1,876,559	\$447,859	\$1,256,877	\$521,632	\$268,580	\$177,927	\$42,969
Debt Return on Primary C&P	\$27,798,391	\$11,359,046	\$2,710,948	\$7,608,033	\$3,157,505	\$1,625,747	\$1,077,017	\$260,096
Equity Return on Primary C&P	\$34,300,437	\$14,015,928	\$3,345,039	\$9,387,552	\$3,896,045	\$2,006,009	\$1,328,931	\$320,933
<b>Total</b>	<b>\$170,089,272</b>	<b>\$69,220,146</b>	<b>\$16,661,298</b>	<b>\$46,867,284</b>	<b>\$19,318,475</b>	<b>\$9,932,778</b>	<b>\$6,520,440</b>	<b>\$1,568,851</b>
<b>General Plant - Gross Assets</b>	<b>\$590,822,817</b>	<b>\$280,402,259</b>	<b>\$74,731,793</b>	<b>\$147,650,045</b>	<b>\$40,690,965</b>	<b>\$18,863,484</b>	<b>\$22,921,774</b>	<b>\$5,562,497</b>
<b>General Plant - Accumulated Depreciation</b>	<b>(\$380,800,875)</b>	<b>(\$180,726,645)</b>	<b>(\$48,166,610)</b>	<b>(\$95,164,345)</b>	<b>(\$26,226,399)</b>	<b>(\$12,158,012)</b>	<b>(\$14,773,687)</b>	<b>(\$3,585,176)</b>
<b>General Plant - Net Fixed Assets</b>	<b>\$210,021,942</b>	<b>\$99,675,614</b>	<b>\$26,565,183</b>	<b>\$52,485,700</b>	<b>\$14,464,566</b>	<b>\$6,705,471</b>	<b>\$8,148,087</b>	<b>\$1,977,321</b>
<b>General Plant - Depreciation</b>	<b>\$41,614,054</b>	<b>\$19,749,871</b>	<b>\$5,263,664</b>	<b>\$10,399,593</b>	<b>\$2,866,030</b>	<b>\$1,328,632</b>	<b>\$1,614,474</b>	<b>\$391,789</b>
<b>Total Net Fixed Assets Excluding General Plant</b>	<b>\$1,768,682,079</b>	<b>\$839,447,516</b>	<b>\$222,727,359</b>	<b>\$439,294,370</b>	<b>\$124,019,904</b>	<b>\$57,889,102</b>	<b>\$68,635,299</b>	<b>\$16,668,528</b>
<b>Total Administration and General Expense</b>	<b>\$80,157,742</b>	<b>\$37,822,164</b>	<b>\$11,834,134</b>	<b>\$19,695,670</b>	<b>\$5,429,842</b>	<b>\$2,566,267</b>	<b>\$2,160,623</b>	<b>\$649,041</b>
<b>Total O&amp;M</b>	<b>\$157,363,206</b>	<b>\$74,162,123</b>	<b>\$23,924,723</b>	<b>\$38,555,064</b>	<b>\$10,603,022</b>	<b>\$5,027,932</b>	<b>\$3,858,895</b>	<b>\$1,231,447</b>
<b>Primary Conductors and Poles Gross Assets</b>								
Acct 1830-4 Primary Poles, Towers & Fixtures	\$195,830,343	\$80,020,669	\$19,097,722	\$53,596,041	\$22,243,560	\$11,452,840	\$7,587,220	\$1,832,291
Acct 1835-4 Primary Overhead Conductors	\$164,468,904	\$67,205,682	\$16,039,299	\$45,012,851	\$18,681,344	\$9,618,714	\$6,372,157	\$1,538,857
Acct 1840-4 Primary Underground Conduit	\$828,972,399	\$338,736,710	\$80,842,856	\$226,878,215	\$94,159,553	\$48,481,189	\$32,117,576	\$7,756,299
Acct 1845-4 Primary Underground Conductors	\$399,490,450	\$163,240,755	\$38,959,016	\$109,334,980	\$45,376,471	\$23,363,591	\$15,477,795	\$3,737,841
<b>Subtotal</b>	<b>\$1,588,762,095</b>	<b>\$649,203,816</b>	<b>\$154,938,892</b>	<b>\$434,822,087</b>	<b>\$180,460,929</b>	<b>\$92,916,333</b>	<b>\$61,554,749</b>	<b>\$14,865,288</b>
<b>Primary Conductors and Poles Accumulated Depreciation</b>								
Acct 1830-4 Primary Poles, Towers & Fixtures	(\$97,637,809)	(\$39,896,998)	(\$9,521,812)	(\$26,722,110)	(\$11,090,276)	(\$5,710,199)	(\$3,782,864)	(\$913,550)
Acct 1835-4 Primary Overhead Conductors	(\$105,935,329)	(\$43,287,551)	(\$10,331,001)	(\$28,993,026)	(\$12,032,757)	(\$6,195,466)	(\$4,104,342)	(\$991,186)
Acct 1840-4 Primary Underground Conduit	(\$472,240,127)	(\$192,967,905)	(\$46,053,693)	(\$129,245,554)	(\$53,639,807)	(\$27,618,245)	(\$18,296,397)	(\$4,418,525)
Acct 1845-4 Primary Underground Conductors	(\$220,138,115)	(\$89,953,370)	(\$21,468,259)	(\$60,248,740)	(\$25,004,580)	(\$12,874,443)	(\$8,528,997)	(\$2,059,727)
<b>Subtotal</b>	<b>(\$895,951,380)</b>	<b>(\$366,105,823)</b>	<b>(\$87,374,765)</b>	<b>(\$245,209,431)</b>	<b>(\$101,767,419)</b>	<b>(\$52,398,353)</b>	<b>(\$34,712,600)</b>	<b>(\$8,382,989)</b>

## ALLOCATION BY RATE CLASSIFICATION

<u>Description</u>		1	2	3	5	6	7	9
	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
Primary Conductor & Pools - Net Fixed Assets	\$692,810,715	\$283,097,993	\$67,564,127	\$189,612,656	\$78,693,510	\$40,517,980	\$26,842,150	\$6,482,299
General Plant Assigned to Primary C&P - NFA	\$82,154,832	\$33,614,926	\$8,058,522	\$22,654,406	\$9,178,103	\$4,693,321	\$3,186,584	\$768,969
Primary C&P Net Fixed Assets Including General Plant	\$774,965,548	\$316,712,919	\$75,622,650	\$212,267,063	\$87,871,613	\$45,211,302	\$30,028,734	\$7,251,268
Acct 1830-3 Bulk Poles, Towers & Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1835-3 Bulk Overhead Conductors	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1840-3 Bulk Underground Conduit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1845-3 Bulk Underground Conductors	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1830-5 Secondary Poles, Towers & Fixtures	\$175,271,311	\$103,904,847	\$32,734,150	\$29,112,631	\$979,448	\$24	\$6,878,961	\$1,661,249
Acct 1835-5 Secondary Overhead Conductors	\$147,202,318	\$87,264,905	\$27,491,908	\$24,450,361	\$822,594	\$20	\$5,777,323	\$1,395,206
Acct 1840-5 Secondary Underground Conduit	\$298,574,390	\$177,001,735	\$55,762,571	\$49,593,319	\$1,668,489	\$41	\$11,718,299	\$2,829,934
Acct 1845-5 Secondary Underground Conductors	\$143,886,114	\$85,298,983	\$26,872,565	\$23,899,538	\$804,062	\$20	\$5,647,171	\$1,363,775
Subtotal	\$764,934,133	\$453,470,470	\$142,861,195	\$127,055,849	\$4,274,593	\$106	\$30,021,755	\$7,250,164
<u>Operations and Maintenance</u>								
Acct 5020 Overhead Distribution Lines & Feeders - Labour	\$883,994	\$438,126	\$123,468	\$197,019	\$55,319	\$27,282	\$34,460	\$8,322
Acct 5025 Overhead Distribution Lines & Feeders - Other	\$1,485,011	\$736,001	\$207,412	\$330,969	\$92,930	\$45,830	\$57,888	\$13,980
Acct 5040 Underground Distribution Lines & Feeders - Labour	\$1,322,506	\$604,913	\$160,225	\$324,275	\$112,397	\$56,864	\$51,415	\$12,417
Acct 5045 Underground Distribution Lines & Feeders - Other	\$5,889,251	\$2,693,736	\$713,499	\$1,444,029	\$500,516	\$253,221	\$228,958	\$55,293
Acct 5090 Underground Distribution Lines & Feeders - Rental Paid	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 5095 Overhead Distribution Lines & Feeders - Rental Paid	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 5120 Maintenance of Poles, Towers & Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 5125 Maintenance of Overhead Conductors & Devices	\$6,479,871	\$3,211,556	\$905,045	\$1,444,191	\$405,501	\$199,980	\$252,597	\$61,001
Acct 5135 Overhead Distribution Lines & Feeders - Right of Way	\$3,799,311	\$1,883,016	\$530,651	\$846,765	\$237,755	\$117,254	\$148,104	\$35,767
Acct 5145 Maintenance of Underground Conduit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 5150 Maintenance of Underground Conductors & Devices	\$7,728,916	\$3,535,196	\$936,380	\$1,895,110	\$656,866	\$332,321	\$300,479	\$72,565
Total	\$27,588,860	\$13,102,543	\$3,576,680	\$6,482,358	\$2,061,285	\$1,032,751	\$1,073,900	\$259,344
<u>General Expenses</u>								
Acct 5005 - Operation Supervision and Engineering	\$38,419,775	\$17,400,519	\$4,966,331	\$10,189,572	\$2,771,470	\$1,292,966	\$1,448,718	\$350,200
Acct 5010 - Load Dispatching	\$9,261,288	\$4,194,486	\$1,197,160	\$2,456,250	\$668,077	\$311,676	\$349,221	\$84,418
Acct 5085 - Miscellaneous Distribution Expense	\$3,333,359	\$1,509,696	\$430,887	\$884,063	\$240,457	\$112,180	\$125,693	\$30,384
Acct 5105 - Maintenance Supervision and Engineering	\$6,075,269	\$2,751,522	\$785,319	\$1,611,264	\$438,249	\$204,455	\$229,084	\$55,377
Total	\$57,089,692	\$25,856,223	\$7,379,697	\$15,141,148	\$4,118,253	\$1,921,277	\$2,152,716	\$520,378
Primary Conductors and Poles Gross Assets	\$1,588,762,095	\$649,203,816	\$154,938,892	\$434,822,087	\$180,460,929	\$92,916,333	\$61,554,749	\$14,865,288
Acct 1815 - 1855	\$3,695,352,547	\$1,743,880,302	\$470,533,045	\$921,168,729	\$249,484,708	\$116,372,577	\$156,167,549	\$37,745,636



**ALLOCATION BY RATE CLASSIFICATION**

<u>Description</u>			1	2	3	5	6	7	9
	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	
<u>Grouping of Operation and Maintenance</u>	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	
1830	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
1835	\$ 6,479,871	\$ 3,211,556	\$ 905,045	\$ 1,444,191	\$ 405,501	\$ 199,980	\$ 252,597	\$ 61,001	
1840	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
1845	\$ 7,728,916	\$ 3,535,196	\$ 936,380	\$ 1,895,110	\$ 656,866	\$ 332,321	\$ 300,479	\$ 72,565	
1830 & 1835	\$ 6,168,316	\$ 3,057,143	\$ 861,530	\$ 1,374,753	\$ 386,004	\$ 190,365	\$ 240,452	\$ 58,068	
1840 & 1845	\$ 7,211,757	\$ 3,298,648	\$ 873,724	\$ 1,768,304	\$ 612,913	\$ 310,085	\$ 280,373	\$ 67,709	
Total	\$ 27,588,860	\$ 13,102,543	\$ 3,576,680	\$ 6,482,358	\$ 2,061,285	\$ 1,032,751	\$ 1,073,900	\$ 259,344	



# 2011 COST ALLOCATION INFORMATION FILING Toronto Hydro-Electric System Limited

## Sheet O3.4 Secondary Cost Pool Worksheet - First Run

### ALLOCATION BY RATE CLASSIFICATION

Description	Total	1	2	3	5	6	7	9
		Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
Depreciation on Acct 1830-5 Secondary Poles, Towers & Fixtures	\$2,730,477	\$1,618,689	\$509,951	\$453,533	\$15,258	\$0	\$107,164	\$25,880
Depreciation on Acct 1835-5 Secondary Overhead Conductors	\$1,519,859	\$901,007	\$283,853	\$252,449	\$8,493	\$0	\$59,651	\$14,405
Depreciation on Acct 1840-5 Secondary Underground Conduit	\$7,991,843	\$4,737,747	\$1,492,578	\$1,327,448	\$44,660	\$1	\$313,660	\$75,748
Depreciation on Acct 1845-5 Secondary Underground Conductors	\$1,817,606	\$1,077,519	\$339,461	\$301,905	\$10,157	\$0	\$71,337	\$17,228
Depreciation on General Plant Assigned to Secondary C&P	\$7,432,471	\$4,398,426	\$1,391,895	\$1,240,032	\$40,725	\$1	\$291,137	\$70,256
Secondary C&P Operations and Maintenance	\$9,054,796	\$5,388,369	\$1,715,811	\$1,465,837	\$47,696	\$1	\$352,059	\$85,021
Allocation of General Expenses	\$11,636,882	\$6,723,531	\$2,240,591	\$2,088,403	\$70,561	\$2	\$413,840	\$99,954
Admin and General Assigned to Primary C&P	\$4,611,914	\$2,748,031	\$848,710	\$748,816	\$24,425	\$1	\$197,121	\$44,811
PILs on Secondary C&P	\$2,090,389	\$1,239,230	\$390,407	\$347,214	\$11,681	\$0	\$82,043	\$19,813
Debt Return on Secondary C&P	\$12,653,383	\$7,501,215	\$2,363,180	\$2,101,732	\$70,709	\$2	\$496,614	\$119,931
Equity Return on Secondary C&P	\$15,613,010	\$9,255,750	\$2,915,929	\$2,593,327	\$87,248	\$2	\$612,772	\$147,983
<b>Total</b>	<b>\$77,152,628</b>	<b>\$45,589,515</b>	<b>\$14,492,367</b>	<b>\$12,920,696</b>	<b>\$431,615</b>	<b>\$11</b>	<b>\$2,997,395</b>	<b>\$721,029</b>
<b>General Plant - Gross Assets</b>	<b>\$590,822,817</b>	<b>\$280,402,259</b>	<b>\$74,731,793</b>	<b>\$147,650,045</b>	<b>\$40,690,965</b>	<b>\$18,863,484</b>	<b>\$22,921,774</b>	<b>\$5,562,497</b>
<b>General Plant - Accumulated Depreciation</b>	<b>(\$380,800,875)</b>	<b>(\$180,726,645)</b>	<b>(\$48,166,610)</b>	<b>(\$95,164,345)</b>	<b>(\$26,226,399)</b>	<b>(\$12,158,012)</b>	<b>(\$14,773,687)</b>	<b>(\$3,585,176)</b>
<b>General Plant - Net Fixed Assets</b>	<b>\$210,021,942</b>	<b>\$99,675,614</b>	<b>\$26,565,183</b>	<b>\$52,485,700</b>	<b>\$14,464,566</b>	<b>\$6,705,471</b>	<b>\$8,148,087</b>	<b>\$1,977,321</b>
<b>General Plant - Depreciation</b>	<b>\$41,614,054</b>	<b>\$19,749,871</b>	<b>\$5,263,664</b>	<b>\$10,399,593</b>	<b>\$2,866,030</b>	<b>\$1,328,632</b>	<b>\$1,614,474</b>	<b>\$391,789</b>
<b>Total Net Fixed Assets Excluding General Plant</b>	<b>\$1,768,682,079</b>	<b>\$839,447,516</b>	<b>\$222,727,359</b>	<b>\$439,294,370</b>	<b>\$124,019,904</b>	<b>\$57,889,102</b>	<b>\$68,635,299</b>	<b>\$16,668,528</b>
<b>Total Administration and General Expense</b>	<b>\$80,157,742</b>	<b>\$37,822,164</b>	<b>\$11,834,134</b>	<b>\$19,695,670</b>	<b>\$5,429,842</b>	<b>\$2,566,267</b>	<b>\$2,160,623</b>	<b>\$649,041</b>
<b>Total O&amp;M</b>	<b>\$157,363,206</b>	<b>\$74,162,123</b>	<b>\$23,924,723</b>	<b>\$38,555,064</b>	<b>\$10,603,022</b>	<b>\$5,027,932</b>	<b>\$3,858,895</b>	<b>\$1,231,447</b>
<b>Secondary Conductors and Poles Gross Plant</b>								
Acct 1830-5 Secondary Poles, Towers & Fixtures	\$175,271,311	\$103,904,847	\$32,734,150	\$29,112,631	\$979,448	\$24	\$6,878,961	\$1,661,249
Acct 1835-5 Secondary Overhead Conductors	\$147,202,318	\$87,264,905	\$27,491,908	\$24,450,361	\$822,594	\$20	\$5,777,323	\$1,395,206
Acct 1840-5 Secondary Underground Conduit	\$298,574,390	\$177,001,735	\$55,762,571	\$49,593,319	\$1,668,489	\$41	\$11,718,299	\$2,829,934
Acct 1845-5 Secondary Underground Conductors	\$143,886,114	\$85,298,983	\$26,872,565	\$23,899,538	\$804,062	\$20	\$5,647,171	\$1,363,775
<b>Subtotal</b>	<b>\$764,934,133</b>	<b>\$453,470,470</b>	<b>\$142,861,195</b>	<b>\$127,055,849</b>	<b>\$4,274,593</b>	<b>\$106</b>	<b>\$30,021,755</b>	<b>\$7,250,164</b>
<b>Secondary Conductors and Poles Accumulated Depreciation</b>								
Acct 1830-5 Secondary Poles, Towers & Fixtures	(\$82,278,809)	(\$48,776,762)	(\$15,366,616)	(\$13,666,541)	(\$459,789)	(\$11)	(\$3,229,238)	(\$779,851)
Acct 1835-5 Secondary Overhead Conductors	(\$89,445,882)	(\$53,025,567)	(\$16,705,158)	(\$14,856,995)	(\$499,840)	(\$12)	(\$3,510,528)	(\$847,782)
Acct 1840-5 Secondary Underground Conduit	(\$199,776,372)	(\$118,432,008)	(\$37,310,783)	(\$33,182,931)	(\$1,116,387)	(\$28)	(\$7,840,724)	(\$1,893,511)
Acct 1845-5 Secondary Underground Conductors	(\$78,076,719)	(\$46,285,667)	(\$14,581,822)	(\$12,968,572)	(\$436,307)	(\$11)	(\$3,064,316)	(\$740,023)
<b>Subtotal</b>	<b>(\$449,577,782)</b>	<b>(\$266,520,004)</b>	<b>(\$83,964,379)</b>	<b>(\$74,675,040)</b>	<b>(\$2,512,324)</b>	<b>(\$62)</b>	<b>(\$17,644,806)</b>	<b>(\$4,261,168)</b>

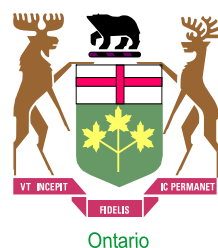
## ALLOCATION BY RATE CLASSIFICATION

<u>Description</u>	Total	1	2	3	5	6	7	9
		Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
Secondary Conductor & Pools - Net Fixed Assets	\$315,356,351	\$186,950,466	\$58,896,816	\$52,380,809	\$1,762,270	\$44	\$12,376,949	\$2,988,996
General Plant Assigned to Secondary C&P - NFA	\$37,510,934	\$22,198,413	\$7,024,753	\$6,258,317	\$205,535	\$5	\$1,469,338	\$354,573
Secondary C&P Net Fixed Assets Including General Plant	\$352,867,285	\$209,148,879	\$65,921,570	\$58,639,126	\$1,967,805	\$49	\$13,846,288	\$3,343,569
Acct 1830-3 Bulk Poles, Towers & Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1835-3 Bulk Overhead Conductors	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1840-3 Bulk Underground Conduit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Acct 1845-3 Bulk Underground Conductors	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Subtotal</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
Acct 1830-4 Primary Poles, Towers & Fixtures	\$195,830,343	\$80,020,669	\$19,097,722	\$53,596,041	\$22,243,560	\$11,452,840	\$7,587,220	\$1,832,291
Acct 1835-4 Primary Overhead Conductors	\$164,468,904	\$67,205,682	\$16,039,299	\$45,012,851	\$18,681,344	\$9,618,714	\$6,372,157	\$1,538,857
Acct 1840-4 Primary Underground Conduit	\$828,972,399	\$338,736,710	\$80,842,856	\$226,878,215	\$94,159,553	\$48,481,189	\$32,117,576	\$7,756,299
Acct 1845-4 Primary Underground Conductors	\$399,490,450	\$163,240,755	\$38,959,016	\$109,334,980	\$45,376,471	\$23,363,591	\$15,477,795	\$3,737,841
<b>Subtotal</b>	<b>\$1,588,762,095</b>	<b>\$649,203,816</b>	<b>\$154,938,892</b>	<b>\$434,822,087</b>	<b>\$180,460,929</b>	<b>\$92,916,333</b>	<b>\$61,554,749</b>	<b>\$14,865,288</b>
<b>Operations and Maintenance</b>								
Acct 5020 Overhead Distribution Lines & Feeders - Labour	\$883,994	\$438,126	\$123,468	\$197,019	\$55,319	\$27,282	\$34,460	\$8,322
Acct 5025 Overhead Distribution Lines & Feeders - Other	\$1,485,011	\$736,001	\$207,412	\$330,969	\$92,930	\$45,830	\$57,888	\$13,980
Acct 5040 Underground Distribution Lines & Feeders - Labour	\$1,322,506	\$604,913	\$160,225	\$324,275	\$112,397	\$56,864	\$51,415	\$12,417
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Acct 5090 Underground Distribution Lines & Feeders - Rental Paid	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
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Acct 5135 Overhead Distribution Lines & Feeders - Right of Way	\$3,799,311	\$1,883,016	\$530,651	\$846,765	\$237,755	\$117,254	\$148,104	\$35,767
Acct 5145 Maintenance of Underground Conduit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
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<b>Total</b>	<b>\$27,588,860</b>	<b>\$13,102,543</b>	<b>\$3,576,680</b>	<b>\$6,482,358</b>	<b>\$2,061,285</b>	<b>\$1,032,751</b>	<b>\$1,073,900</b>	<b>\$259,344</b>
<b>General Expenses</b>								
Acct 5005 - Operation Supervision and Engineering	\$38,419,775	\$17,400,519	\$4,966,331	\$10,189,572	\$2,771,470	\$1,292,966	\$1,448,718	\$350,200
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Acct 5105 - Maintenance Supervision and Engineering	\$6,075,269	\$2,751,522	\$785,319	\$1,611,264	\$438,249	\$204,455	\$229,084	\$55,377
<b>Total</b>	<b>\$57,089,692</b>	<b>\$25,856,223</b>	<b>\$7,379,697</b>	<b>\$15,141,148</b>	<b>\$4,118,253</b>	<b>\$1,921,277</b>	<b>\$2,152,716</b>	<b>\$520,378</b>
Secondary Conductors and Poles Gross Assets	\$764,934,133	\$453,470,470	\$142,861,195	\$127,055,849	\$4,274,593	\$106	\$30,021,755	\$7,250,164
Acct 1815 - 1855	\$3,695,352,547	\$1,743,880,302	\$470,533,045	\$921,168,729	\$249,484,708	\$116,372,577	\$156,167,549	\$37,745,636

**ALLOCATION BY RATE CLASSIFICATION**

	1	2	3	5	6	7	9
<u>Description</u>	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load

<u>Grouping of Operation and Maintenance</u>	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
1830	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1835	\$ 6,479,871	\$ 3,211,556	\$ 905,045	\$ 1,444,191	\$ 405,501	\$ 199,980	\$ 252,597	\$ 61,001
1840	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1845	\$ 7,728,916	\$ 3,535,196	\$ 936,380	\$ 1,895,110	\$ 656,866	\$ 332,321	\$ 300,479	\$ 72,565
1830 & 1835	\$ 6,168,316	\$ 3,057,143	\$ 861,530	\$ 1,374,753	\$ 386,004	\$ 190,365	\$ 240,452	\$ 58,068
1840 & 1845	\$ 7,211,757	\$ 3,298,648	\$ 873,724	\$ 1,768,304	\$ 612,913	\$ 310,085	\$ 280,373	\$ 67,709
<b>Total</b>	<b>\$ 27,588,860</b>	<b>\$ 13,102,543</b>	<b>\$ 3,576,680</b>	<b>\$ 6,482,358</b>	<b>\$ 2,061,285</b>	<b>\$ 1,032,751</b>	<b>\$ 1,073,900</b>	<b>\$ 259,344</b>



# 2011 COST ALLOCATION INFORMATION FILING

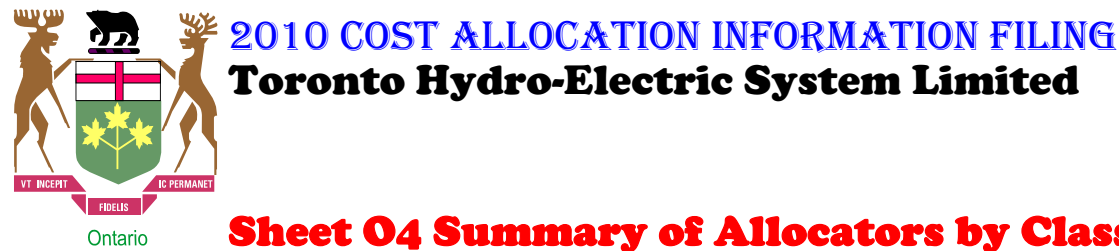
## Toronto Hydro-Electric System Limited

### Sheet O3.5 USL Metering Credit Worksheet - First Run

#### ALLOCATION BY RATE CLASSIFICATION

<u>Description</u>	<u>GS &lt;50</u>
Depreciation on Acct 1860 Metering	\$1,232,182
Depreciation on General Plant Assigned to Metering	\$287,475
Acct 5065 - Meter expense	\$924,974
Acct 5070 & 5075 - Customer Premises	\$368,616
Acct 5175 - Meter Maintenance	\$0
Acct 5310 - Meter Reading	\$422,007
Admin and General Assigned to Metering	\$848,603
PILs on Metering	\$80,633
Debt Return on Metering	\$488,079
Equity Return on Metering	\$602,241
<b>Total</b>	<b>\$5,254,809</b>
 Number of Customers	 65,792
 Metering Unit Cost (\$/Customer/Month)	 <b>\$6.66</b>
  General Plant - Gross Assets	  \$74,731,793
General Plant - Accumulated Depreciation	(\$48,166,610)
General Plant - Net Fixed Assets	\$26,565,183
 General Plant - Depreciation	 \$5,263,664
<b>Total Net Fixed Assets Excluding General Plant</b>	<b>\$222,727,359</b>
 <b>Total Administration and General Expense</b>	 <b>\$11,834,134</b>
 <b>Total O&amp;M</b>	 <b>\$23,924,723</b>
 Metering Rate Base	
Acct 1860 - Metering - Gross Assets	\$27,053,994
Metering - Accumulated Depreciation	(\$14,889,748)
Metering - Net Fixed Assets	\$12,164,246
General Plant Assigned to Metering - NFA	\$1,450,856
<b>Metering Net Fixed Assets Including General Plant</b>	<b>\$13,615,102</b>





## Sheet O4 Summary of Allocators by Class & Accounts - First Run

### ALLOCATION BY RATE CLASSIFICATION

				1	2	3	5	6	7	9
USoA Account #	Accounts	O1 Grouping	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
1565	Conservation and Demand Management Expenditures and Recoveries	dp	\$15,702,253	\$7,400,157	\$2,387,293	\$3,847,160	\$1,058,007	\$501,705	\$385,054	\$122,878
1608	Franchises and Consents	gp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1805	Land	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1805-1	Land Station >50 kV	dp	\$454,416	\$107,023	\$49,194	\$187,894	\$71,621	\$37,250	\$743	\$689
1805-2	Land Station <50 kV	dp	\$1,656,505	\$390,137	\$179,330	\$684,941	\$261,085	\$135,791	\$2,710	\$2,511
1806	Land Rights	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1806-1	Land Rights Station >50 kV	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1806-2	Land Rights Station <50 kV	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1808	Buildings and Fixtures	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1808-1	Buildings and Fixtures > 50 kV	dp	\$1,453,925	\$342,426	\$157,399	\$601,177	\$229,156	\$119,185	\$2,379	\$2,204
1808-2	Buildings and Fixtures < 50 KV	dp	\$60,015,503	\$14,134,755	\$6,497,174	\$24,815,546	\$9,459,149	\$4,919,730	\$98,185	\$90,963
1810	Leasehold Improvements	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1810-1	Leasehold Improvements >50 kV	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1810-2	Leasehold Improvements <50 kV	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1815	Transformer Station Equipment - Normally Primary above 50 kV	dp	\$21,986,973	\$5,178,337	\$2,380,271	\$9,091,297	\$3,465,406	\$1,802,367	\$35,971	\$33,325
1820	Distribution Station Equipment - Normally Primary below 50 kV	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1820-1	Distribution Station Equipment - Normally Primary below 50 kV (Bulk)	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1820-2	Distribution Station Equipment - Normally Primary below 50 kV (Primary)	dp	\$199,734,227	\$43,277,064	\$21,282,657	\$82,374,494	\$34,835,211	\$17,964,800	\$0	\$0
1820-3	Distribution Station Equipment - Normally Primary below 50 kV (Wholesale Meters)	dp	\$5,769,195	\$1,178,477	\$505,565	\$2,390,709	\$1,093,439	\$561,682	\$26,034	\$13,289
1825	Storage Battery Equipment	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1825-1	Storage Battery Equipment > 50 kV	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1825-2	Storage Battery Equipment <50 kV	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1830	Poles, Towers and Fixtures	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1830-3	Poles, Towers and Fixtures - Subtransmission Bulk Delivery	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1830-4	Poles, Towers and Fixtures - Primary	dp	\$195,830,343	\$80,020,669	\$19,097,722	\$53,596,041	\$22,243,560	\$11,452,840	\$7,587,220	\$1,832,291
1830-5	Poles, Towers and Fixtures - Secondary	dp	\$175,271,311	\$103,904,847	\$32,734,150	\$29,112,631	\$979,448	\$24	\$6,878,961	\$1,661,249
1835	Overhead Conductors and Devices	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1835-3	Overhead Conductors and Devices - Subtransmission Bulk Delivery	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1835-4	Overhead Conductors and Devices - Primary	dp	\$164,468,904	\$67,205,682	\$16,039,299	\$45,012,851	\$18,681,344	\$9,618,714	\$6,372,157	\$1,538,857
1835-5	Overhead Conductors and Devices - Secondary	dp	\$147,202,318	\$87,264,905	\$27,491,908	\$24,450,361	\$822,594	\$20	\$5,777,323	\$1,395,206
1840	Underground Conduit	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1840-3	Underground Conduit - Bulk Delivery	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1840-4	Underground Conduit - Primary	dp	\$828,972,399	\$338,736,710	\$80,842,856	\$226,878,215	\$94,159,553	\$48,481,189	\$32,117,576	\$7,756,299
1840-5	Underground Conduit - Secondary	dp	\$298,574,390	\$177,001,735	\$55,762,571	\$49,593,319	\$1,668,489	\$41	\$11,718,299	\$2,829,934
1845	Underground Conductors and Devices	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1845-3	Underground Conductors and Devices - Bulk Delivery	dp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1845-4	Underground Conductors and Devices - Primary	dp	\$399,490,450	\$163,240,755	\$38,959,016	\$109,334,980	\$45,376,471	\$23,363,591	\$15,477,795	\$3,737,841
1845-5	Underground Conductors and Devices - Secondary	dp	\$143,886,114	\$85,298,983	\$26,872,565	\$23,899,538	\$804,062	\$20	\$5,647,171	\$1,363,775
1850	Line Transformers	dp	\$705,890,901	\$308,186,411	\$88,749,337	\$251,317,531	\$25,304,728	\$3,122,936	\$23,528,014	\$5,681,945
1855	Services	dp	\$408,275,022	\$283,385,726	\$59,815,127	\$14,116,761	\$50,402	\$4,353	\$41,001,027	\$9,901,625

## ALLOCATION BY RATE CLASSIFICATION

				1	2	3	5	6	7	9
USoA Account #	Accounts	O1 Grouping	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
1860	Meters	dp	\$220,804,236	\$149,459,514	\$27,053,994	\$35,363,502	\$7,552,147	\$1,375,079	\$0	\$0
1905	Land	gp	\$1,889,782	\$896,883	\$239,034	\$472,267	\$130,152	\$60,336	\$73,317	\$17,792
1906	Land Rights	gp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1908	Buildings and Fixtures	gp	\$117,925,808	\$55,967,139	\$14,916,159	\$29,470,343	\$8,121,749	\$3,765,074	\$4,575,092	\$1,110,251
1910	Leasehold Improvements	gp	\$20,013,651	\$9,498,403	\$2,531,480	\$5,001,527	\$1,378,374	\$638,985	\$776,457	\$188,425
1915	Office Furniture and Equipment	gp	\$13,961,705	\$6,626,172	\$1,765,983	\$3,489,111	\$961,566	\$445,762	\$541,663	\$131,447
1920	Computer Equipment - Hardware	gp	\$42,452,996	\$20,148,030	\$5,369,780	\$10,609,250	\$2,923,810	\$1,355,417	\$1,647,022	\$399,688
1925	Computer Software	gp	\$179,665,294	\$85,268,464	\$22,725,442	\$44,899,398	\$12,373,852	\$5,736,260	\$6,970,359	\$1,691,518
1930	Transportation Equipment	gp	\$82,482,897	\$39,146,069	\$10,433,068	\$20,612,954	\$5,680,736	\$2,633,471	\$3,200,036	\$776,562
1935	Stores Equipment	gp	\$5,592,933	\$2,654,385	\$707,437	\$1,397,706	\$385,195	\$178,568	\$216,985	\$52,657
1940	Tools, Shop and Garage Equipment	gp	\$35,302,613	\$16,754,486	\$4,465,345	\$8,822,328	\$2,431,351	\$1,127,123	\$1,369,613	\$332,368
1945	Measurement and Testing Equipment	gp	\$4,767,550	\$2,262,661	\$603,036	\$1,191,438	\$328,349	\$152,216	\$184,964	\$44,886
1950	Power Operated Equipment	gp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1955	Communication Equipment	gp	\$26,430,482	\$12,543,806	\$3,343,130	\$6,605,131	\$1,820,312	\$843,859	\$1,025,406	\$248,839
1960	Miscellaneous Equipment	gp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1970	Load Management Controls - Customer Premises	gp	\$4,352,294	\$2,065,582	\$550,511	\$1,087,663	\$299,750	\$138,958	\$168,853	\$40,976
1975	Load Management Controls - Utility Premises	gp	\$554,382	\$263,108	\$70,122	\$138,543	\$38,181	\$17,700	\$21,508	\$5,219
1980	System Supervisory Equipment	gp	\$54,641,442	\$25,932,620	\$6,911,468	\$13,655,213	\$3,763,248	\$1,744,564	\$2,119,889	\$514,440
1990	Other Tangible Property	gp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1995	Contributions and Grants - Credit	co	(\$276,410,062)	(\$131,145,426)	(\$35,951,552)	(\$71,786,006)	(\$16,829,045)	(\$7,405,537)	(\$10,706,830)	(\$2,585,667)
2005	Property Under Capital Leases	gp	\$788,988	\$374,451	\$99,797	\$197,173	\$54,339	\$25,190	\$30,610	\$7,428
2010	Electric Plant Purchased or Sold	gp	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2105	Accum. Amortization of Electric Utility Plant - Property, Plant, & Equipment	accum dep								
			(\$2,316,658,753)	(\$1,118,971,420)	(\$294,512,402)	(\$567,131,942)	(\$152,495,417)	(\$69,862,081)	(\$91,526,045)	(\$22,159,446)
2120	Accumulated Amortization of Electric Utility Plant - Intangibles	accum dep	(\$14,489,365)	(\$6,876,597)	(\$1,832,726)	(\$3,620,976)	(\$997,907)	(\$462,609)	(\$562,135)	(\$136,415)
3046	Balance Transferred From Income	NI	(\$87,565,862)	(\$41,560,293)	(\$11,027,032)	(\$21,749,070)	(\$6,140,114)	(\$2,866,037)	(\$3,398,072)	(\$825,244)
4080	Distribution Services Revenue	CREV	(\$522,044,344)	(\$214,055,884)	(\$67,475,771)	(\$155,345,275)	(\$46,693,792)	(\$22,927,757)	(\$11,938,817)	(\$3,607,047)
4082	Retail Services Revenues	mi	(\$887,500)	(\$513,063)	(\$216,588)	(\$141,441)	(\$5,922)	(\$1,160)	(\$28)	(\$9,297)
4084	Service Transaction Requests (STR) Revenues	mi	(\$30,000)	(\$17,343)	(\$7,321)	(\$4,781)	(\$200)	(\$39)	(\$1)	(\$314)
4090	Electric Services Incidental to Energy Sales	mi	(\$1,700,000)	(\$982,769)	(\$414,872)	(\$270,929)	(\$11,344)	(\$2,223)	(\$54)	(\$17,809)
4205	Interdepartmental Rents	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4210	Rent from Electric Property	mi	(\$4,120,056)	(\$1,955,451)	(\$518,832)	(\$1,023,314)	(\$288,898)	(\$134,850)	(\$159,882)	(\$38,828)
4215	Other Utility Operating Income	mi	(\$503,000)	(\$238,733)	(\$63,342)	(\$124,932)	(\$35,270)	(\$16,463)	(\$19,519)	(\$4,740)
4220	Other Electric Revenues	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4225	Late Payment Charges	mi	(\$4,900,000)	(\$2,596,580)	(\$1,047,547)	(\$985,738)	(\$227,605)	(\$42,530)	\$0	\$0
4235	Miscellaneous Service Revenues	mi	(\$7,580,526)	(\$4,382,298)	(\$1,849,971)	(\$1,208,110)	(\$50,585)	(\$9,912)	(\$239)	(\$79,411)
4240	Provision for Rate Refunds	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4245	Government Assistance Directly Credited to Income	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4305	Regulatory Debits	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4310	Regulatory Credits	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4315	Revenues from Electric Plant Leased to Others	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4320	Expenses of Electric Plant Leased to Others	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4325	Revenues from Merchandise, Jobbing, Etc.	mi	(\$13,822,018)	(\$6,560,172)	(\$1,740,585)	(\$3,433,028)	(\$969,199)	(\$452,396)	(\$536,376)	(\$130,262)
4330	Costs and Expenses of Merchandising, Jobbing, Etc.	mi	\$7,522,018	\$3,570,082	\$947,236	\$1,868,273	\$527,444	\$246,196	\$291,899	\$70,889
4335	Profits and Losses from Financial Instrument Hedges	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4340	Profits and Losses from Financial Instrument Investments	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4345	Gains from Disposition of Future Use Utility Plant	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

## ALLOCATION BY RATE CLASSIFICATION

				1	2	3	5	6	7	9
USoA Account #	Accounts	O1 Grouping	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
4350	Losses from Disposition of Future Use Utility Plant	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4355	Gain on Disposition of Utility and Other Property	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4360	Loss on Disposition of Utility and Other Property	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4365	Gains from Disposition of Allowances for Emission	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4370	Losses from Disposition of Allowances for Emission	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4390	Miscellaneous Non-Operating Income	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4395	Rate-Payer Benefit Including Interest	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4398	Foreign Exchange Gains and Losses, Including Amortization	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4405	Interest and Dividend Income	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4415	Equity in Earnings of Subsidiary Companies	mi	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4705	Power Purchased	cop	\$1,868,495,162	\$377,869,322	\$162,105,508	\$767,923,382	\$350,602,636	\$197,385,715	\$8,347,686	\$4,260,914
4708	Charges-WMS	cop	\$118,474,436	\$23,959,310	\$10,278,517	\$48,691,209	\$22,230,429	\$12,515,505	\$529,296	\$270,169
4710	Cost of Power Adjustments	cop	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4712	Charges-One-Time	cop	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4714	Charges-NW	cop	\$121,678,219	\$24,855,281	\$10,662,887	\$50,422,495	\$23,061,748	\$11,846,447	\$549,090	\$280,272
4715	System Control and Load Dispatching	cop	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4716	Charges-CN	cop	\$99,806,438	\$20,387,519	\$8,746,223	\$41,359,001	\$18,916,376	\$9,717,037	\$450,390	\$229,893
4730	Rural Rate Assistance Expense	cop	\$33,481,906	\$6,771,109	\$2,904,798	\$13,760,559	\$6,282,513	\$3,536,991	\$149,584	\$76,352
5005	Operation Supervision and Engineering	di	\$38,419,775	\$17,400,519	\$4,966,331	\$10,189,572	\$2,771,470	\$1,292,966	\$1,448,718	\$350,200
5010	Load Dispatching	di	\$9,261,288	\$4,194,486	\$1,197,160	\$2,456,250	\$668,077	\$311,676	\$349,221	\$84,418
5012	Station Buildings and Fixtures Expense	di	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5014	Transformer Station Equipment - Operation Labour	di	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5015	Transformer Station Equipment - Operation Supplies and Expenses	di	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5016	Distribution Station Equipment - Operation Labour	di	\$3,163,351	\$685,414	\$337,070	\$1,304,631	\$551,713	\$284,523	\$0	\$0
5017	Distribution Station Equipment - Operation Supplies and Expenses	di	\$813,170	\$176,192	\$86,647	\$335,368	\$141,823	\$73,139	\$0	\$0
5020	Overhead Distribution Lines and Feeders - Operation Labour	di	\$883,994	\$438,126	\$123,468	\$197,019	\$55,319	\$27,282	\$34,460	\$8,322
5025	Overhead Distribution Lines & Feeders - Operation Supplies and Expenses	di	\$1,485,011	\$736,001	\$207,412	\$330,969	\$92,930	\$45,830	\$57,888	\$13,980
5030	Overhead Subtransmission Feeders - Operation	di	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5035	Overhead Distribution Transformers- Operation	di	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5040	Underground Distribution Lines and Feeders - Operation Labour	di	\$1,322,506	\$604,913	\$160,225	\$324,275	\$112,397	\$56,864	\$51,415	\$12,417
5045	Underground Distribution Lines & Feeders - Operation Supplies & Expenses	di	\$5,889,251	\$2,693,736	\$713,499	\$1,444,029	\$500,516	\$253,221	\$228,958	\$55,293
5050	Underground Subtransmission Feeders - Operation	di	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5055	Underground Distribution Transformers - Operation	di	\$1,817,693	\$793,591	\$228,533	\$647,151	\$65,161	\$8,042	\$60,585	\$14,631
5065	Meter Expense	cu	\$7,549,277	\$5,110,007	\$924,974	\$1,209,075	\$258,207	\$47,014	\$0	\$0
5070	Customer Premises - Operation Labour	cu	\$3,537,466	\$2,706,513	\$285,636	\$56,728	\$2,232	\$204	\$391,586	\$94,567
5075	Customer Premises - Materials and Expenses	cu	\$1,027,668	\$786,268	\$82,980	\$16,480	\$648	\$59	\$113,759	\$27,473
5085	Miscellaneous Distribution Expense	di	\$3,333,359	\$1,509,696	\$430,887	\$884,063	\$240,457	\$112,180	\$125,693	\$30,384
5090	Underground Distribution Lines and Feeders - Rental Paid	di	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5095	Overhead Distribution Lines and Feeders - Rental Paid	di	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5096	Other Rent	di	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5105	Maintenance Supervision and Engineering	di	\$6,075,269	\$2,751,522	\$785,319	\$1,611,264	\$438,249	\$204,455	\$229,084	\$55,377
5110	Maintenance of Buildings and Fixtures - Distribution Stations	di	\$16,560,453	\$3,900,292	\$1,792,806	\$6,847,509	\$2,610,122	\$1,357,532	\$27,093	\$25,100



# ALLOCATION BY RATE CLASSIFICATION

				1	2	3	5	6	7	9
USoA Account #	Accounts	O1 Grouping	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
5112	Maintenance of Transformer Station Equipment	di	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5114	Maintenance of Distribution Station Equipment	di	\$2,983,582	\$646,462	\$317,915	\$1,230,490	\$520,360	\$268,354	\$0	\$0
5120	Maintenance of Poles, Towers and Fixtures	di	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5125	Maintenance of Overhead Conductors and Devices	di	\$6,479,871	\$3,211,556	\$905,045	\$1,444,191	\$405,501	\$199,980	\$252,597	\$61,001
5130	Maintenance of Overhead Services	di	\$382,481	\$265,482	\$56,036	\$13,225	\$47	\$4	\$38,411	\$9,276
5135	Overhead Distribution Lines and Feeders - Right of Way	di	\$3,799,311	\$1,883,016	\$530,651	\$846,765	\$237,755	\$117,254	\$148,104	\$35,767
5145	Maintenance of Underground Conduit	di	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5150	Maintenance of Underground Conductors and Devices	di	\$7,728,916	\$3,535,196	\$936,380	\$1,895,110	\$656,866	\$332,321	\$300,479	\$72,565
5155	Maintenance of Underground Services	di	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5160	Maintenance of Line Transformers	di	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5175	Maintenance of Meters	cu	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5305	Supervision	cu	\$318,617	\$184,192	\$77,756	\$50,778	\$2,126	\$417	\$10	\$3,338
5310	Meter Reading Expense	cu	\$671,121	\$153,884	\$422,007	\$95,231	\$0	\$0	\$0	\$0
5315	Customer Billing	cu	\$11,813,305	\$6,829,265	\$2,882,950	\$1,882,689	\$78,830	\$15,446	\$372	\$123,752
5320	Collecting	cu	\$14,661,468	\$8,475,787	\$3,578,023	\$2,336,601	\$97,836	\$19,170	\$462	\$153,589
5325	Collecting- Cash Over and Short	cu	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5330	Collection Charges	cu	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5335	Bad Debt Expense	cu	\$7,385,000	\$4,490,007	\$1,895,014	\$905,601	\$94,378	\$0	\$0	\$0
5340	Miscellaneous Customer Accounts Expenses	cu	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5405	Supervision	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5410	Community Relations - Sundry	ad	\$544,740	\$256,725	\$82,820	\$133,465	\$36,704	\$17,405	\$13,358	\$4,263
5415	Energy Conservation	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5420	Community Safety Program	ad	\$3,584,007	\$1,700,956	\$453,333	\$895,664	\$246,837	\$114,428	\$139,046	\$33,743
5425	Miscellaneous Customer Service and Informational Expenses	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5505	Supervision	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5510	Demonstrating and Selling Expense	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5515	Advertising Expense	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5520	Miscellaneous Sales Expense	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5605	Executive Salaries and Expenses	ad	\$1,841,406	\$867,818	\$279,958	\$451,157	\$124,073	\$58,835	\$45,155	\$14,410
5610	Management Salaries and Expenses	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5615	General Administrative Salaries and Expenses	ad	\$50,634,669	\$23,863,104	\$7,698,244	\$12,405,841	\$3,411,728	\$1,617,835	\$1,241,674	\$396,242
5620	Office Supplies and Expenses	ad	\$2,110	\$995	\$321	\$517	\$142	\$67	\$52	\$17
5625	Administrative Expense Transferred Credit	ad	(\$1,644,231)	(\$774,893)	(\$249,981)	(\$402,848)	(\$110,787)	(\$52,535)	(\$40,320)	(\$12,867)
5630	Outside Services Employed	ad	\$9,723,640	\$4,582,557	\$1,478,334	\$2,382,358	\$655,172	\$310,681	\$238,445	\$76,092
5635	Property Insurance	ad	\$3,268,553	\$1,551,243	\$413,432	\$816,830	\$225,111	\$104,357	\$126,808	\$30,773
5640	Injuries and Damages	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5645	Employee Pensions and Benefits	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5650	Franchise Requirements	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5655	Regulatory Expenses	ad	\$4,133,635	\$1,948,099	\$628,457	\$1,012,769	\$278,521	\$132,074	\$101,366	\$32,348
5660	General Advertising Expenses	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

# ALLOCATION BY RATE CLASSIFICATION

				1	2	3	5	6	7	9
USoA Account #	Accounts	O1 Grouping	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
5665	Miscellaneous General Expenses	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5670	Rent	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5675	Maintenance of General Plant	ad	\$896,931	\$422,705	\$136,365	\$219,754	\$60,435	\$28,658	\$21,995	\$7,019
5680	Electrical Safety Authority Fees	ad	\$369,900	\$174,326	\$56,238	\$90,628	\$24,924	\$11,819	\$9,071	\$2,895
5685	Independent Market Operator Fees and Penalties	cop	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5705	Amortization Expense - Property, Plant, and Equipment	dep	\$134,116,965	\$62,437,657	\$16,651,811	\$34,974,342	\$9,843,756	\$4,525,214	\$4,573,339	\$1,110,848
5710	Amortization of Limited Term Electric Plant	dep	\$3,393,883	\$1,610,724	\$429,284	\$848,151	\$233,742	\$108,358	\$131,670	\$31,953
5715	Amortization of Intangibles and Other Electric Plant	dep	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5720	Amortization of Electric Plant Acquisition Adjustments	dep	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5730	Amortization of Unrecovered Plant and Regulatory Study Costs	dep	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5735	Amortization of Deferred Development Costs	dep	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5740	Amortization of Deferred Charges	dep	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6005	Interest on Long Term Debt	INT	\$70,966,738	\$33,682,058	\$8,936,730	\$17,626,282	\$4,976,184	\$2,322,747	\$2,753,928	\$668,809
6105	Taxes Other Than Income Taxes	ad	\$6,802,382	\$3,228,530	\$856,613	\$1,689,534	\$476,983	\$222,642	\$263,973	\$64,107
6110	Income Taxes	Input	\$11,723,984	\$5,564,408	\$1,476,383	\$2,911,931	\$822,085	\$383,727	\$454,960	\$110,490
6205	Donations	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6210	Life Insurance	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6215	Penalties	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6225	Other Deductions	ad	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
			\$4,042,731,413	\$1,338,952,300	\$423,828,915	\$1,346,129,810	\$537,591,316	\$288,323,342	\$84,981,757	\$22,923,973
			\$4,042,731,413							

# ALLOCATION BY RATE CLASSIFICATION

				1	2	3	5	6	7	9
USoA Account #	Accounts	O1 Grouping	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load

Grouping by Allocator	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
1808	\$ 16,560,453	\$ 3,900,292	\$ 1,792,806	\$ 6,847,509	\$ 2,610,122	\$ 1,357,532	\$ 27,093	\$ 25,100
1815	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1820	\$ 6,960,103	\$ 1,508,068	\$ 741,633	\$ 2,870,489	\$ 1,213,896	\$ 626,016	\$ -	\$ -
1830	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1835	\$ 6,479,871	\$ 3,211,556	\$ 905,045	\$ 1,444,191	\$ 405,501	\$ 199,980	\$ 252,597	\$ 61,001
1840	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1845	\$ 7,728,916	\$ 3,535,196	\$ 936,380	\$ 1,895,110	\$ 656,866	\$ 332,321	\$ 300,479	\$ 72,565
1850	\$ 1,817,693	\$ 793,591	\$ 228,533	\$ 647,151	\$ 65,161	\$ 8,042	\$ 60,585	\$ 14,631
1855	\$ 382,481	\$ 265,482	\$ 56,036	\$ 13,225	\$ 47	\$ 4	\$ 38,411	\$ 9,276
1860	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
1815-1855	\$ 57,089,692	\$ 25,856,223	\$ 7,379,697	\$ 15,141,148	\$ 4,118,253	\$ 1,921,277	\$ 2,152,716	\$ 520,378
1830 & 1835	\$ 6,168,316	\$ 3,057,143	\$ 861,530	\$ 1,374,753	\$ 386,004	\$ 190,365	\$ 240,452	\$ 58,068
1840 & 1845	\$ 7,211,757	\$ 3,298,648	\$ 873,724	\$ 1,768,304	\$ 612,913	\$ 310,085	\$ 280,373	\$ 67,709
BCP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
BDHA	\$ 7,385,000	\$ 4,490,007	\$ 1,895,014	\$ 905,601	\$ 94,378	\$ -	\$ -	\$ -
Break Out	-\$ 2,470,047,332	-\$ 1,192,945,063	-\$ 315,215,585	-\$ 606,716,431	-\$ 160,244,871	-\$ 73,096,655	-\$ 98,090,000	-\$ 23,738,727
CCA	\$ 4,565,134	\$ 3,492,782	\$ 368,616	\$ 73,208	\$ 2,880	\$ 263	\$ 505,345	\$ 122,039
CDMPP	\$ 15,702,253	\$ 7,400,157	\$ 2,387,293	\$ 3,847,160	\$ 1,058,007	\$ 501,705	\$ 385,054	\$ 122,878
CEN	\$ 227,253,852	\$ 46,421,277	\$ 19,914,675	\$ 94,172,205	\$ 43,071,562	\$ 22,125,166	\$ 1,025,514	\$ 523,454
CEN EWMP	\$ 2,020,451,504	\$ 408,599,741	\$ 175,288,823	\$ 830,375,150	\$ 379,115,578	\$ 213,438,211	\$ 9,026,566	\$ 4,607,435
CREV	-\$ 522,044,344	-\$ 214,055,884	-\$ 67,475,771	-\$ 155,345,275	-\$ 46,693,792	-\$ 22,927,757	-\$ 11,938,817	-\$ 3,607,047
CWCS	\$ 408,275,022	\$ 283,385,726	\$ 59,815,127	\$ 14,116,761	\$ 50,402	\$ 4,353	\$ 41,001,027	\$ 9,901,625
CWMC	\$ 228,353,512	\$ 154,569,521	\$ 27,978,967	\$ 36,572,577	\$ 7,810,355	\$ 1,422,092	\$ -	\$ -
CWMR	\$ 671,121	\$ 153,884	\$ 422,007	\$ 95,231	\$ -	\$ -	\$ -	\$ -
CWNB	\$ 16,595,364	\$ 9,593,771	\$ 4,049,976	\$ 2,644,807	\$ 110,741	\$ 21,699	\$ 523	\$ 173,847
DCP	\$ 61,672,008	\$ 14,524,893	\$ 6,676,504	\$ 25,500,487	\$ 9,720,234	\$ 5,055,521	\$ 100,895	\$ 93,474
LPHA	-\$ 4,900,000	-\$ 2,596,580	-\$ 1,047,547	-\$ 985,738	-\$ 227,605	-\$ 42,530	\$ -	\$ -
LTNCP	\$ 705,890,901	\$ 308,186,411	\$ 88,749,337	\$ 251,317,531	\$ 25,304,728	\$ 3,122,936	\$ 23,528,014	\$ 5,681,945
NFA	-\$ 8,995,814	-\$ 4,269,571	-\$ 1,132,829	-\$ 2,234,325	-\$ 630,786	-\$ 294,434	-\$ 349,091	-\$ 84,779
NFA ECC	\$ 597,675,377	\$ 283,654,458	\$ 75,598,558	\$ 149,362,540	\$ 41,162,912	\$ 19,082,269	\$ 23,187,628	\$ 5,627,012
O&M	\$ 66,502,800	\$ 31,341,436	\$ 10,110,757	\$ 16,293,642	\$ 4,480,912	\$ 2,124,840	\$ 1,630,796	\$ 520,418
PNCP	\$ 1,788,496,322	\$ 692,480,881	\$ 176,221,549	\$ 517,196,582	\$ 215,296,140	\$ 110,881,133	\$ 61,554,749	\$ 14,865,288
SNCP	\$ 764,934,133	\$ 453,470,470	\$ 142,861,195	\$ 127,055,849	\$ 4,274,593	\$ 106	\$ 30,021,755	\$ 7,250,164
TCP	\$ 23,895,314	\$ 5,627,786	\$ 2,586,865	\$ 9,880,368	\$ 3,766,183	\$ 1,958,802	\$ 39,093	\$ 36,217
<b>Total</b>	<b>\$ 4,042,731,413</b>	<b>\$ 1,338,952,300</b>	<b>\$ 423,828,915</b>	<b>#####</b>	<b>\$ 537,591,316</b>	<b>\$ 288,323,342</b>	<b>\$ 84,981,757</b>	<b>\$ 22,923,973</b>



[illegible]



### **Allocation of General**

[illegible]



**Details:**  
Output Sheet Details How Various Composite Allocators are Derived

*Demand Allocators can be found in columns C to AG*  
*Customer Allocators can be found in columns AJ to BN*

		Demand Allocators								Customer Allocators									
		1		2	3	5	6	7	9	1		2	3	5	6	7	9	Total	
		Demand Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Customer Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load		
Composite allocators																			
Rate Base																			
1565	Conservation and Demand Management	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$15,702,253	\$7,400,157	\$2,387,293	\$3,847,160	\$1,058,007	\$501,705	\$385,054	\$122,878	\$15,702,253	
1805-1	Land Station >50 kV		\$107,023	\$49,194	\$187,894	\$71,621	\$37,250	\$743	\$689	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1805-2	Land Station <50 kV		\$390,137	\$179,330	\$684,941	\$261,085	\$135,791	\$2,710	\$2,511	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1805	Total	\$2,110,921	\$497,161	\$228,525	\$872,835	\$332,706	\$173,041	\$3,453	\$3,199	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,110,921	
1806-1	Land Rights Station >50 kV		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1806-2	Land Rights Station <50 kV		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1806	Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1808-1	Buildings and Fixtures > 50 kV		\$342,426	\$157,399	\$601,177	\$229,156	\$119,185	\$2,379	\$2,204	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1808-2	Buildings and Fixtures < 50 KV		\$14,134,755	\$6,497,174	\$24,815,546	\$9,459,149	\$4,919,730	\$98,185	\$90,963	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1808	Total	\$61,469,428	\$14,477,181	\$6,654,573	\$25,416,723	\$9,688,305	\$5,038,915	\$100,564	\$93,167	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$61,469,428	
1810-1	Leasehold Improvements >50 kV		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1810-2	Leasehold Improvements <50 kV		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1810	Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1815	Transformer Station Equipment - Normally Primary above 50 kV	\$21,986,973	\$5,178,337	\$2,380,271	\$9,091,297	\$3,465,406	\$1,802,367	\$35,971	\$33,325	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$21,986,973	
1820-1	Distribution Station Equipment - Normally Primary below 50 kV (Bulk)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1820-2	Distribution Station Equipment - Normally Primary below 50 kV (Primary)	\$199,734,227	\$43,277,064	\$21,282,657	\$82,374,494	\$34,835,211	\$17,964,800	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$199,734,227	
1820-3	Distribution Station Equipment - Normally Primary below 50 kV (Wholesale Meters)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,769,195	\$1,178,477	\$505,565	\$2,390,709	\$1,093,439	\$561,682	\$26,034	\$13,289	\$5,769,195	
1820	Total	\$199,734,227	\$43,277,064	\$21,282,657	\$82,374,494	\$34,835,211	\$17,964,800	\$0	\$0	\$5,769,195	\$1,178,477	\$505,565	\$2,390,709	\$1,093,439	\$561,682	\$26,034	\$13,289	\$205,503,422	
1815 & 1820	Total	\$221,721,200	\$48,455,401	\$23,662,929	\$91,465,791	\$38,300,617	\$19,767,167	\$35,971	\$33,325	\$5,769,195	\$1,178,477	\$505,565	\$2,390,709	\$1,093,439	\$561,682	\$26,034	\$13,289	\$227,490,396	
1825-1	Storage Battery Equipment > 50 kV		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1825-2	Storage Battery Equipment <50 kV		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1825	Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1830-3	Poles, Towers and Fixtures - Subtransmission Bulk Delivery		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1830-4	Poles, Towers and Fixtures - Primary		\$27,580,278	\$13,563,342	\$52,496,894	\$22,200,323	\$11,448,886	\$0	\$0	\$68,540,620	\$52,440,391	\$5,534,380	\$1,099,147	\$43,237	\$3,954	\$7,587,220	\$1,832,291	\$68,540,620	
1830-5	Poles, Towers and Fixtures - Secondary		\$56,359,709	\$27,716,399	\$28,871,642	\$978,603	\$0	\$0	\$0	\$61,344,959	\$47,545,138	\$5,017,752	\$240,989	\$846	\$24	\$6,878,961	\$1,661,249	\$61,344,959	
1830	Total	\$241,216,075	\$83,939,987	\$41,279,740	\$81,368,536	\$23,178,926	\$11,448,886	\$0	\$0	\$129,885,579	\$99,985,529	\$10,552,132	\$1,340,136	\$44,083	\$3,978	\$14,466,181	\$3,493,540	\$371,101,654	
1835-3	Overhead Conductors and Devices - Subtransmission Bulk Delivery		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1835-4	Overhead Conductors and Devices - Primary		\$23,163,408	\$11,391,227	\$44,089,728	\$18,645,031	\$9,615,393	\$0	\$0	\$57,564,116	\$44,042,274	\$4,648,071	\$923,123	\$36,313	\$3,320	\$6,372,157	\$1,538,857	\$57,564,116	
1835-5	Overhead Conductors and Devices - Secondary		\$47,333,929	\$23,277,729	\$24,247,965	\$821,884	\$0	\$0	\$0	\$51,520,811	\$39,930,976	\$4,214,179	\$202,396	\$710	\$20	\$5,777,323	\$1,395,206	\$51,520,811	
1835	Total	\$202,586,294	\$70,497,337	\$34,668,956	\$68,337,694	\$19,466,915	\$9,615,393	\$0	\$0	\$109,084,928	\$83,973,250	\$8,862,251	\$1,125,519	\$37,023	\$3,341	\$12,149,481	\$2,934,063	\$311,671,222	
1830 & 1835	Total	\$443,802,369	\$154,437,323	\$75,948,697	\$149,706,230	\$42,645,841	\$21,064,279	\$0	\$0	\$238,970,507	\$183,958,779	\$19,414,383	\$2,465,655	\$81,106	\$7,319	\$26,615,662	\$6,427,603	\$682,772,876	
1840-3	Underground Conduit - Bulk Delivery		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1840-4	Underground Conduit - Primary		\$116,750,494	\$57,415,187	\$222,225,400	\$93,976,525	\$48,464,453	\$0	\$0	\$290,140,340	\$221,986,216	\$23,427,669	\$4,652,816	\$183,028	\$16,736	\$32,117,576	\$7,756,299	\$290,140,340	
1840-5	Underground Conduit - Secondary		\$96,008,671	\$47,214,839	\$49,182,795	\$1,667,048	\$0	\$0	\$0	\$104,501,036	\$80,993,064	\$8,547,732	\$410,524	\$1,441	\$41	\$11,718,299	\$2,829,934	\$104,501,036	
1840	Total	\$732,905,413	\$212,759,165	\$104,630,027	\$271,408,194	\$95,643,574	\$48,464,453	\$0	\$0	\$394,641,376	\$302,979,280	\$31,975,400	\$5,063,340	\$184,469	\$16,778	\$43,835,876	\$10,586,233	\$1,127,546,789	

Demand Allocators									Customer Allocators							
Demand Total	1	2	3	5	6	7	9	Customer Total	1	2	3	5	6	7	9	Total
	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load		Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	

Composite allocators

1845-3	Underground Conductors and Devices - Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1845-4	Underground Conductors and Devices - Primary	\$56,263,281	\$27,668,978	\$107,092,739	\$45,288,268	\$23,355,526	\$0	\$0	\$139,821,657	\$106,977,474	\$11,290,038	\$2,242,240	\$88,203	\$8,065	\$15,477,795	\$3,737,841
1845-5	Underground Conductors and Devices - Secondary	\$46,267,580	\$22,753,324	\$23,701,702	\$803,368	\$0	\$0	\$0	\$50,360,140	\$39,031,403	\$4,119,241	\$197,836	\$694	\$20	\$5,647,171	\$1,363,775
1845	Total	\$353,194,766	\$102,530,862	\$50,422,302	\$130,794,441	\$46,091,636	\$23,355,526	\$0	\$190,181,797	\$146,008,877	\$15,409,279	\$2,440,076	\$88,897	\$8,085	\$21,124,966	\$5,101,616

1840 & 1845	Total	\$1,086,100,179	\$315,290,027	\$155,052,328	\$402,202,636	\$141,735,210	\$71,819,979	\$0	\$0	\$584,823,173	\$448,988,157	\$47,384,680	\$7,503,417	\$273,366	\$24,863	\$64,960,842	\$15,687,849
1850	Line Transformers	\$494,123,630	\$145,568,453	\$71,587,192	\$248,570,027	\$25,275,806	\$3,122,153	\$0	\$0	\$211,767,270	\$162,617,958	\$17,162,145	\$2,747,504	\$28,923	\$783	\$23,528,014	\$5,681,945
1815- 1850	Total	\$2,245,747,379	\$663,751,204	\$326,251,146	\$891,944,683	\$247,957,473	\$115,773,578	\$35,971	\$33,325	\$1,041,330,145	\$796,743,371	\$84,466,772	\$15,107,284	\$1,476,834	\$594,646	\$115,130,552	\$27,810,686
1855	Services	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$408,275,022	\$283,385,726	\$59,815,127	\$14,116,761	\$50,402	\$4,353	\$41,001,027	\$9,901,625
1815- 1855	Total	\$2,245,747,379	\$663,751,204	\$326,251,146	\$891,944,683	\$247,957,473	\$115,773,578	\$35,971	\$33,325	\$1,449,605,167	\$1,080,129,098	\$144,281,900	\$29,224,046	\$1,527,236	\$598,999	\$156,131,578	\$37,712,311
1860	Meters	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$220,804,236	\$149,459,514	\$27,053,994	\$35,363,502	\$7,552,147	\$1,375,079	\$0	\$0
1815-1860	Total	\$2,245,747,379	\$663,751,204	\$326,251,146	\$891,944,683	\$247,957,473	\$115,773,578	\$35,971	\$33,325	\$1,670,409,403	\$1,229,588,611	\$171,335,893	\$64,587,548	\$9,079,383	\$1,974,078	\$156,131,578	\$37,712,311
1565-1860	Total	\$2,309,327,729	\$678,725,547	\$333,134,244	\$918,234,241	\$257,978,484	\$120,985,534	\$139,988	\$129,691	\$1,686,111,656	\$1,236,988,768	\$173,723,186	\$68,434,707	\$10,137,390	\$2,475,783	\$156,516,632	\$37,835,190

	Total Demand And Customer	\$3,995,439,385	\$1,915,714,315	\$506,857,430	\$986,668,949	\$268,115,874	\$123,461,316	\$156,656,621	\$37,964,881								
	Accum Depreciation - NFA	(\$2,226,757,305)	(\$1,076,266,798)	(\$284,130,071)	(\$547,374,579)	(\$144,095,970)	(\$65,572,214)	(\$88,021,321)	(\$21,296,353)								
	Accum Depreciation - NFA ECC	(\$1,950,347,243)	(\$945,121,373)	(\$248,178,518)	(\$475,588,573)	(\$127,266,925)	(\$58,166,678)	(\$77,314,492)	(\$18,710,685)								
NFA	Net Fixed Assets	\$1,768,682,079	\$839,447,516	\$222,727,359	\$439,294,370	\$124,019,904	\$57,889,102	\$68,635,299	\$16,668,528								
NFA ECC	Net Fixed Assets Excluding Capital Contribution	\$2,045,092,141	\$970,592,942	\$258,678,912	\$511,080,376	\$140,848,949	\$65,294,639	\$79,342,129	\$19,254,196								

Operating and Maintenance

Allocate all the costs to the O and M expenses before using it as a composite allocator.

Accounts

5005	Operation Supervision and Engineering	\$24,972,854	\$7,380,956	\$3,627,934	\$9,918,482	\$2,757,303	\$1,287,410	\$400	\$371	\$11,629,051	\$10,019,563	\$1,338,397	\$271,090	\$14,167	\$5,556	\$1,448,318	\$349,829
5010	Load Dispatching	\$6,019,837	\$1,779,218	\$874,532	\$2,390,902	\$664,662	\$310,337	\$96	\$89	\$2,803,244	\$2,415,268	\$322,628	\$65,348	\$3,415	\$1,339	\$349,125	\$84,328
5012	Station Buildings and Fixtures Expense	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5014	Transformer Station Equipment - Operation Labour	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5015	Transformer Station Equipment - Operation Supplies and Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5016	Distribution Station Equipment - Operation Labour	\$3,163,351	\$685,414	\$337,070	\$1,304,631	\$551,713	\$284,523	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5017	Distribution Station Equipment - Operation Supplies and Expenses	\$813,170	\$176,192	\$86,647	\$335,368	\$141,823	\$73,139	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5020	Overhead Distribution Lines and Feeders - Operation Labour	\$574,596	\$199,952	\$98,332	\$193,826	\$55,214	\$27,272	\$0	\$0	\$266,502	\$238,174	\$25,136	\$3,192	\$105	\$9	\$34,460	\$8,322
5025	Overhead Distribution Lines & Feeders - Operation Supplies and Expenses	\$965,257	\$335,897	\$165,186	\$325,607	\$92,753	\$45,814	\$0	\$0	\$447,693	\$400,105	\$42,226	\$5,363	\$176	\$16	\$57,888	\$13,980
5030	Overhead Subtransmission Feeders - Operation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5035	Overhead Distribution Transformers- Operation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5040	Underground Distribution Lines and Feeders - Operation Labour	\$859,629	\$249,547	\$122,721	\$318,336	\$112,181	\$56,844	\$0	\$0	\$398,809	\$355,366	\$37,504	\$5,939	\$216	\$20	\$51,415	\$12,417
5045	Underground Distribution Lines & Feeders - Operation Supplies & Expenses	\$3,828,013	\$1,111,255	\$546,489	\$1,417,583	\$499,553	\$253,133	\$0	\$0	\$1,775,936	\$1,582,481	\$167,010	\$26,446	\$963	\$88	\$228,958	\$55,293
5050	Underground Subtransmission Feeders - Operation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5055	Underground Distribution Transformers - Operation	\$1,272,385	\$374,844	\$184,339	\$640,076	\$65,086	\$8,040	\$0	\$0	\$470,015	\$418,747	\$44,193	\$7,075	\$74	\$2	\$60,585	\$14,631
5065	Meter Expense	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$7,244,056	\$5,110,007	\$924,974	\$1,209,075	\$258,207	\$47,014	\$0	\$0
5070	Customer Premises - Operation Labour	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,048,878	\$2,706,513	\$285,636	\$56,728	\$2,232	\$204	\$391,586	\$94,567
5075	Customer Premises - Materials and Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$885,729	\$786,268	\$82,980	\$16,480	\$648	\$59	\$113,759	\$27,473
5085	Miscellaneous Distribution Expense	\$2,166,684	\$640,383	\$314,765	\$860,543	\$239,228	\$111,698	\$35	\$32	\$1,008,955	\$869,313	\$116,121	\$23,520	\$1,229	\$482	\$125,658	\$30,352
5090	Underground Distribution Lines and Feeders - Rental Paid	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5095	Overhead Distribution Lines and Feeders - Rental Paid	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5096	Other Rent	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5105	Maintenance Supervision and Engineering	\$3,948,925	\$1,167,141	\$573,680	\$1,568,397	\$436,009	\$203,576	\$63	\$59	\$1,838,887	\$1,584,381	\$211,639	\$42,867	\$2,240	\$879	\$229,021	\$55,318
5110	Maintenance of Buildings and Fixtures - Distribution Stations	\$16,560,453	\$3,900,292	\$1,792,806	\$6,847,509	\$2,610,122	\$1,357,532	\$27,093	\$25,100	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5112	Maintenance of Transformer Station Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5114	Maintenance of Distribution Station Equipment	\$2,983,582	\$646,462	\$317,915	\$1,230,490	\$520,360	\$268,354	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5120	Maintenance of Poles, Towers and Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0



Demand Allocators										Customer Allocators							
		1	2	3	5	6	7	9		1	2	3	5	6	7	9	
	Demand Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Customer Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Total
Composite allocators																	
5125	Maintenance of Overhead Conductors and Devices	\$4,211,916	\$1,465,691	\$720,793	\$1,420,790	\$404,731	\$199,911	\$0	\$0	\$1,953,518	\$1,745,865	\$184,253	\$23,400	\$770	\$69	\$252,597	\$61,001
5130	Maintenance of Overhead Services	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$334,743	\$265,482	\$56,036	\$13,225	\$47	\$4	\$38,411	\$9,276
5135	Overhead Distribution Lines and Feeders - Right of Way	\$2,469,552	\$859,371	\$422,619	\$833,045	\$237,304	\$117,213	\$0	\$0	\$1,145,397	\$1,023,644	\$108,032	\$13,720	\$451	\$41	\$148,104	\$35,767
5145	Maintenance of Underground Conduit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5150	Maintenance of Underground Conductors and Devices	\$5,023,795	\$1,458,385	\$717,200	\$1,860,403	\$655,601	\$332,206	\$0	\$0	\$2,330,698	\$2,076,811	\$219,180	\$34,707	\$1,264	\$115	\$300,479	\$72,565
5155	Maintenance of Underground Services	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5160	Maintenance of Line Transformers	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5175	Maintenance of Meters	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5305	Supervision	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$312,727	\$184,192	\$77,756	\$50,778	\$2,126	\$417	\$10	\$3,338
5310	Meter Reading Expense	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$671,121	\$153,884	\$422,007	\$95,231	\$0	\$0	\$0	\$0
5315	Customer Billing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$11,594,904	\$6,829,265	\$2,882,950	\$1,882,689	\$78,830	\$15,446	\$372	\$123,752
5320	Collecting	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$14,390,411	\$8,475,787	\$3,578,023	\$2,336,601	\$97,836	\$19,170	\$462	\$153,589
5325	Collecting- Cash Over and Short	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5330	Collection Charges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5335	Bad Debt Expense	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$7,290,622	\$4,490,007	\$1,895,014	\$905,601	\$94,378	\$0	\$0	\$0
5340	Miscellaneous Customer Accounts Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
O&M DC	Total	\$79,834,001	\$22,430,999	\$10,903,030	\$31,465,988	\$10,043,644	\$4,937,002	\$27,687	\$25,651	\$71,841,893	\$51,731,124	\$13,021,693	\$7,089,076	\$559,378	\$90,931	\$3,831,207	\$1,205,796
O&M	Total Demand and Customer	\$157,363,206	\$74,162,123	\$23,924,723	\$38,555,064	\$10,603,022	\$5,027,932	\$3,858,895	\$1,231,447								
Accounts																	
4705	Power Purchased	\$1,868,495,162	\$377,869,322	\$162,105,508	\$767,923,382	\$350,602,636	\$197,385,715	\$8,347,686	\$4,260,914	\$1,868,495,162							
4708	Charges-WMS	\$118,474,436	\$23,959,310	\$10,278,517	\$48,691,209	\$22,230,429	\$12,515,505	\$529,296	\$270,169	\$118,474,436							
4710	Cost of Power Adjustments	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0							
4712	Charges-One-Time	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0							
4714	Charges-NW	\$121,678,219	\$24,855,281	\$10,662,887	\$50,422,495	\$23,061,748	\$11,846,447	\$549,090	\$280,272	\$121,678,219							
4716	Charges-CN	\$99,806,438	\$20,387,519	\$8,746,223	\$41,359,001	\$18,916,376	\$9,717,037	\$450,390	\$229,893	\$99,806,438							
4730	Rural Rate Assistance Expense	\$33,481,906	\$6,771,109	\$2,904,798	\$13,760,559	\$6,282,513	\$3,536,991	\$149,584	\$76,352	\$33,481,906							
5685	Independent Market Operator Fees and Penalties	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0							
COP	Cost of Power	\$2,241,936,161	\$453,842,541	\$194,697,933	\$922,156,646	\$421,093,701	\$235,001,694	\$10,026,046	\$5,117,600	\$2,241,936,161							
Accounts																	
5005	Operation Supervision and Engineering	\$38,419,775	\$17,400,519	\$4,966,331	\$10,189,572	\$2,771,470	\$1,292,966	\$1,448,718	\$350,200	\$38,419,775							
5010	Load Dispatching	\$9,261,288	\$4,194,486	\$1,197,160	\$2,456,250	\$668,077	\$311,676	\$349,221	\$84,418	\$9,261,288							
5012	Station Buildings and Fixtures Expense	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0							
5014	Transformer Station Equipment - Operation Labour	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0							
5015	Transformer Station Equipment - Operation Supplies and Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0							
5016	Distribution Station Equipment - Operation Labour	\$3,163,351	\$685,414	\$337,070	\$1,304,631	\$551,713	\$284,523	\$0	\$0	\$3,163,351							
5017	Distribution Station Equipment - Operation Supplies and Expenses	\$813,170	\$176,192	\$86,647	\$335,368	\$141,823	\$73,139	\$0	\$0	\$813,170							
5020	Overhead Distribution Lines and Feeders - Operation Labour	\$883,994	\$438,126	\$123,468	\$197,019	\$55,319	\$27,282	\$34,460	\$8,322	\$883,994							
5025	Overhead Distribution Lines & Feeders - Operation Supplies and Expenses	\$1,485,011	\$736,001	\$207,412	\$330,969	\$92,930	\$45,830	\$57,888	\$13,980	\$1,485,011							
5030	Overhead Subtransmission Feeders - Operation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0							
5035	Overhead Distribution Transformers- Operation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0							
5040	Underground Distribution Lines and Feeders - Operation Labour	\$1,322,506	\$604,913	\$160,225	\$324,275	\$112,397	\$56,864	\$51,415	\$12,417	\$1,322,506							
5045	Underground Distribution Lines & Feeders - Operation Supplies & Expenses	\$5,889,251	\$2,693,736	\$713,499	\$1,444,029	\$500,516	\$253,221	\$228,958	\$55,293	\$5,889,251							
5050	Underground Subtransmission Feeders - Operation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0							
5055	Underground Distribution Transformers - Operation	\$1,817,693	\$793,591	\$228,533	\$647,151	\$65,161	\$8,042	\$60,585	\$14,631	\$1,817,693							
5065	Meter Expense	\$7,549,277	\$5,110,007	\$924,974	\$1,209,075	\$258,207	\$47,014	\$0	\$0	\$7,549,277							
5070	Customer Premises - Operation Labour	\$3,537,466	\$2,706,513	\$285,636	\$56,728	\$2,232	\$204	\$391,586	\$94,567	\$3,537,466							
5075	Customer Premises - Materials and Expenses	\$1,027,668	\$786,268	\$82,980	\$16,480	\$648	\$59	\$113,759	\$27,473	\$1,027,668							
5085	Miscellaneous Distribution Expense	\$3,333,359	\$1,509,696	\$430,887	\$884,063	\$240,457	\$112,180	\$125,693	\$30,384	\$3,333,359							
5090	Underground Distribution Lines and Feeders - Rental Paid	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0							
5095	Overhead Distribution Lines and Feeders - Rental Paid	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0							
5096	Other Rent	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0							
5105	Maintenance Supervision and Engineering	\$6,075,269	\$2,751,522	\$785,319	\$1,611,264	\$438,249	\$204,455	\$229,084	\$55,377	\$6,075,269							
5110	Maintenance of Buildings and Fixtures - Distribution Stations	\$16,560,453	\$3,900,292	\$1,792,806	\$6,847,509	\$2,610,122	\$1,357,532	\$27,093	\$25,100	\$16,560,453							
5112	Maintenance of Transformer Station Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0							



		Demand Allocators								Customer Allocators																					
		1		2		3		5		6		7		9		Customer Total	1		2		3		5		6		7		9		Total
		Demand Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light		Unmetered Scattered Load														
Composite allocators																															
5114	Maintenance of Distribution Station Equipment	\$2,983,582	\$646,462	\$317,915	\$1,230,490	\$520,360	\$268,354	\$0	\$0	\$2,983,582																					
5120	Maintenance of Poles, Towers and Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5125	Maintenance of Overhead Conductors and Devices	\$6,479,871	\$3,211,556	\$905,045	\$1,444,191	\$405,501	\$199,980	\$252,597	\$61,001	\$6,479,871																					
5130	Maintenance of Overhead Services	\$382,481	\$265,482	\$56,036	\$13,225	\$47	\$4	\$38,411	\$9,276	\$382,481																					
5135	Overhead Distribution Lines and Feeders - Right of Way	\$3,799,311	\$1,883,016	\$530,651	\$846,765	\$237,755	\$117,254	\$148,104	\$35,767	\$3,799,311																					
5145	Maintenance of Underground Conduit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5150	Maintenance of Underground Conductors and Devices	\$7,728,916	\$3,535,196	\$936,380	\$1,895,110	\$656,866	\$332,321	\$300,479	\$72,565	\$7,728,916																					
5155	Maintenance of Underground Services	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5160	Maintenance of Line Transformers	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5175	Maintenance of Meters	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5305	Supervision	\$318,617	\$184,192	\$77,756	\$50,778	\$2,126	\$417	\$10	\$3,338	\$318,617																					
5310	Meter Reading Expense	\$671,121	\$153,884	\$422,007	\$95,231	\$0	\$0	\$0	\$0	\$671,121																					
5315	Customer Billing	\$11,813,305	\$6,829,265	\$2,882,950	\$1,882,689	\$78,830	\$15,446	\$372	\$123,752	\$11,813,305																					
5320	Collecting	\$14,661,468	\$8,475,787	\$3,578,023	\$2,336,601	\$97,836	\$19,170	\$462	\$153,589	\$14,661,468																					
5325	Collecting- Cash Over and Short	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5330	Collection Charges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5335	Bad Debt Expense	\$7,385,000	\$4,490,007	\$1,895,014	\$905,601	\$94,378	\$0	\$0	\$0	\$7,385,000																					
5340	Miscellaneous Customer Accounts Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5405	Supervision	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5410	Community Relations - Sundry	\$544,740	\$256,725	\$82,820	\$133,465	\$36,704	\$17,405	\$13,358	\$4,263	\$544,740																					
5415	Energy Conservation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5420	Community Safety Program	\$3,584,007	\$1,700,956	\$453,333	\$895,664	\$246,837	\$114,428	\$139,046	\$33,743	\$3,584,007																					
5425	Miscellaneous Customer Service and Informational Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5505	Supervision	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5510	Demonstrating and Selling Expense	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5515	Advertising Expense	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5520	Miscellaneous Sales Expense	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5605	Executive Salaries and Expenses	\$1,841,406	\$867,818	\$279,958	\$451,157	\$124,073	\$58,835	\$45,155	\$14,410	\$1,841,406																					
5610	Management Salaries and Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5615	General Administrative Salaries and Expenses	\$50,634,669	\$23,863,104	\$7,698,244	\$12,405,841	\$3,411,728	\$1,617,835	\$1,241,674	\$396,242	\$50,634,669																					
5620	Office Supplies and Expenses	\$2,110	\$995	\$321	\$517	\$142	\$67	\$52	\$17	\$2,110																					
5625	Administrative Expense Transferred Credit	(\$1,644,231)	(\$774,893)	(\$249,981)	(\$402,848)	(\$110,787)	(\$52,535)	(\$40,320)	(\$12,867)	(\$1,644,231)																					
5630	Outside Services Employed	\$9,723,640	\$4,582,557	\$1,478,334	\$2,382,358	\$655,172	\$310,681	\$238,445	\$76,092	\$9,723,640																					
5635	Property Insurance	\$3,268,553	\$1,551,243	\$413,432	\$816,830	\$225,111	\$104,357	\$126,808	\$30,773	\$3,268,553																					
5640	Injuries and Damages	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5645	Employee Pensions and Benefits	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5650	Franchise Requirements	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5655	Regulatory Expenses	\$4,133,635	\$1,948,099	\$628,457	\$1,012,769	\$278,521	\$132,074	\$101,366	\$32,348	\$4,133,635																					
5660	General Advertising Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5665	Miscellaneous General Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5670	Rent	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
5675	Maintenance of General Plant	\$896,931	\$422,705	\$136,365	\$219,754	\$60,435	\$28,658	\$21,995	\$7,019	\$896,931																					
5680	Electrical Safety Authority Fees	\$369,900	\$174,326	\$56,238	\$90,628	\$24,924	\$11,819	\$9,071	\$2,895	\$369,900																					
6105	Taxes Other Than Income Taxes	\$6,802,382	\$3,228,530	\$856,613	\$1,689,534	\$476,983	\$222,642	\$263,973	\$64,107	\$6,802,382																					
6205	Donations	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
6210	Life Insurance	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
6215	Penalties	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
6225	Other Deductions	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0																					
OM&A Expenses		\$237,520,948	\$111,984,287	\$35,758,857	\$58,250,734	\$16,032,864	\$7,594,199	\$6,019,518	\$1,880,488	\$237,520,948																					

Demand Allocators									Customer Allocators							
	1	2	3	5	6	7	9		1	2	3	5	6	7	9	
Demand Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Customer Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Total

Composite allocators

Grouping of Operating and Maintenance Distribution Costs (lines 106 - 148)	Demand Allocators									Customer Allocators								Total
	Demand Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Customer Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load		
1808	\$ 16,560,453	\$ 3,900,292	\$ 1,792,806	\$ 6,847,509	\$ 2,610,122	\$ 1,357,532	\$ 27,093	\$ 25,100	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
1815	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
1820	\$ 6,960,103	\$ 1,508,068	\$ 741,633	\$ 2,870,489	\$ 1,213,896	\$ 626,016	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
1830	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
1835	\$ 4,211,916	\$ 1,465,691	\$ 720,793	\$ 1,420,790	\$ 404,731	\$ 199,911	\$ -	\$ -	\$ 1,953,518	\$ 1,745,865	\$ 184,253	\$ 23,400	\$ 770	\$ 69	\$ 252,597	\$ 61,001	-	
1840	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
1845	\$ 5,023,795	\$ 1,458,385	\$ 717,200	\$ 1,860,403	\$ 655,601	\$ 332,206	\$ -	\$ -	\$ 2,330,698	\$ 2,076,811	\$ 219,180	\$ 34,707	\$ 1,264	\$ 115	\$ 300,479	\$ 72,565	-	
1850	\$ 1,272,385	\$ 374,844	\$ 184,339	\$ 640,076	\$ 65,086	\$ 8,040	\$ -	\$ -	\$ 470,015	\$ 418,747	\$ 44,193	\$ 7,075	\$ 74	\$ 2	\$ 60,585	\$ 14,631	-	
1855	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 334,743	\$ 265,482	\$ 56,036	\$ 13,225	\$ 47	\$ 4	\$ 38,411	\$ 9,276	-	
1860	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
1815-1855	\$ 37,108,300	\$ 10,967,698	\$ 5,390,911	\$ 14,738,323	\$ 4,097,202	\$ 1,913,020	\$ 594	\$ 551	\$ 17,280,135	\$ 14,888,525	\$ 1,988,785	\$ 402,825	\$ 21,051	\$ 8,257	\$ 2,152,121	\$ 519,827	-	
1830 & 1835	\$ 4,009,406	\$ 1,395,220	\$ 686,137	\$ 1,352,478	\$ 385,272	\$ 190,299	\$ -	\$ -	\$ 1,859,592	\$ 1,661,923	\$ 175,394	\$ 22,275	\$ 733	\$ 66	\$ 240,452	\$ 58,068	-	
1840 & 1845	\$ 4,687,642	\$ 1,360,802	\$ 669,211	\$ 1,735,919	\$ 611,734	\$ 309,977	\$ -	\$ -	\$ 2,174,746	\$ 1,937,847	\$ 204,514	\$ 32,385	\$ 1,180	\$ 107	\$ 280,373	\$ 67,709	-	
BCP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
BDHA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,290,622	\$ 4,490,007	\$ 1,895,014	\$ 905,601	\$ 94,378	\$ -	\$ -	\$ -	-	
Break Out	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
CCA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,934,606	\$ 3,492,782	\$ 368,616	\$ 73,208	\$ 2,880	\$ 263	\$ 505,345	\$ 122,039	-	
CDMPP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
CEN	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
CEN EWMP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
CREV	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
CWCS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
CWMC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 7,244,056	\$ 5,110,007	\$ 924,974	\$ 1,209,075	\$ 258,207	\$ 47,014	\$ -	\$ -	-	
CWMR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 671,121	\$ 153,884	\$ 422,007	\$ 95,231	\$ -	\$ -	\$ -	\$ -	-	
CWNB	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 26,298,041	\$ 15,489,245	\$ 6,538,728	\$ 4,270,068	\$ 178,793	\$ 35,033	\$ 845	\$ 280,678	-	
DCP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
LPHA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
LTNCP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
NFA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
NFA ECC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
O&M	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
PNCP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
SNCP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
TCP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	
Total	\$ 79,834,001	\$ 22,430,999	\$ 10,903,030	\$ 31,465,988	\$ 10,043,644	\$ 4,937,002	\$ 27,687	\$ 25,651	\$ 71,841,893	\$ 51,731,124	\$ 13,021,693	\$ 7,089,076	\$ 559,378	\$ 90,931	\$ 3,831,207	\$ 1,205,796	\$ -	

Grouping of OM&A (lines 168 - 240)	Demand Allocators									Customer Allocators								Total
	Demand Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Customer Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load		
1808	\$ 16,560,453	\$ 3,900,292	\$ 1,792,806	\$ 6,847,509	\$ 2,610,122	\$ 1,357,532	\$ 27,093	\$ 25,100	\$ 16,560,453	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
1815	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
1820	\$ 6,960,103	\$ 1,508,068	\$ 741,633	\$ 2,870,489	\$ 1,213,896	\$ 626,016	\$ -	\$ -	\$ 6,960,103	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
1830	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
1835	\$ 6,479,871	\$ 3,211,556	\$ 905,045	\$ 1,444,191	\$ 405,501	\$ 199,980	\$ 252,597	\$ 61,001	\$ 6,479,871	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
1840	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
1845	\$ 7,728,916	\$ 3,535,196	\$ 936,380	\$ 1,895,110	\$ 656,866	\$ 332,321	\$ 300,479	\$ 72,565	\$ 7,728,916	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
1850	\$ 1,817,693	\$ 793,591	\$ 228,533	\$ 647,151	\$ 65,161	\$ 8,042	\$ 60,585	\$ 14,631	\$ 1,817,693	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
1855	\$ 382,481	\$ 265,482	\$ 56,036	\$ 13,225	\$ 47	\$ 4	\$ 38,411	\$ 9,276	\$ 382,481	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
1860	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
1815-1855	\$ 57,089,692	\$ 25,856,223	\$ 7,379,697	\$ 15,141,148	\$ 4,118,253	\$ 1,921,277	\$ 2,152,716	\$ 520,378	\$ 57,089,692	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
1830 & 1835	\$ 6,168,316	\$ 3,057,143	\$ 861,530	\$ 1,374,753	\$ 386,004	\$ 190,365	\$ 240,452	\$ 58,068	\$ 6,168,316	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
1840 & 1845	\$ 7,211,757	\$ 3,298,648	\$ 873,724	\$ 1,768,304	\$ 612,913	\$ 310,085	\$ 280,373	\$ 67,709	\$ 7,211,757	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
BCP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
BDHA	\$ 7,385,000	\$ 4,490,007	\$ 1,895,014	\$ 905,601	\$ 94,378	\$ -	\$ -	\$ -	\$ 7,385,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Break Out	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CCA	\$ 4,565,134	\$ 3,492,782	\$ 368,616	\$ 73,208	\$ 2,880	\$ 263	\$ 505,345	\$ 122,039	\$ 4,565,134	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CDMPP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CEN	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CEN EWMP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CREV	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CWCS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CWMC	\$ 7,549,277	\$ 5,110,007	\$ 924,974	\$ 1,209,075	\$ 258,207	\$ 47,014	\$ -	\$ -	\$ 7,549,277	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CWMR	\$ 671,121	\$ 153,884	\$ 422,007	\$ 95,231	\$ -	\$ -	\$ -	\$ -	\$ 671,121	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
CWNB	\$ 26,793,390	\$ 15,489,245	\$ 6,538,728	\$ 4,270,068	\$ 178,793	\$ 35,033	\$ 845	\$ 280,678	\$ 26,793,390	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
DCP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
LPHA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
LTNCP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NFA	\$ 6,802,382	\$ 3,228,530	\$ 856,613	\$ 1,689,534	\$ 476,983	\$ 222,642	\$ 263,973	\$ 64,107	\$ 6,802,382	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NFA ECC	\$ 6,852,560	\$ 3,252,199	\$ 866,764	\$ 1,712,494	\$ 471,947	\$ 218,785	\$ 265,854	\$ 64,516	\$ 6,852,560	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
O&M	\$ 66,502,800	\$ 31,341,436	\$ 10,110,757	\$ 16,293,642	\$ 4,480,912	\$ 2,124,840	\$ 1,630,796	\$ 520,418	\$ 66,502,800	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
PNCP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
SNCP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
TCP	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Total	\$ 237,520,948	\$ 111,984,287	\$ 35,758,857	\$ 58,250,734	\$ 16,032,864	\$ 7,594,199	\$ 6,019,518	\$ 1,880,488	\$ 237,520,948	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	



### Categorization and Allocation of Contributed Capital

#### Contributed Capital - 1995

## O7 Amortization

Accumulated Depreciation - 2105 Capital Contribution

						Demand Allocation							Customer Allocation							A & G Allocation										
Account	Description	Accumulated Depreciation	Demand	Customer	Total	Residential	2	3	5	6	7	9	Sub-total	1	2	3	5	6	7	9	Sub-total	1	2	3	5	6	7	9	Sub-total	
																														GS <50
1565	Conservation and Demand Management	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1805	Land	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1805-1	Land Station >50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1805-2	Land Station <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1806	Land Rights	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1806-1	Land Rights Station >50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1806-2	Land Rights Station <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1808	Buildings and Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1808-1	Buildings and Fixtures > 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1808-2	Buildings and Fixtures < 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1810	Leasehold Improvements	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1810-1	Leasehold Improvements >50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1810-2	Leasehold Improvements <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1815	Transformer Station Equipment - Normally Primary above 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1820	Distribution Station Equipment - Normally Primary below 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1820-1	Distribution Station Equipment - Normally Primary below 50 kV (Bulk)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1820-2	Distribution Station Equipment - Normally Primary below 50 kV (Primary)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1820-3	Distribution Station Equipment - Normally Primary below 50 kV (Wholesale Meters)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1825	Storage Battery Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1825-1	Storage Battery Equipment > 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1825-2	Storage Battery Equipment <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1830	Poles, Towers and Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1830-3	Poles, Towers and Fixtures - Subtransmission Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1830-4	Poles, Towers and Fixtures - Primary	\$1,774,042	\$1,153,127	\$620,915	\$1,774,042	\$249,852	\$122,871	\$475,573	\$201,114	\$103,716	\$0	\$0	\$1,153,127	\$475,061	\$50,136	\$9,957	\$392	\$36	\$68,733	\$16,599	\$620,915									
1830-5	Poles, Towers and Fixtures - Secondary	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1835	Overhead Conductors and Devices	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1835-3	Overhead Conductors and Devices - Subtransmission Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1835-4	Overhead Conductors and Devices - Primary	\$1,789,456	\$1,163,146	\$626,310	\$1,789,456	\$252,023	\$123,939	\$479,705	\$202,862	\$104,617	\$0	\$0	\$1,163,146	\$479,189	\$50,572	\$10,044	\$395	\$36	\$69,330	\$16,743	\$626,310									
1835-5	Overhead Conductors and Devices - Secondary	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1840	Underground Conduit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1840-3	Underground Conduit - Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1840-4	Underground Conduit - Primary	\$9,418,774	\$6,122,203	\$3,296,571	\$9,418,774	\$1,326,518	\$652,351	\$2,524,922	\$1,067,760	\$550,653	\$0	\$0	\$6,122,203	\$2,522,205	\$266,185	\$52,865	\$2,080	\$190	\$364,920	\$88,127	\$3,296,571									
1840-5	Underground Conduit - Secondary	\$10,351,953	\$6,728,769	\$3,623,183	\$10,351,953	\$3,328,742	\$1,636,998	\$1,705,230	\$57,799	\$0	\$0	\$0	\$6,728,769	\$2,808,132	\$296,361	\$14,233	\$50	\$1	\$406,288	\$98,117	\$3,623,183									
1845	Underground Conductors and Devices	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1845-3	Underground Conductors and Devices - Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0									
1845-4	Underground Conductors and Devices - Primary	\$10,846,769	\$7,050,400	\$3,796,369	\$10,846,769	\$1,527,633	\$751,255	\$2,907,730	\$1,229,645	\$634,138	\$0	\$0	\$7,050,400	\$2,904,600	\$306,542	\$60,880	\$2,395	\$219	\$420,246	\$101,488	\$3,796,369									
1845-5	Underground Conductors and Devices - Secondary	\$3,615,590	\$2,350,133	\$1,265,456	\$3,615,590	\$1,162,618	\$571,749	\$595,580	\$20,187	\$0	\$0	\$0	\$2,350,133	\$980,786	\$103,509	\$4,971	\$17	\$1	\$141,903	\$34,269	\$1,265,456									
1850	Line Transformers	\$16,453,272	\$11,517,290	\$4,935,982	\$16,453,272	\$3,392,985	\$1,668,591	\$5,793,799	\$589,142	\$72,773	\$0	\$0	\$11,517,290	\$3,790,384	\$400,024	\$64,040	\$674	\$18	\$548,403	\$132,438	\$4,935,982									
1855	Services	\$1,055,729	\$0	\$1,055,729	\$1,055,729	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$732,787	\$154,672	\$36,504	\$130	\$11	\$106,022	\$25,604	\$1,055,729									
1860	Meters	\$742,461	\$0	\$742,461	\$742,461	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$502,562	\$90,970	\$118,911	\$25,394	\$4,624	\$0	\$0	\$742,461									
Sub - Total			\$56,048,046	\$36,085,070	\$19,962,976	\$56,048,046	\$11,240,371	\$5,527,754	\$14,482,540	\$3,368,509	\$1,465,897	\$0	\$0	\$36,085,070	\$15,195,707	\$1,718,970	\$372,406	\$31,527	\$5,136	\$2,125,845	\$513,385	\$19,962,976								
General Plant																														
1905	Land	\$0																				\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1906	Land Rights	\$0																				\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1908	Buildings and Fixtures	\$0																				\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1910	Leasehold Improvements	\$0																</												



### Accumulated Depreciation - 2105 Fixed Assets Only

						Demand Allocation							Customer Allocation							A & G Allocation													
						1		2		3		5		6		7		9		1		2		3		5		6		7		9	
Account	Description	Accumulated Depreciation	Demand	Customer	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Sub -total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Sub -total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Sub -total				
1565	Conservation and Demand Management	(\$6,938,951)	\$0	(\$6,938,951)	(\$6,938,951)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	(\$3,270,188)	(\$1,054,964)	(\$1,700,091)	(\$467,542)	(\$221,707)	(\$170,158)	(\$54,301)	(\$6,938,951)												
1805	Land	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1805-1	Land Station >50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1805-2	Land Station <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1806	Land Rights	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1806-1	Land Rights Station >50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1806-2	Land Rights Station <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1808	Buildings and Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1808-1	Buildings and Fixtures > 50 kV	(\$608,296)	(\$608,296)	\$0	(\$608,296)																												
1808-2	Buildings and Fixtures < 50 kV	(\$18,343,617)	(\$18,343,617)	\$0	(\$18,343,617)	(\$143,265)	(\$65,853)	(\$251,522)	(\$95,875)	(\$49,865)	(\$995)	(\$922)	(\$608,296)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1810	Leasehold Improvements	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1810-1	Leasehold Improvements > 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1810-2	Leasehold Improvements < 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1815	Transformer Station Equipment - Normally Primary above 50 kV	(\$3,775,058)	(\$3,775,058)	\$0	(\$3,775,058)	(\$889,096)	(\$408,681)	(\$1,560,932)	(\$594,994)	(\$309,458)	(\$6,176)	(\$5,722)	(\$3,775,058)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1820	Distribution Station Equipment - Normally Primary below 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1820-1	Distribution Station Equipment - Normally Primary below 50 kV (Bulk)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1820-2	Distribution Station Equipment - Normally Primary below 50 kV (Primary)	(\$93,305,757)	(\$93,305,757)	\$0	(\$93,305,757)	(\$20,216,862)	(\$9,942,184)	(\$38,481,209)	(\$16,273,254)	(\$8,392,248)	\$0	\$0	(\$93,305,757)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1820-3	Distribution Station Equipment - Normally Primary below 50 kV (Wholesale Meters)	(\$651,725)	\$0	(\$651,725)	(\$651,725)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$133,128)	(\$57,112)	(\$270,070)	(\$123,522)	(\$63,451)	(\$2,941)	(\$1,501)	(\$651,725)												
1825	Storage Battery Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1825-1	Storage Battery Equipment > 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1825-2	Storage Battery Equipment <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1830	Poles, Towers and Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1830-3	Poles, Towers and Fixtures - Subtransmission Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1830-4	Poles, Towers and Fixtures - Primary	(\$91,929,976)	(\$59,754,484)	(\$32,175,491)	(\$91,929,976)	(\$12,947,198)	(\$6,367,132)	(\$24,643,976)	(\$10,421,649)	(\$5,374,529)	\$0	\$0	(\$59,754,484)	(\$24,617,451)	(\$2,598,042)	(\$515,980)	(\$20,297)	(\$1,856)	(\$3,581,721)	(\$980,145)	(\$32,175,491)												
1830-5	Poles, Towers and Fixtures - Secondary	(\$82,278,809)	(\$53,481,226)	(\$28,797,583)	(\$82,278,809)	(\$26,457,323)	(\$13,011,098)	(\$24,643,412)	(\$459,392)	\$0	\$0	\$0	(\$53,481,226)	(\$22,319,439)	(\$2,355,518)	(\$113,129)	(\$397)	(\$11)	(\$3,229,238)	(\$779,851)	(\$28,797,583)												
1835	Overhead Conductors and Devices	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1835-3	Overhead Conductors and Devices - Subtransmission Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1835-4	Overhead Conductors and Devices - Primary	(\$99,912,987)	(\$64,943,441)	(\$34,969,545)	(\$99,912,987)	(\$14,071,507)	(\$6,920,041)	(\$26,784,008)	(\$11,326,644)	(\$5,841,242)	\$0	\$0	(\$64,943,441)	(\$26,755,180)	(\$2,823,651)	(\$560,787)	(\$22,060)	(\$2,017)	(\$3,871,013)	(\$934,838)	(\$34,969,545)												
1835-5	Overhead Conductors and Devices - Secondary	(\$89,445,882)	(\$58,139,824)	(\$31,306,059)	(\$89,445,882)	(\$28,761,945)	(\$14,144,458)	(\$14,734,011)	(\$499,409)	\$0	\$0	\$0	(\$58,139,824)	(\$24,263,622)	(\$2,560,700)	(\$122,983)	(\$432)	(\$12)	(\$3,510,528)	(\$847,782)	(\$31,306,059)												
1840	Underground Conduit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1840-3	Underground Conduit - Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1840-4	Underground Conduit - Primary	(\$432,062,003)	(\$280,840,302)	(\$151,221,701)	(\$432,062,003)	(\$60,850,581)	(\$29,924,906)	(\$115,824,304)	(\$48,980,745)	(\$25,259,766)	\$0	\$0	(\$280,840,302)	(\$115,699,641)	(\$12,210,546)	(\$2,425,056)	(\$95,395)	(\$8,723)	(\$16,739,742)	(\$4,042,598)	(\$151,221,701)												
1840-5	Underground Conduit - Secondary	(\$155,617,544)	(\$101,151,404)	(\$54,466,140)	(\$155,617,544)	(\$50,039,903)	(\$24,608,465)	(\$25,634,167)	(\$868,869)	\$0	\$0	\$0	(\$101,151,404)	(\$42,213,740)	(\$4,455,094)	(\$213,966)	(\$751)	(\$22)	(\$6,107,600)	(\$1,474,967)	(\$54,466,140)												
1845	Underground Conductors and Devices	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1845-3	Underground Conductors and Devices - Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											
1845-4	Underground Conductors and Devices - Primary	(\$175,007,905)	(\$113,755,138)	(\$61,252,767)	(\$175,007,905)	(\$24,647,696)	(\$12,121,165)	(\$46,914,954)	(\$19,839,786)	(\$10,231,538)	\$0	\$0	(\$113,755,138)	(\$46,864,458)	(\$4,945,915)	(\$982,276)	(\$38,640)	(\$3,533)	(\$6,780,479)	(\$1,637,465)	(\$61,252,767)												
1845-5	Underground Conductors and Devices - Secondary	(\$83,033,315)	(\$40,971,655)	(\$22,061,660)	(\$83,033,315)	(\$20,288,801)	(\$9,967,726)	(\$10,383,190)	(\$351,938)	\$0	\$0	\$0	(\$40,971,655)	(\$17,098,792)	(\$1,804,548)	(\$86,668)	(\$304)	(\$9)	(\$2,473,900)	(\$597,440)	(\$22,061,660)												
1850	Line Transformers	(\$367,273,950)	(\$257,091,765)	(\$110,182,185)	(\$367,273,950)	(\$75,739,042)	(\$37,246,706)	(\$129,330,603)	(\$13,150,963)	(\$1,624,451)	\$0	\$0	(\$257,091,765)	(\$84,609,873)	(\$8,929,438)	(\$1,429,522)	(\$15,048)	(\$407)	(\$12,241,589)	(\$2,956,307)	(\$110,182,185)												
1855	Services	(\$206,265,791)	\$0	(\$206,265,791)	(\$206,265,791)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	(\$143,170,113)	(\$30,219,371)	(\$7,131,699)	(\$25,464)	(\$2,199)	(\$20,714,246)	(\$5,002,429)	(\$206,265,791)												
1860	Meters	(\$119,943,723)	\$0	(\$119,943,723)	(\$119,943,723)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	(\$81,188,345)	(\$14,696,080)	(\$19,209,913)	(\$4,102,424)	(\$746,961)	\$0	\$0	(\$119,943,723)												
Sub - Total			(\$2,006,395,289)	(\$1,146,161,967)	(\$860,233,323)	(\$2,006,395,289)	(\$339,353,478)	(\$166,714,264)	(\$455,681,109)	(\$125,754,686)	(\$58,586,802)	(\$37,181)	(\$34,446)	(\$1,146,161,967)	(\$632,203,972)	(\$88,710,978)	(\$34,762,410)	(\$4,912,275)	(\$1,050,909)	(\$79,403,155)	(\$19,189,624)	(\$860,233,323)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
General Plant																																	
1905	Land	\$0																					\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1906	Land Rights	\$0																					\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1908	Buildings and Fixtures	(\$42,407,300)																					(\$20,126,343)	(\$5,364,000)	(\$10,597,830)	(\$2,920,862)	(\$1,353,958)	(\$1,045,249)	(\$399,258)	(\$42,407,300)			
1910	Leasehold Improvements	\$0																					\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		
1915	Office Furniture and Equipment	(\$7,374,338)																					(\$3,499,833)	(\$932,763)	(\$1,842,890)	(\$507,883)	(\$235,444)	(\$286,097)	(\$69,428)	(\$7,374,338)			
1920	Computer Equipment - Hardware	(\$32,789,260)																					(\$15,561,658)	(\$4,147,437)	(\$8,194,226)	(\$2,258,252)	(\$1,046,878)	(\$1,272,104)	(\$308,705)	(\$32,789,260)			
1925	Computer Software	(\$134,641,742)																					(\$63,900,458)	(\$17,030,518)	(\$33,647,751)	(\$9,273,004)	(\$4,298,772)	(\$5,223,609)	(\$1,267,629)	(\$134,641,742)			
1930	Transportation Equipment	(\$48,811,264)																					(\$23,165,640)	(\$6,174,022)	(\$12,198,218)	(\$3,361,714)	(\$1,558,421)	(\$1,893,699)	(\$459,550)	(\$48,811,264)			
1935	Stores Equipment	(\$5,488,704)																					(\$2,604,916)	(\$694,253)	(\$376,016)	(\$175,246)	(\$212,942)	(\$51,675)	(\$5,488,704)				
1940	Tools, Shop and Garage Equipment	(\$26,220,068)					</																										

**Accumulated Depreciation - 2120**

[illegible]



**Categorization and Allocation of Amortization Expense - Property, Plant and Equipment - 5705**

[illegible]

Categorization and Allocation of Amortization of Limited Term Electric Plant - 5710

						Demand Allocation							Customer Allocation							A & G Allocation													
Account	Description	Depreciation	Demand	Customer	Total	1		2	3	5	6	7	9	Sub-total	1		2	3	5	6	7	9	Sub-total	1		2	3	5	6	7	9	Sub-total	
						Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Sub-total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Sub-total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Sub-total				
1565	Conservation and Demand Management	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1805	Land	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1805-1	Land Station >50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1805-2	Land Station <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1806	Land Rights	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1806-1	Land Rights Station >50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1806-2	Land Rights Station <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1808	Buildings and Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1808-1	Buildings and Fixtures > 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1808-2	Buildings and Fixtures < 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1810	Leasehold Improvements	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1810-1	Leasehold Improvements >50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1810-2	Leasehold Improvements <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1815	Transformer Station Equipment - Normally																																
	Primary above 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1820	Distribution Station Equipment - Normally																																
	Primary below 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1820-1	Distribution Station Equipment - Normally																																
	Primary below 50 kV (Bulk)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1820-2	Distribution Station Equipment - Normally																																
	Primary below 50 kV (Primary)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1820-3	Distribution Station Equipment - Normally																																
	Primary below 50 kV (Wholesale Meters)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1825	Storage Battery Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1825-1	Storage Battery Equipment > 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1825-2	Storage Battery Equipment <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1830	Poles, Towers and Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1830-3	Poles, Towers and Fixtures -																																
	Subtransmission Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1830-4	Poles, Towers and Fixtures - Primary	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1830-5	Poles, Towers and Fixtures - Secondary	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1835	Overhead Conductors and Devices	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1835-3	Overhead Conductors and Devices -																																
	Subtransmission Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1835-4	Overhead Conductors and Devices - Primary	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
	Overhead Conductors and Devices -																																
	Secondary	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1840	Underground Conduit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1840-3	Underground Conduit - Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		



Categorization and Allocation of Accumulated Amortization of Electric Utility Plant - Intangibles - 5715

						Demand Allocation							Customer Allocation							A & G Allocation											
						1	2	3	5	6	7	9	Sub-total																		
Account	Description	Depreciation	Demand	Customer	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Sub-total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Sub-total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Sub-total		
1565	Conservation and Demand Management	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1805	Land	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1805-1	Land Station >50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1805-2	Land Station <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1806	Land Rights	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1806-1	Land Rights Station >50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1806-2	Land Rights Station <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1808	Buildings and Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1808-1	Buildings and Fixtures > 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1808-2	Buildings and Fixtures < 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1810	Leasehold Improvements	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1810-1	Leasehold Improvements >50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1810-2	Leasehold Improvements <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1815	Transformer Station Equipment - Normally																														
	Primary above 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1820	Distribution Station Equipment - Normally																														
	Primary below 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1820-1	Distribution Station Equipment - Normally																														
	Primary below 50 kV (Bulk)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1820-2	Distribution Station Equipment - Normally																														
	Primary below 50 kV (Primary)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1820-3	Distribution Station Equipment - Normally																														
	Primary below 50 kV (Wholesale Meters)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1825	Storage Battery Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1825-1	Storage Battery Equipment > 50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1825-2	Storage Battery Equipment <50 kV	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1830	Poles, Towers and Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1830-3	Poles, Towers and Fixtures - Subtransmission Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1830-4	Poles, Towers and Fixtures - Primary	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1830-5	Poles, Towers and Fixtures - Secondary	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1835	Overhead Conductors and Devices	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1835-3	Overhead Conductors and Devices - Subtransmission Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1835-4	Overhead Conductors and Devices - Primary	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1835-5	Overhead Conductors and Devices - Secondary	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1840	Underground Conduit	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1840-3	Underground Conduit - Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1840-4	Underground Conduit - Primary	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1840-5	Underground Conduit - Secondary	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1845	Underground Conductors and Devices	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1845-3	Underground Conductors and Devices - Bulk Delivery	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1845-4	Underground Conductors and Devices - Primary	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1845-5	Underground Conductors and Devices - Secondary	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1850	Line Transformers	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1855	Services	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
1860	Meters	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										
	Sub - Total	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
General Plant																															
1905	Land	\$0																													
1906	Land Rights	\$0																													
1908	Buildings and Fixtures	\$0																													
1910	Leasehold Improvements	\$0																													
1915	Office Furniture and Equipment	\$0																													
1920	Computer Equipment - Hardware	\$0																													
1925	Computer Software	\$0																													

[illegible]



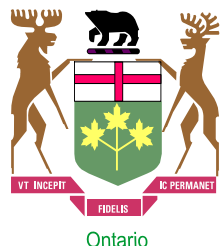
						Demand Allocation										Customer Allocation										A & G Allocation												
						1	2	3	5	6	7	9	Sub-total	1	2	3	5	6	7	9	Sub-total	1	2	3	5	6	7	9	Sub-total	1	2	3	5	6	7	9	Sub-total	
Account	Description		Demand	Customer	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Sub-total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Sub-total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Sub-total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load	Sub-total	
1565	Conservation and Demand Management	100%	0%	100%	100%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	47.13%	15.20%	24.50%	6.74%	3.20%	2.45%	0.78%	100.00%																	
1805	Land					0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1805-1	Land Station >50 kV	100%	100%	0%	100%	23.55%	10.83%	41.35%	15.76%	8.20%	0.16%	0.15%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1805-2	Land Station <50 kV	100%	100%	0%	100%	23.55%	10.83%	41.35%	15.76%	8.20%	0.16%	0.15%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1806	Land Rights					0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1806-1	Land Rights Station >50 kV	100%	100%	0%	100%	23.55%	10.83%	41.35%	15.76%	8.20%	0.16%	0.15%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1806-2	Land Rights Station <50 kV	100%	100%	0%	100%	23.55%	10.83%	41.35%	15.76%	8.20%	0.16%	0.15%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1808	Buildings and Fixtures					0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1808-1	Buildings and Fixtures > 50 kV	100%	100%	0%	100%	23.55%	10.83%	41.35%	15.76%	8.20%	0.16%	0.15%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1808-2	Buildings and Fixtures < 50 kV	100%	100%	0%	100%	23.55%	10.83%	41.35%	15.76%	8.20%	0.16%	0.15%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1810	Leasehold Improvements					0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1810-1	Leasehold Improvements >50 kV	100%	100%	0%	100%	23.55%	10.83%	41.35%	15.76%	8.20%	0.16%	0.15%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1810-2	Leasehold Improvements <50 kV	100%	100%	0%	100%	23.55%	10.83%	41.35%	15.76%	8.20%	0.16%	0.15%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1815	Transformer Station Equipment - Normally																																					
	Primary above 50 kV	100%	100%	0%	100%	23.55%	10.83%	41.35%	15.76%	8.20%	0.16%	0.15%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1820	Distribution Station Equipment - Normally					23.55%	10.83%	41.35%	15.76%	8.20%	0.16%	0.15%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1820-1	Distribution Station Equipment - Normally																																					
	Primary below 50 kV (Bulk)	100%	100%	0%	100%	23.55%	10.83%	41.35%	15.76%	8.20%	0.16%	0.15%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1820-2	Distribution Station Equipment - Normally																																					
	Primary below 50 kV (Primary)	100%	100%	0%	100%	21.67%	10.66%	41.24%	17.44%	8.99%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1820-3	Distribution Station Equipment - Normally																																					
	Primary below 50 kV (Wholesale Meters)	100%	0%	100%	100%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.43%	8.76%	41.44%	18.95%	9.74%	0.45%	0.23%	100.00%																	
1825	Storage Battery Equipment					0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1825-1	Storage Battery Equipment > 50 kV	100%	100%	0%	100%	23.55%	10.83%	41.35%	15.76%	8.20%	0.16%	0.15%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1825-2	Storage Battery Equipment <50 kV	100%	100%	0%	100%	23.55%	10.83%	41.35%	15.76%	8.20%	0.16%	0.15%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1830	Poles, Towers and Fixtures					0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1830-3	Poles, Towers and Fixtures -																																					
	Subtransmission Bulk Delivery	100%	100%	0%	100%	23.55%	10.83%	41.35%	15.76%	8.20%	0.16%	0.15%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1830-4	Poles, Towers and Fixtures - Primary	100%	65%	35%	100%	21.67%	10.66%	41.24%	17.44%	8.99%	0.00%	0.00%	100.00%	76.51%	8.07%	1.60%	0.06%	0.01%	11.07%	2.67%	100.00%																	
1830-5	Poles, Towers and Fixtures - Secondary	100%	65%	35%	100%	49.47%	24.33%	25.34%	0.86%	0.00%	0.00%	0.00%	100.00%	77.50%	8.18%	0.39%	0.00%	0.00%	11.21%	2.71%	100.00%																	
1835	Overhead Conductors and Devices					0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1835-3	Overhead Conductors and Devices -																																					
	Subtransmission Bulk Delivery	100%	100%	0%	100%	23.55%	10.83%	41.35%	15.76%	8.20%	0.16%	0.15%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%																	
1835-4	Overhead Conductors and Devices - Primary	100%	65%	35%	100%	21.67%	10.66%	41.24%	17.44%	8.99%	0.00%	0.00%	100.00%	76.51%	8.07%	1.60%	0.06%	0.01%	11.07%	2.67%	100.00%																	
1835-5	Overhead Conductors and Devices - Secondary	100%	65%	35%	100%	49.47%	24.33%	25.34%	0.86%	0.00%	0.00%	0.00%	100.00%	77.50%	8.18%	0.39%	0.00%	0.00%	11.21%	2.71%	100.00%																	
1840	Underground Conduit					0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	</																					

USoA A/C #	Accounts	Categorization		
		Demand	Customer	Customer Component
	<b>Distribution Plant</b>			
1805	Land	DCP		0%
1805-1	Land Station >50 kV	TCP		0%
1805-2	Land Station <50 kV	DCP		0%
1806	Land Rights	DCP		0%
1806-1	Land Rights Station >50 kV	TCP		0%
1806-2	Land Rights Station <50 kV	DCP		0%
1808	Buildings and Fixtures	DCP		0%
1808-1	Buildings and Fixtures > 50 kV	TCP		0%
1808-2	Buildings and Fixtures < 50 kV	DCP		0%
1810	Leasehold Improvements	DCP		0%
1810-1	Leasehold Improvements >50 kV	TCP		0%
1810-2	Leasehold Improvements <50 kV	DCP		0%
1815	Transformer Station Equipment - Normally Primary above 50 kV	TCP		0%
1820	Distribution Station Equipment - Normally Primary below 50 kV	DCP		0%
1820-1	Distribution Station Equipment - Normally Primary below 50 kV (Bulk)	DCP		0%
1820-2	Distribution Station Equipment - Normally Primary below 50 kV (Primary)	PNCP		0%
1820-3	Distribution Station Equipment - Normally Primary below 50 kV (Wholesale Meters)		CEN	100%
1825	Storage Battery Equipment	DCP		0%
1825-1	Storage Battery Equipment > 50 kV	TCP		0%
1825-2	Storage Battery Equipment <50 kV	DCP		0%
1830	Poles, Towers and Fixtures	DNCP	CCA	35%
1830-3	Poles, Towers and Fixtures - Subtransmission Bulk Delivery	BCP		0%
1830-4	Poles, Towers and Fixtures - Primary	PNCP	CCP	35%
1830-5	Poles, Towers and Fixtures - Secondary	SNCP	CCS	35%
1835	Overhead Conductors and Devices	DNCP	CCA	35%

USoA A/C #	Accounts	Categorization		
		Demand	Customer	Customer Component
1835-3	Overhead Conductors and Devices - Subtransmission Bulk Delivery	BCP		0%
1835-4	Overhead Conductors and Devices - Primary	PNCP	CCP	35%
1835-5	Overhead Conductors and Devices - Secondary	SNCP	CCS	35%
1840	Underground Conduit	DNCP	CCA	35%
1840-3	Underground Conduit - Bulk Delivery	BCP		0%
1840-4	Underground Conduit - Primary	PNCP	CCP	35%
1840-5	Underground Conduit - Secondary	SNCP	CCS	35%
1845	Underground Conductors and Devices	DNCP	CCA	35%
1845-3	Underground Conductors and Devices - Bulk Delivery	BCP		0%
1845-4	Underground Conductors and Devices - Primary	PNCP	CCP	35%
1845-5	Underground Conductors and Devices - Secondary	SNCP	CCS	35%
1850	Line Transformers	LTNCP	CCLT	30%
1855	Services		CWCS	100%
1860	Meters		CWMC	100%
1565	Conservation and Demand Management Expenditures and Recoveries		CDMPP	100%
	<b>Accumulated Amortization</b>			
2105	Accum. Amortization of Electric Utility Plant - Property, Plant, & Equipment	See I4 BO Assets		
	<b>Operation</b>			
5005	Operation Supervision and Engineering	1815-1855 D	1815-1855 C	35%
5010	Load Dispatching	1815-1855 D	1815-1855 C	35%
5012	Station Buildings and Fixtures Expense	1808 D		0%
5014	Transformer Station Equipment - Operation Labour	1815 D		0%

USoA A/C #	Accounts	Categorization		
		Demand	Customer	Customer Component
5015	Transformer Station Equipment - Operation Supplies and Expenses	1815 D		0%
5016	Distribution Station Equipment - Operation Labour	1820 D		0%
5017	Distribution Station Equipment - Operation Supplies and Expenses	1820 D		0%
5020	Overhead Distribution Lines and Feeders - Operation Labour	1830 & 1835 D	1830 & 1835 C	35%
5025	Overhead Distribution Lines & Feeders - Operation Supplies and Expenses	1830 & 1835 D	1830 & 1835 C	35%
5030	Overhead Subtransmission Feeders - Operation	1830 & 1835 D		0%
5035	Overhead Distribution Transformers- Operation	1850 D	1850 C	30%
5040	Underground Distribution Lines and Feeders - Operation Labour	1840 & 1845 D	1840 & 1845 C	35%
5045	Underground Distribution Lines & Feeders - Operation Supplies & Expenses	1840 & 1845 D	1840 & 1845 C	35%
5050	Underground Subtransmission Feeders - Operation	1840 & 1845 D		0%
5055	Underground Distribution Transformers - Operation	1850 D	1850 C	30%
5065	Meter Expense		CWMC	100%
5070	Customer Premises - Operation Labour		CCA	100%
5075	Customer Premises - Materials and Expenses		CCA	100%
5085	Miscellaneous Distribution Expense	1815-1855 D	1815-1855 C	35%
5090	Underground Distribution Lines and Feeders - Rental Paid	1840 & 1845 D	1840 & 1845 C	35%
5095	Overhead Distribution Lines and Feeders - Rental Paid	1830 & 1835 D	1830 & 1835 C	35%

USoA A/C #	Accounts	Categorization		
		Demand	Customer	Customer Component
	<b>Maintenance</b>			
5105	Maintenance Supervision and Engineering	1815-1855 D	1815-1855 C	35%
5110	Maintenance of Buildings and Fixtures - Distribution Stations	1808 D		0%
5112	Maintenance of Transformer Station Equipment	1815 D		0%
5114	Maintenance of Distribution Station Equipment	1820 D		0%
5120	Maintenance of Poles, Towers and Fixtures	1830 D	1830 C	35%
5125	Maintenance of Overhead Conductors and Devices	1835 D	1835 C	35%
5130	Maintenance of Overhead Services		1855 C	100%
5135	Overhead Distribution Lines and Feeders - Right of Way	1830 & 1835 D	1830 & 1835 C	35%
5145	Maintenance of Underground Conduit	1840 D	1840 C	35%
5150	Maintenance of Underground Conductors and Devices	1845 D	1845 C	35%
5155	Maintenance of Underground Services		1855 C	100%
5160	Maintenance of Line Transformers	1850 D	1850 C	30%
5175	Maintenance of Meters		1860 C	100%
5305	Supervision		CWNB	100%
5310	Meter Reading Expense		CWNR	100%
5315	Customer Billing		CWNB	100%
5320	Collecting		CWNB	100%
5325	Collecting- Cash Over and Short		CWNB	100%
5330	Collection Charges		CWNB	100%
5335	Bad Debt Expense		BDHA	100%
5340	Miscellaneous Customer Accounts Expenses		CWNB	100%



## 2010 COST ALLOCATION INFORMATION FILING Toronto Hydro-Electric System Limited

### Sheet E2 Allocator Worksheet - First Run

#### Details:

The worksheet below details how allocators are derived.

			1	2	3	5	6	7	9
Explanation	ID and Factors	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
<b>Demand Allocators</b>									
1 cp									
Transformation CP	<b>TCP1</b>	<b>100.00%</b>	<b>23.17%</b>	<b>11.70%</b>	<b>43.65%</b>	<b>13.49%</b>	<b>7.86%</b>	<b>0.00%</b>	<b>0.13%</b>
Bulk Delivery (SubTransmission) CP	<b>BCP1</b>	<b>100.00%</b>	<b>23.17%</b>	<b>11.70%</b>	<b>43.65%</b>	<b>13.49%</b>	<b>7.86%</b>	<b>0.00%</b>	<b>0.13%</b>
Distribution CP (Total System)	<b>DCP1</b>	<b>100.00%</b>	<b>23.17%</b>	<b>11.70%</b>	<b>43.65%</b>	<b>13.49%</b>	<b>7.86%</b>	<b>0.00%</b>	<b>0.13%</b>
4 cp									
Transformation CP	<b>TCP4</b>	<b>100.00%</b>	<b>23.55%</b>	<b>10.83%</b>	<b>41.35%</b>	<b>15.76%</b>	<b>8.20%</b>	<b>0.16%</b>	<b>0.15%</b>
Bulk Delivery (SubTransmission) CP	<b>BCP4</b>	<b>100.00%</b>	<b>23.55%</b>	<b>10.83%</b>	<b>41.35%</b>	<b>15.76%</b>	<b>8.20%</b>	<b>0.16%</b>	<b>0.15%</b>
Distribution CP (Total System)	<b>DCP4</b>	<b>100.00%</b>	<b>23.55%</b>	<b>10.83%</b>	<b>41.35%</b>	<b>15.76%</b>	<b>8.20%</b>	<b>0.16%</b>	<b>0.15%</b>
12 cp									
Transformation CP	<b>TCP12</b>	<b>100.00%</b>	<b>23.99%</b>	<b>9.96%</b>	<b>41.43%</b>	<b>15.71%</b>	<b>8.41%</b>	<b>0.32%</b>	<b>0.17%</b>
Bulk Delivery (SubTransmission) CP	<b>BCP12</b>	<b>100.00%</b>	<b>23.99%</b>	<b>9.96%</b>	<b>41.43%</b>	<b>15.71%</b>	<b>8.41%</b>	<b>0.32%</b>	<b>0.17%</b>

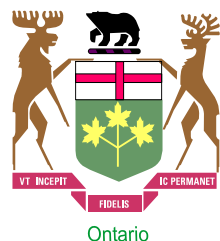


Explanation	ID and Factors	Total	1	2	3	5	6	7	9
			Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
Distribution CP (Total System)	<b>DCP12</b>	<b>100.00%</b>	<b>23.99%</b>	<b>9.96%</b>	<b>41.43%</b>	<b>15.71%</b>	<b>8.41%</b>	<b>0.32%</b>	<b>0.17%</b>
NON CO_INCIDENT PEAK									
1 NCP									
Distribution NCP ( Total System)	<b>DNCP1</b>	<b>100.00%</b>	<b>21.01%</b>	<b>11.11%</b>	<b>43.53%</b>	<b>16.21%</b>	<b>8.14%</b>	<b>0.00%</b>	<b>0.00%</b>
Primary NCP	<b>PNCP1</b>	<b>100.00%</b>	<b>21.65%</b>	<b>11.45%</b>	<b>41.80%</b>	<b>16.71%</b>	<b>8.39%</b>	<b>0.00%</b>	<b>0.00%</b>
Line Transformer NCP	<b>LTNCP1</b>	<b>100.00%</b>	<b>29.01%</b>	<b>15.34%</b>	<b>50.24%</b>	<b>4.83%</b>	<b>0.58%</b>	<b>0.00%</b>	<b>0.00%</b>
Secondary NCP	<b>SNCP1</b>	<b>100.00%</b>	<b>48.43%</b>	<b>25.60%</b>	<b>25.16%</b>	<b>0.81%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.00%</b>
4 NCP									
Distribution NCP ( Total System)	<b>DNCP4</b>	<b>100.00%</b>	<b>20.98%</b>	<b>10.32%</b>	<b>43.10%</b>	<b>16.89%</b>	<b>8.71%</b>	<b>0.00%</b>	<b>0.00%</b>
Primary NCP	<b>PNCP4</b>	<b>100.00%</b>	<b>21.67%</b>	<b>10.66%</b>	<b>41.24%</b>	<b>17.44%</b>	<b>8.99%</b>	<b>0.00%</b>	<b>0.00%</b>
Line Transformer NCP	<b>LTNCP4</b>	<b>100.00%</b>	<b>29.46%</b>	<b>14.49%</b>	<b>50.31%</b>	<b>5.12%</b>	<b>0.63%</b>	<b>0.00%</b>	<b>0.00%</b>
Secondary NCP	<b>SNCP4</b>	<b>100.00%</b>	<b>49.47%</b>	<b>24.33%</b>	<b>25.34%</b>	<b>0.86%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.00%</b>
12 NCP									
Distribution NCP ( Total System)	<b>DNCP12</b>	<b>100.00%</b>	<b>20.00%</b>	<b>9.57%</b>	<b>43.97%</b>	<b>17.32%</b>	<b>9.13%</b>	<b>0.00%</b>	<b>0.00%</b>
Primary NCP	<b>PNCP12</b>	<b>100.00%</b>	<b>24.24%</b>	<b>11.60%</b>	<b>32.12%</b>	<b>20.99%</b>	<b>11.06%</b>	<b>0.00%</b>	<b>0.00%</b>
Line Transformer NCP	<b>LTNCP12</b>	<b>100.00%</b>	<b>34.75%</b>	<b>16.63%</b>	<b>41.32%</b>	<b>6.49%</b>	<b>0.82%</b>	<b>0.00%</b>	<b>0.00%</b>
Secondary NCP	<b>SNCP12</b>	<b>100.00%</b>	<b>53.94%</b>	<b>25.81%</b>	<b>19.24%</b>	<b>1.01%</b>	<b>0.00%</b>	<b>0.00%</b>	<b>0.00%</b>

			1	2	3	5	6	7	9
Explanation	ID and Factors	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
Demand Allocators - Composite									
DEMAND 1815-1855	1815-1855 D	100.00%	29.56%	14.53%	39.72%	11.04%	5.16%	0.00%	0.00%
DEMAND 1808	1808 D	100.00%	23.55%	10.83%	41.35%	15.76%	8.20%	0.16%	0.15%
DEMAND 1815	1815 D	100.00%	23.55%	10.83%	41.35%	15.76%	8.20%	0.16%	0.15%
DEMAND 1820	1820 D	100.00%	21.67%	10.66%	41.24%	17.44%	8.99%	0.00%	0.00%
	1815 & 1820								
DEMAND 1815 & 1820	D	100.00%	21.85%	10.67%	41.25%	17.27%	8.92%	0.02%	0.02%
DEMAND 1830	1830 D	100.00%	34.80%	17.11%	33.73%	9.61%	4.75%	0.00%	0.00%
DEMAND 1835	1835 D	100.00%	34.80%	17.11%	33.73%	9.61%	4.75%	0.00%	0.00%
	1830 & 1835								
DEMAND 1830 & 1835	D	100.00%	34.80%	17.11%	33.73%	9.61%	4.75%	0.00%	0.00%
DEMAND 1840	1840 D	100.00%	29.03%	14.28%	37.03%	13.05%	6.61%	0.00%	0.00%
DEMAND 1845	1845 D	100.00%	29.03%	14.28%	37.03%	13.05%	6.61%	0.00%	0.00%
	1840 & 1845								
DEMAND 1840 & 1845	D	100.00%	29.03%	14.28%	37.03%	13.05%	6.61%	0.00%	0.00%
DEMAND 1850	1850 D	100.00%	29.46%	14.49%	50.31%	5.12%	0.63%	0.00%	0.00%
DEMAND 1855	1855 D	-	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
DEMAND 1860	1860 D	-	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

			1	2	3	5	6	7	9
Explanation	ID and Factors	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
<b>CUSTOMER ALLOCATORS</b>									
Billing Data									
kWh	<b>CEN</b>	100.00%	20.43%	8.76%	41.44%	18.95%	9.74%	0.45%	0.23%
kW	<b>CDEM</b>	100.00%	0.00%	0.00%	62.88%	24.71%	11.66%	0.75%	0.00%
kWh - Excl WMP	<b>CEN EWMP</b>	100.00%	20.22%	8.68%	41.10%	18.76%	10.56%	0.45%	0.23%
Dollar Billed (per 2006 EDR)	<b>CREV</b>	100.00%	41.00%	12.93%	29.76%	8.94%	4.39%	2.29%	0.69%
Bad Debt 3 Year Historical Average	<b>BDHA</b>	100.00%	60.80%	25.66%	12.26%	1.28%	0.00%	0.00%	0.00%
Late Payment 3 Year Historical Average	<b>LPHA</b>	100.00%	52.99%	21.38%	20.12%	4.65%	0.87%	0.00%	0.00%
Number of Bills	<b>CNB</b>	100.00%	79.62%	16.81%	3.14%	0.13%	0.01%	0.00%	0.29%
Number of Connections (Unmetered)	<b>CCON</b>	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	80.55%	19.45%
Total Number of Customer	<b>CCA</b>	100.00%	76.51%	8.07%	1.60%	0.06%	0.01%	11.07%	2.67%
Subtransmission Customer Base	<b>CCB</b>	-	0	0	0	0	0	0	0
Primary Feeder Customer Base	<b>CCP</b>	100.00%	76.51%	8.07%	1.60%	0.06%	0.01%	11.07%	2.67%
Line Transformer Customer Base	<b>CCLT</b>	100.00%	76.79%	8.10%	1.30%	0.01%	0.00%	11.11%	2.68%
Secondary Feeder Customer Base	<b>CCS</b>	100.00%	77.50%	8.18%	0.39%	0.00%	0.00%	11.21%	2.71%
Weighted - Services	<b>CWCS</b>	100.00%	69.41%	14.65%	3.46%	0.01%	0.00%	10.04%	2.43%
Weighted Meter -Capital	<b>CWMC</b>	100.00%	67.69%	12.25%	16.02%	3.42%	0.62%	0.00%	0.00%
Weighted Meter Reading	<b>CWMR</b>	100.00%	22.93%	62.88%	14.19%	0.00%	0.00%	0.00%	0.00%
Weighted Bills	<b>CWNB</b>	100.00%	57.81%	24.40%	15.94%	0.67%	0.13%	0.00%	1.05%

			1	2	3	5	6	7	9
Explanation	ID and Factors	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
CUSTOMER ALLOCATORS - Composite									
CUSTOMER 1815-1855	1815-1855 C	100.00%	74.51%	9.95%	2.02%	0.11%	0.04%	10.77%	2.60%
CUSTOMER 1808	1808 C	-	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CUSTOMER 1815	1815 C	-	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CUSTOMER 1820	1820 C	100.00%	20.43%	8.76%	41.44%	18.95%	9.74%	0.45%	0.23%
	1815 & 1820								
CUSTOMER 1815 & 1820	C	100.00%	20.43%	8.76%	41.44%	18.95%	9.74%	0.45%	0.23%
CUSTOMER 1830	1830 C	100.00%	76.98%	8.12%	1.03%	0.03%	0.00%	11.14%	2.69%
CUSTOMER 1835	1835 C	100.00%	76.98%	8.12%	1.03%	0.03%	0.00%	11.14%	2.69%
	1830 & 1835								
CUSTOMER 1830 & 1835	C	100.00%	76.98%	8.12%	1.03%	0.03%	0.00%	11.14%	2.69%
CUSTOMER 1840	1840 C	100.00%	76.77%	8.10%	1.28%	0.05%	0.00%	11.11%	2.68%
CUSTOMER 1845	1845 C	100.00%	76.77%	8.10%	1.28%	0.05%	0.00%	11.11%	2.68%
	1840 & 1845								
CUSTOMER 1840 & 1845	C	100.00%	76.77%	8.10%	1.28%	0.05%	0.00%	11.11%	2.68%
CUSTOMER 1850	1850 C	100.00%	76.79%	8.10%	1.30%	0.01%	0.00%	11.11%	2.68%
CUSTOMER 1855	1855 C	100.00%	69.41%	14.65%	3.46%	0.01%	0.00%	10.04%	2.43%
CUSTOMER 1860	1860 C	100.00%	67.69%	12.25%	16.02%	3.42%	0.62%	0.00%	0.00%
<b>Composite Allocators</b>									
Net Fixed Assets	NFA	100.00%	47.46%	12.59%	24.84%	7.01%	3.27%	3.88%	0.94%
Net Fixed Assets Excluding Capital									
Contribution	NFA ECC	100.00%	47.46%	12.65%	24.99%	6.89%	3.19%	3.88%	0.94%
5005-5340	O&M	100.00%	47.13%	15.20%	24.50%	6.74%	3.20%	2.45%	0.78%



## 2011 COST ALLOCATION INFORMATION Toronto Hydro-Electric System Limited

### Sheet E3 Demand Allocator Worksheet - First Run

**Instructions:**  
Input sheet for Demand Allocators.

#### PLCC WATTS

400

Customer Classes	Total	1	2	3	5	6	7	9
		Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
CCA	814,804	623,406	65,792	13,067	514	47	90,196	21,782 13,067
CCB	-	0	0	0	0	0	0	0
CCP	814,804	623,406	65,792	13,067	514	47	90,196	21,782
CCLT	811,823	623,406	65,792	10,533	111	3	90,196	21,782
CCS	804,348	623,406	65,792	3,160	11	0	90,196	21,782
PLCC-CCA	325,922	249,362	26,317	5,227	206	19	36,078	8,713
PLCC-CCB	-	0	0	0	0	0	0	0
PLCC-CCP	325,922	249,362	26,317	5,227	206	19	36,078	8,713
PLCC-CCLT	324,729	249,362	26,317	4,213	44	1	36,078	8,713
PLCC-CCS	321,739	249,362	26,317	1,264	4	0	36,078	8,713
1NCP								
DNCP1	5,014,960	1,236,302	548,059	2,049,911	761,671	382,501	28,797	7,718
PNCP1	4,875,349	1,236,302	548,059	1,910,701	761,671	382,501	28,797	7,318
LTNCP1	3,718,126	1,236,302	548,059	1,713,584	164,303	19,763	28,797	7,318
SNCP1	2,350,982	1,236,302	548,059	514,075	16,430	0	28,797	7,318

		1	2	3	5	6	7	9
Customer Classes	Total	Residential	GS <50	GS>50<1000	GS > 1000 < 5000	Large Use >5MW	Street Light	Unmetered Scattered Load
<b>PLCC - 1NCP</b>								
DNCP1A	4,697,314	986,940	521,742	2,044,685	761,466	382,482	0	0
PNCP1A	4,558,103	986,940	521,742	1,905,474	761,466	382,482	0	0
LTNCP1A	3,402,073	986,940	521,742	1,709,371	164,258	19,762	0	0
SNCP1A	2,037,919	986,940	521,742	512,811	16,426	0	0	0
<b>4 NCP</b>								
DNCP4	18,463,083	4,605,538	1,879,642	7,432,455	2,905,098	1,497,834	112,216	30,300
PNCP4	17,919,247	4,605,538	1,879,642	6,888,620	2,905,098	1,497,834	112,216	30,300
LTNCP4	13,509,714	4,605,538	1,879,642	6,177,958	626,669	77,391	112,216	30,300
SNCP4	8,543,750	4,605,538	1,879,642	1,853,387	62,667	0	112,216	30,300
<b>PLCC - 4NCP</b>								
DNCP4A	17,196,046	3,608,089	1,774,374	7,411,549	2,904,276	1,497,758	0	0
PNCP4A	16,652,210	3,608,089	1,774,374	6,867,713	2,904,276	1,497,758	0	0
LTNCP4A	12,247,446	3,608,089	1,774,374	6,161,106	626,491	77,386	0	0
SNCP4A	7,293,444	3,608,089	1,774,374	1,848,332	62,649	0	0	0
<b>12NCP</b>								
DNCP12	49,989,075	12,236,419	4,738,942	20,383,858	8,008,427	4,217,726	316,422	87,280
PNCP12	41,919,238	12,236,419	4,738,942	12,314,021	8,008,427	4,217,726	316,422	87,280
LTNCP12	30,368,163	12,236,419	4,738,942	11,043,650	1,727,525	217,924	316,422	87,280
SNCP12	20,864,911	12,236,419	4,738,942	3,313,095	172,752	0	316,422	87,280
<b>PLCC - 12NCP</b>								
DNCP12A	46,211,808	9,244,070	4,423,140	20,321,139	8,005,960	4,217,500	0	0
PNCP12A	38,141,971	9,244,070	4,423,140	12,251,302	8,005,960	4,217,500	0	0
LTNCP12A	26,605,205	9,244,070	4,423,140	10,993,093	1,726,993	217,910	0	0
SNCP12A	17,137,837	9,244,070	4,423,140	3,297,928	172,699	0	0	0

Uniform System of Accounts - Detail Accounts:					Classification and Allocation			Allocation Demand Related	Allocation Customer Related	Allocation A&G Related	Allocation Misc Related
USoA Account #	Accounts	Explanations	Grouping for Sheet O1 Revenue to Cost	Demand Grouping Indicator	Demand	Customer	Joint	Demand ID	Customer ID	A & G ID	Misc ID
1565	Conservation and Demand Management Expenditures and Recoveries	CDM Expenditures and Recoveries	dp			O&M			O&M		
1608	Franchises and Consents	Other Distribution Assets	gp							NFA ECC	
1805	Land		dp	DDCP							
1805-1	Land Station >50 kV		dp	TCP	TCP4			TCP4			
1805-2	Land Station <50 kV		dp	DCP	DCP4			DCP4			
1806	Land Rights		dp	DDCP							
1806-1	Land Rights Station >50 kV		dp	TCP	TCP4			TCP4			
1806-2	Land Rights Station <50 kV		dp	DCP	DCP4			DCP4			
1808	Buildings and Fixtures		dp	DDCP							
1808-1	Buildings and Fixtures > 50 kV		dp	TCP	TCP4			TCP4			
1808-2	Buildings and Fixtures < 50 KV		dp	DCP	DCP4			DCP4			
1810	Leasehold Improvements		dp	DDCP							
1810-1	Leasehold Improvements >50 kV		dp	TCP	TCP4			TCP4			
1810-2	Leasehold Improvements <50 kV		dp	DCP	DCP4			DCP4			
1815	Transformer Station Equipment - Normally Primary above 50 kV		dp	TCP	TCP4			TCP4			
1820	Distribution Station Equipment - Normally Primary below 50 kV		dp	DCP	DCP4			DCP4			
1820-1	Distribution Station Equipment - Normally Primary below 50 kV (Bulk)		dp	DCP	DCP4			DCP4			

Uniform System of Accounts - Detail Accounts:					Classification and Allocation			Allocation Demand Related	Allocation Customer Related	Allocation A&G Related	Allocation Misc Related
USoA Account #	Accounts	Explanations	Grouping for Sheet O1 Revenue to Cost	Demand Grouping Indicator	Demand	Customer	Joint	Demand ID	Customer ID	A & G ID	Misc ID
1820-2	Distribution Station Equipment - Normally Primary below 50 kV (Primary)		dp	PNCP	PNCP4			PNCP4			
1820-3	Distribution Station Equipment - Normally Primary below 50 kV (Wholesale Meters)		dp			CEN			CEN		
1825	Storage Battery Equipment		dp	DDCP							
1825-1	Storage Battery Equipment > 50 kV		dp	TCP	TCP4			TCP4			
1825-2	Storage Battery Equipment <50 kV		dp	DCP	DCP4			DCP4			
1830	Poles, Towers and Fixtures		dp	DDNCP							
1830-3	Poles, Towers and Fixtures - Subtransmission Bulk Delivery		dp	BCP	BCP4			BCP4			



Uniform System of Accounts - Detail Accounts:					Classification and Allocation			Allocation Demand Related	Allocation Customer Related	Allocation A&G Related	Allocation Misc Related
USoA Account #	Accounts	Explanations	Grouping for Sheet O1 Revenue to Cost	Demand Grouping Indicator	Demand	Customer	Joint	Demand ID	Customer ID	A & G ID	Misc ID
1830-4	Poles, Towers and Fixtures - Primary		dp	PNCP	PNCP4	CCP	x	PNCP4	CCP		
1830-5	Poles, Towers and Fixtures - Secondary		dp	SNCP	SNCP4	CCS	x	SNCP4	CCS		
1835	Overhead Conductors and Devices		dp	DDNCP							
1835-3	Overhead Conductors and Devices - Subtransmission Bulk Delivery		dp	BCP	BCP4			BCP4			
1835-4	Overhead Conductors and Devices - Primary		dp	PNCP	PNCP4	CCP	x	PNCP4	CCP		
1835-5	Overhead Conductors and Devices - Secondary		dp	SNCP	SNCP4	CCS	x	SNCP4	CCS		
1840	Underground Conduit		dp	DDNCP							
1840-3	Underground Conduit - Bulk Delivery	Land and Buildings	dp	BCP	BCP4			BCP4			
1840-4	Underground Conduit - Primary	Land and Buildings	dp	PNCP	PNCP4	CCP	x	PNCP4	CCP		
1840-5	Underground Conduit - Secondary	Land and Buildings	dp	SNCP	SNCP4	CCS	x	SNCP4	CCS		
1845	Underground Conductors and Devices	Land and Buildings	dp	DDNCP							
1845-3	Underground Conductors and Devices - Bulk Delivery	TS Primary Above 50	dp	BCP	BCP4			BCP4			
1845-4	Underground Conductors and Devices - Primary	DS	dp	PNCP	PNCP4	CCP	x	PNCP4	CCP		
1845-5	Underground Conductors and Devices - Secondary	Other Distribution Assets	dp	SNCP	SNCP4	CCS	x	SNCP4	CCS		
1850	Line Transformers	Poles, Wires	dp	LTNCP	LTNCP4	CCLT	x	LTNCP4	CCLT		
1855	Services	Services and Meters	dp			CWCS			CWCS		
1860	Meters	Services and Meters	dp			CWMC			CWMC		

Uniform System of Accounts - Detail Accounts:					Classification and Allocation			Allocation Demand Related	Allocation Customer Related	Allocation A&G Related	Allocation Misc Related
USoA Account #	Accounts	Explanations	Grouping for Sheet O1 Revenue to Cost	Demand Grouping Indicator	Demand	Customer	Joint	Demand ID	Customer ID	A & G ID	Misc ID
1905	Land	Land and Buildings	gp							NFA ECC	
1906	Land Rights	Land and Buildings	gp							NFA ECC	
1908	Buildings and Fixtures	General Plant	gp							NFA ECC	
1910	Leasehold Improvements	General Plant	gp							NFA ECC	
1915	Office Furniture and Equipment	Equipment	gp							NFA ECC	
1920	Computer Equipment - Hardware	IT Assets	gp							NFA ECC	
1925	Computer Software	IT Assets	gp							NFA ECC	
1930	Transportation Equipment	Equipment	gp							NFA ECC	
1935	Stores Equipment	Equipment	gp							NFA ECC	
1940	Tools, Shop and Garage Equipment	Equipment	gp							NFA ECC	
1945	Measurement and Testing Equipment	Equipment	gp							NFA ECC	
1950	Power Operated Equipment	Equipment	gp							NFA ECC	
1955	Communication Equipment	Equipment	gp							NFA ECC	
1960	Miscellaneous Equipment	Equipment	gp							NFA ECC	
1970	Load Management Controls - Customer Premises	Other Distribution Assets	gp							NFA ECC	
1975	Load Management Controls - Utility Premises	Other Distribution Assets	gp							NFA ECC	
1980	System Supervisory Equipment	Other Distribution Assets	gp							NFA ECC	
1990	Other Tangible Property	Other Distribution Assets	gp							NFA ECC	
1995	Contributions and Grants - Credit	Contributions and Grants	co		Break out	Breakout		Break out	Breakout		
2005	Property Under Capital Leases	Other Distribution Assets	gp							NFA ECC	

Uniform System of Accounts - Detail Accounts:					Classification and Allocation			Allocation Demand Related	Allocation Customer Related	Allocation A&G Related	Allocation Misc Related
USoA Account #	Accounts	Explanations	Grouping for Sheet O1 Revenue to Cost	Demand Grouping Indicator	Demand	Customer	Joint	Demand ID	Customer ID	A & G ID	Misc ID
2010	Electric Plant Purchased or Sold	Other Distribution Assets	gp							NFA ECC	
2105	Accum. Amortization of Electric Utility Plant - Property, Plant, & Equipment	Accumulated Amortization	accum dep		Break out	Breakout		Break out	Breakout		
2120	Accumulated Amortization of Electric Utility Plant - Intangibles	Accumulated Amortization	accum dep		Break out	Breakout		Break out	Breakout		
3046	Balance Transferred From Income	Equity	NI								NFA
4080	Distribution Services Revenue	Distribution Services Revenue	CREV								CREV
4082	Retail Services Revenues	Other Distribution Revenue	mi								CWNB
4084	Service Transaction Requests (STR) Revenues	Other Distribution Revenue	mi								CWNB
4090	Electric Services Incidental to Energy Sales	Other Distribution Revenue	mi								CWNB
4205	Interdepartmental Rents	Other Distribution Revenue	mi								NFA
4210	Rent from Electric Property	Other Distribution Revenue	mi								NFA
4215	Other Utility Operating Income	Other Distribution Revenue	mi								NFA
4220	Other Electric Revenues	Other Distribution Revenue	mi								NFA
4225	Late Payment Charges	Late Payment Charges	mi								LPHA
4235	Miscellaneous Service Revenues	Specific Service Charges	mi								CWNB
4240	Provision for Rate Refunds	Other Distribution Revenue	mi								NFA

Uniform System of Accounts - Detail Accounts:					Classification and Allocation			Allocation Demand Related	Allocation Customer Related	Allocation A&G Related	Allocation Misc Related
USoA Account #	Accounts	Explanations	Grouping for Sheet O1 Revenue to Cost	Demand Grouping Indicator	Demand	Customer	Joint	Demand ID	Customer ID	A & G ID	Misc ID
4245	Government Assistance Directly Credited to Income	Other Distribution Revenue	mi								NFA
4305	Regulatory Debits	Other Income & Deductions	mi								NFA
4310	Regulatory Credits	Other Income & Deductions	mi								NFA
4315	Revenues from Electric Plant Leased to Others	Other Income & Deductions	mi								NFA
4320	Expenses of Electric Plant Leased to Others	Other Income & Deductions	mi								NFA
4325	Revenues from Merchandise, Jobbing, Etc.	Other Income & Deductions	mi								NFA
4330	Costs and Expenses of Merchandising, Jobbing, Etc.	Other Income & Deductions	mi								NFA
4335	Profits and Losses from Financial Instrument Hedges	Other Income & Deductions	mi								NFA
4340	Profits and Losses from Financial Instrument Investments	Other Income & Deductions	mi								NFA
4345	Gains from Disposition of Future Use Utility Plant	Other Income & Deductions	mi								NFA
4350	Losses from Disposition of Future Use Utility Plant	Other Income & Deductions	mi								NFA
4355	Gain on Disposition of Utility and Other Property	Other Income & Deductions	mi								NFA
4360	Loss on Disposition of Utility and Other Property	Other Income & Deductions	mi								NFA
4365	Gains from Disposition of Allowances for Emission	Other Income & Deductions	mi								NFA
4370	Losses from Disposition of Allowances for Emission	Other Income & Deductions	mi								NFA

Uniform System of Accounts - Detail Accounts:					Classification and Allocation			Allocation Demand Related	Allocation Customer Related	Allocation A&G Related	Allocation Misc Related
USoA Account #	Accounts	Explanations	Grouping for Sheet O1 Revenue to Cost	Demand Grouping Indicator	Demand	Customer	Joint	Demand ID	Customer ID	A & G ID	Misc ID
4390	Miscellaneous Non-Operating Income	Other Income & Deductions	mi								NFA
4395	Rate-Payer Benefit Including Interest	Other Income & Deductions	mi								NFA
4398	Foreign Exchange Gains and Losses, Including Amortization	Other Income & Deductions	mi								NFA
4405	Interest and Dividend Income	Other Income & Deductions	mi								NFA
4415	Equity in Earnings of Subsidiary Companies	Other Income & Deductions	mi								NFA
4705	Power Purchased	Power Supply Expenses (Working Capital)	cop							CEN EWMP	
4708	Charges-WMS	Power Supply Expenses (Working Capital)	cop							CEN EWMP	
4710	Cost of Power Adjustments	Power Supply Expenses (Working Capital)	cop							CEN EWMP	
4712	Charges-One-Time	Power Supply Expenses (Working Capital)	cop							CEN EWMP	
4714	Charges-NW	Power Supply Expenses (Working Capital)	cop							CEN	
4715	System Control and Load Dispatching	Other Power Supply Expenses	cop							CEN EWMP	
4716	Charges-CN	Power Supply Expenses (Working Capital)	cop							CEN	
4730	Rural Rate Assistance Expense	Power Supply Expenses (Working Capital)	cop							CEN EWMP	

Uniform System of Accounts - Detail Accounts:					Classification and Allocation			Allocation Demand Related	Allocation Customer Related	Allocation A&G Related	Allocation Misc Related
USoA Account #	Accounts	Explanations	Grouping for Sheet O1 Revenue to Cost	Demand Grouping Indicator	Demand	Customer	Joint	Demand ID	Customer ID	A & G ID	Misc ID
5005	Operation Supervision and Engineering	Operation (Working Capital)	di	1815-1855 D	1815-1855 D	1815-1855 C	x	1815-1855 D	1815-1855 C		
5010	Load Dispatching	Operation (Working Capital)	di	1815-1855 D	1815-1855 D	1815-1855 C	x	1815-1855 D	1815-1855 C		
5012	Station Buildings and Fixtures Expense	Operation (Working Capital)	di	1808 D	1808 D	1808 C		1808 D	1808 C		
5014	Transformer Station Equipment - Operation Labour	Operation (Working Capital)	di	1815 D	1815 D	1815 C		1815 D	1815 C		
5015	Transformer Station Equipment - Operation Supplies and Expenses	Operation (Working Capital)	di	1815 D	1815 D	1815 C		1815 D	1815 C		
5016	Distribution Station Equipment - Operation Labour	Operation (Working Capital)	di	1820 D	1820 D	1820 C		1820 D	1820 C		
5017	Distribution Station Equipment - Operation Supplies and Expenses	Operation (Working Capital)	di	1820 D	1820 D	1820 C		1820 D	1820 C		
5020	Overhead Distribution Lines and Feeders - Operation Labour	Operation (Working Capital)	di	1830 & 1835 D	1830 & 1835 D	1830 & 1835 C	x	1830 & 1835 D	1830 & 1835 C		
5025	Overhead Distribution Lines & Feeders - Operation Supplies and Expenses	Operation (Working Capital)	di	1830 & 1835 D	1830 & 1835 D	1830 & 1835 C	x	1830 & 1835 D	1830 & 1835 C		
5030	Overhead Subtransmission Feeders - Operation	Operation (Working Capital)	di	1830 & 1835 D	1830 & 1835 D	1830 & 1835 C		1830 & 1835 D	1830 & 1835 C		
5035	Overhead Distribution Transformers- Operation	Operation (Working Capital)	di	1850 D	1850 D	1850 C	x	1850 D	1850 C		
5040	Underground Distribution Lines and Feeders - Operation Labour	Operation (Working Capital)	di	1840 & 1845 D	1840 & 1845 D	1840 & 1845 C	x	1840 & 1845 D	1840 & 1845 C		

Uniform System of Accounts - Detail Accounts:					Classification and Allocation			Allocation Demand Related	Allocation Customer Related	Allocation A&G Related	Allocation Misc Related
USoA Account #	Accounts	Explanations	Grouping for Sheet O1 Revenue to Cost	Demand Grouping Indicator	Demand	Customer	Joint	Demand ID	Customer ID	A & G ID	Misc ID
5045	Underground Distribution Lines & Feeders - Operation Supplies & Expenses	Operation (Working Capital)	di	1840 & 1845 D	1840 & 1845 D	1840 & 1845 C	x	840 & 1845	1840 & 1845 C		
5050	Underground Subtransmission Feeders - Operation	Operation (Working Capital)	di	1840 & 1845 D	1840 & 1845 D	1840 & 1845 C		840 & 1845	1840 & 1845 C		
5055	Underground Distribution Transformers - Operation	Operation (Working Capital)	di	1850 D	1850 D	1850 C	x	1850 D	1850 C		
5065	Meter Expense	Operation (Working Capital)	cu			CWMC			CWMC		
5070	Customer Premises - Operation Labour	Operation (Working Capital)	cu			CCA			CCA		
5075	Customer Premises - Materials and Expenses	Operation (Working Capital)	cu			CCA			CCA		
5085	Miscellaneous Distribution Expense	Operation (Working Capital)	di	1815-1855 D	1815-1855 D	1815-1855 C	x	1815-1855 D	1815-1855 C		
5090	Underground Distribution Lines and Feeders - Rental Paid	Operation (Working Capital)	di	1840 & 1845 D	1840 & 1845 D	1840 & 1845 C	x	840 & 1845	1840 & 1845 C		
5095	Overhead Distribution Lines and Feeders - Rental Paid	Operation (Working Capital)	di	1830 & 1835 D	1830 & 1835 D	1830 & 1835 C	x	830 & 1835	1830 & 1835 C		
5096	Other Rent	Operation (Working Capital)	di							O&M	
5105	Maintenance Supervision and Engineering	Maintenance (Working Capital)	di	1815-1855 D	1815-1855 D	1815-1855 C	x	1815-1855 D	1815-1855 C		
5110	Maintenance of Buildings and Fixtures - Distribution Stations	Maintenance (Working Capital)	di	1808 D	1808 D	1808 C		1808 D	1808 C		
5112	Maintenance of Transformer Station Equipment	Maintenance (Working Capital)	di	1815 D	1815 D	1815 C		1815 D	1815 C		

Uniform System of Accounts - Detail Accounts:					Classification and Allocation			Allocation Demand Related	Allocation Customer Related	Allocation A&G Related	Allocation Misc Related
USoA Account #	Accounts	Explanations	Grouping for Sheet O1 Revenue to Cost	Demand Grouping Indicator	Demand	Customer	Joint	Demand ID	Customer ID	A & G ID	Misc ID
5114	Maintenance of Distribution Station Equipment	Maintenance (Working Capital)	di	1820 D	1820 D	1820 C		1820 D	1820 C		
5120	Maintenance of Poles, Towers and Fixtures	Maintenance (Working Capital)	di	1830 D	1830 D	1830 C	x	1830 D	1830 C		
5125	Maintenance of Overhead Conductors and Devices	Maintenance (Working Capital)	di	1835 D	1835 D	1835 C	x	1835 D	1835 C		
5130	Maintenance of Overhead Services	Maintenance (Working Capital)	di	1855 D	1855 D	1855 C		1855 D	1855 C		
5135	Overhead Distribution Lines and Feeders - Right of Way	Maintenance (Working Capital)	di	1830 & 1835 D	1830 & 1835 D	1830 & 1835 C	x	1830 & 1835 D	1830 & 1835 C		
5145	Maintenance of Underground Conduit	Maintenance (Working Capital)	di	1840 D	1840 D	1840 C	x	1840 D	1840 C		
5150	Maintenance of Underground Conductors and Devices	Maintenance (Working Capital)	di	1845 D	1845 D	1845 C	x	1845 D	1845 C		
5155	Maintenance of Underground Services	Maintenance (Working Capital)	di	1855 D	1855 D	1855 C		1855 D	1855 C		
5160	Maintenance of Line Transformers	Maintenance (Working Capital)	di	1850 D	1850 D	1850 C	x	1850 D	1850 C		
5175	Maintenance of Meters	Maintenance (Working Capital)	cu	1860 D	1860 D	1860 C		1860 D	1860 C		
5305	Supervision	Billing and Collection (Working Capital)	cu			CWNB			CWNB		
5310	Meter Reading Expense	Billing and Collection (Working Capital)	cu			CWMR			CWMR		
5315	Customer Billing	Billing and Collection (Working Capital)	cu			CWNB			CWNB		
5320	Collecting	Billing and Collection (Working Capital)	cu			CWNB			CWNB		

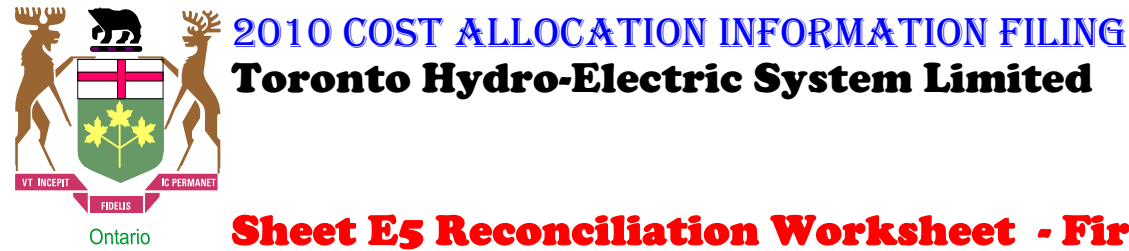


Uniform System of Accounts - Detail Accounts:					Classification and Allocation			Allocation Demand Related	Allocation Customer Related	Allocation A&G Related	Allocation Misc Related
USoA Account #	Accounts	Explanations	Grouping for Sheet O1 Revenue to Cost	Demand Grouping Indicator	Demand	Customer	Joint	Demand ID	Customer ID	A & G ID	Misc ID
5325	Collecting- Cash Over and Short	Billing and Collection (Working Capital)	cu			CWNB			CWNB		
5330	Collection Charges	Billing and Collection (Working Capital)	cu			CWNB			CWNB		
5335	Bad Debt Expense	Bad Debt Expense (Working Capital)	cu			BDHA			BDHA		
5340	Miscellaneous Customer Accounts Expenses	Billing and Collection (Working Capital)	cu			CWNB			CWNB		
5405	Supervision	Community Relations (Working Capital)	ad							O&M	
5410	Community Relations - Sundry	Community Relations (Working Capital)	ad							O&M	
5415	Energy Conservation	Community Relations - CDM (Working Capital)	ad							O&M	
5420	Community Safety Program	Community Relations (Working Capital)	ad							NFA ECC	
5425	Miscellaneous Customer Service and Informational Expenses	Community Relations (Working Capital)	ad							O&M	
5505	Supervision	Other Distribution Expenses	ad							O&M	
5510	Demonstrating and Selling Expense	Other Distribution Expenses	ad							O&M	
5515	Advertising Expense	Advertising Expenses	ad							O&M	
5520	Miscellaneous Sales Expense	Other Distribution Expenses	ad							O&M	

Uniform System of Accounts - Detail Accounts:					Classification and Allocation			Allocation Demand Related	Allocation Customer Related	Allocation A&G Related	Allocation Misc Related
USoA Account #	Accounts	Explanations	Grouping for Sheet O1 Revenue to Cost	Demand Grouping Indicator	Demand	Customer	Joint	Demand ID	Customer ID	A & G ID	Misc ID
5605	Executive Salaries and Expenses	Administrative and General Expenses (Working Capital)	ad							O&M	
5610	Management Salaries and Expenses	Administrative and General Expenses (Working Capital)	ad							O&M	
5615	General Administrative Salaries and Expenses	Administrative and General Expenses (Working Capital)	ad							O&M	
5620	Office Supplies and Expenses	Administrative and General Expenses (Working Capital)	ad							O&M	
5625	Administrative Expense Transferred Credit	Administrative and General Expenses (Working Capital)	ad							O&M	
5630	Outside Services Employed	Administrative and General Expenses (Working Capital)	ad							O&M	
5635	Property Insurance	Insurance Expense (Working Capital)	ad							NFA ECC	
5640	Injuries and Damages	Administrative and General Expenses (Working Capital)	ad							O&M	
5645	Employee Pensions and Benefits	Administrative and General Expenses (Working Capital)	ad							O&M	
5650	Franchise Requirements	Administrative and General Expenses (Working Capital)	ad							O&M	

Uniform System of Accounts - Detail Accounts:					Classification and Allocation			Allocation Demand Related	Allocation Customer Related	Allocation A&G Related	Allocation Misc Related
USoA Account #	Accounts	Explanations	Grouping for Sheet O1 Revenue to Cost	Demand Grouping Indicator	Demand	Customer	Joint	Demand ID	Customer ID	A & G ID	Misc ID
5655	Regulatory Expenses	Administrative and General Expenses (Working Capital)	ad							O&M	
5660	General Advertising Expenses	Advertising Expenses	ad							O&M	
5665	Miscellaneous General Expenses	Administrative and General Expenses (Working Capital)	ad							O&M	
5670	Rent	Administrative and General Expenses (Working Capital)	ad							O&M	
5675	Maintenance of General Plant	Administrative and General Expenses (Working Capital)	ad							O&M	
5680	Electrical Safety Authority Fees	Administrative and General Expenses (Working Capital)	ad							O&M	
5685	Independent Market Operator Fees and Penalties	Power Supply Expenses (Working Capital)	cop							NFA ECC	
5705	Amortization Expense - Property, Plant, and Equipment	Amortization of Assets	dep	PRORATED	Break out	Breakout			Breakout		
5710	Amortization of Limited Term Electric Plant	Amortization of Assets	dep	PRORATED	Break out	Breakout			Breakout		
5715	Amortization of Intangibles and Other Electric Plant	Amortization of Assets	dep	PRORATED	Break out	Breakout			Breakout		
5720	Amortization of Electric Plant Acquisition Adjustments	Other Amortization - Unclassified	dep	PRORATED	Break out	Breakout			Breakout		
5730	Amortization of Unrecovered Plant and Regulatory Study Costs	Amortization of Assets	dep							O&M	

Uniform System of Accounts - Detail Accounts:					Classification and Allocation			Allocation Demand Related	Allocation Customer Related	Allocation A&G Related	Allocation Misc Related
USoA Account #	Accounts	Explanations	Grouping for Sheet O1 Revenue to Cost	Demand Grouping Indicator	Demand	Customer	Joint	Demand ID	Customer ID	A & G ID	Misc ID
5735	Amortization of Deferred Development Costs	Amortization of Assets	dep							O&M	
5740	Amortization of Deferred Charges	Amortization of Assets	dep							O&M	
6005	Interest on Long Term Debt	Interest Expense - Unclassified	INT							NFA	
6105	Taxes Other Than Income Taxes	Other Distribution Expenses	ad							NFA	
6110	Income Taxes	Income Tax Expense - Unclassified	Input							NFA	
6205	Donations	Charitable Contributions	ad							O&M	
6210	Life Insurance	Insurance Expense (Working Capital)	ad							O&M	
6215	Penalties	Other Distribution Expenses	ad							O&M	
6225	Other Deductions	Other Distribution Expenses	ad							O&M	



**Sheet E5 Reconciliation Worksheet - First Run**

**Details:**  
The worksheet below shows reconciliation of costs included and excluded in the Trial Balance.

USoA Account #	Accounts	Financial Statement	Financial Statement - Asset Break Out includes Acc Dep and Contributed Capital	Adjusted TB	Excluded from COSS	Excluded	Included	Balance in O5	Difference	Balance in O4 Summary	Difference
1565	Conservation and Demand Management Expenditures and Recoveries	\$15,702,253		\$15,702,253		\$0	\$15,702,253	\$15,702,253	\$0	\$15,702,253	\$0
1608	Franchises and Consents	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
1805	Land		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1805-1	Land Station >50 kV		\$454,416	\$454,416		\$0	\$454,416	\$454,416	\$0	\$454,416	\$0
1805-2	Land Station <50 kV		\$1,656,505	\$1,656,505		\$0	\$1,656,505	\$1,656,505	\$0	\$1,656,505	\$0
1806	Land Rights		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1806-1	Land Rights Station >50 kV		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1806-2	Land Rights Station <50 kV		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1808	Buildings and Fixtures		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1808-1	Buildings and Fixtures > 50 kV		\$1,453,925	\$1,453,925		\$0	\$1,453,925	\$1,453,925	\$0	\$1,453,925	\$0
1808-2	Buildings and Fixtures < 50 kV		\$60,015,503	\$60,015,503		\$0	\$60,015,503	\$60,015,503	\$0	\$60,015,503	\$0
1810	Leasehold Improvements		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1810-1	Leasehold Improvements >50 kV		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1810-2	Leasehold Improvements <50 kV		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1815	Transformer Station Equipment - Normally Primary above 50 kV		\$21,986,973	\$21,986,973		\$0	\$21,986,973	\$21,986,973	\$0	\$21,986,973	\$0
1820	Distribution Station Equipment - Normally Primary below 50 kV		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1820-1	Distribution Station Equipment - Normally Primary below 50 kV (Bulk)		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1820-2	Distribution Station Equipment - Normally Primary below 50 kV (Primary)		\$199,734,227	\$199,734,227		\$0	\$199,734,227	\$199,734,227	\$0	\$199,734,227	\$0
1820-3	Distribution Station Equipment - Normally Primary below 50 kV (Wholesale Meters)		\$5,769,195	\$5,769,195		\$0	\$5,769,195	\$5,769,195	\$0	\$5,769,195	\$0
1825	Storage Battery Equipment		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1825-1	Storage Battery Equipment > 50 kV		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1825-2	Storage Battery Equipment <50 kV		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1830	Poles, Towers and Fixtures		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1830-3	Poles, Towers and Fixtures - Subtransmission Bulk Delivery		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1830-4	Poles, Towers and Fixtures - Primary		\$195,830,343	\$195,830,343		\$0	\$195,830,343	\$195,830,343	\$0	\$195,830,343	\$0
1830-5	Poles, Towers and Fixtures - Secondary		\$175,271,311	\$175,271,311		\$0	\$175,271,311	\$175,271,311	\$0	\$175,271,311	\$0
1835	Overhead Conductors and Devices		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1835-3	Overhead Conductors and Devices - Subtransmission Bulk Delivery		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1835-4	Overhead Conductors and Devices - Primary		\$164,468,904	\$164,468,904		\$0	\$164,468,904	\$164,468,904	\$0	\$164,468,904	\$0
1835-5	Overhead Conductors and Devices - Secondary		\$147,202,318	\$147,202,318		\$0	\$147,202,318	\$147,202,318	\$0	\$147,202,318	\$0
1840	Underground Conduit		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1840-3	Underground Conduit - Bulk Delivery		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1840-4	Underground Conduit - Primary		\$828,972,399	\$828,972,399		\$0	\$828,972,399	\$828,972,399	\$0	\$828,972,399	\$0
1840-5	Underground Conduit - Secondary		\$298,574,390	\$298,574,390		\$0	\$298,574,390	\$298,574,390	\$0	\$298,574,390	\$0
1845	Underground Conductors and Devices		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1845-3	Underground Conductors and Devices - Bulk Delivery		\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0



USoA Account #	Accounts	Financial Statement	Financial Statement - Asset Break Out includes Acc Dep and Contributed Capital	Adjusted TB	Excluded from COSS	Excluded	Included	Balance in O5	Difference	Balance in O4 Summary	Difference
1845-4	Underground Conductors and Devices - Primary		\$399,490,450	\$399,490,450		\$0	\$399,490,450	\$399,490,450	\$0	\$399,490,450	\$0
1845-5	Underground Conductors and Devices - Secondary		\$143,886,114	\$143,886,114		\$0	\$143,886,114	\$143,886,114	\$0	\$143,886,114	\$0
1850	Line Transformers		\$705,890,901	\$705,890,901		\$0	\$705,890,901	\$705,890,901	\$0	\$705,890,901	\$0
1855	Services		\$408,275,022	\$408,275,022		\$0	\$408,275,022	\$408,275,022	\$0	\$408,275,022	\$0
1860	Meters		\$220,804,236	\$220,804,236		\$0	\$220,804,236	\$220,804,236	\$0	\$220,804,236	\$0
1905	Land	\$0	\$1,889,782	\$1,889,782		\$0	\$1,889,782	\$1,889,782	\$0	\$1,889,782	\$0
1906	Land Rights	\$0	\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1908	Buildings and Fixtures	\$0	\$117,925,808	\$117,925,808		\$0	\$117,925,808	\$117,925,808	\$0	\$117,925,808	\$0
1910	Leasehold Improvements	\$0	\$20,013,651	\$20,013,651		\$0	\$20,013,651	\$20,013,651	\$0	\$20,013,651	\$0
1915	Office Furniture and Equipment	\$0	\$13,961,705	\$13,961,705		\$0	\$13,961,705	\$13,961,705	\$0	\$13,961,705	\$0
1920	Computer Equipment - Hardware	\$0	\$42,452,996	\$42,452,996		\$0	\$42,452,996	\$42,452,996	\$0	\$42,452,996	\$0
1925	Computer Software	\$0	\$179,665,294	\$179,665,294		\$0	\$179,665,294	\$179,665,294	\$0	\$179,665,294	\$0
1930	Transportation Equipment	\$0	\$82,482,897	\$82,482,897		\$0	\$82,482,897	\$82,482,897	\$0	\$82,482,897	\$0
1935	Stores Equipment	\$0	\$5,592,933	\$5,592,933		\$0	\$5,592,933	\$5,592,933	\$0	\$5,592,933	\$0
1940	Tools, Shop and Garage Equipment	\$0	\$35,302,613	\$35,302,613		\$0	\$35,302,613	\$35,302,613	\$0	\$35,302,613	\$0
1945	Measurement and Testing Equipment	\$0	\$4,767,550	\$4,767,550		\$0	\$4,767,550	\$4,767,550	\$0	\$4,767,550	\$0
1950	Power Operated Equipment	\$0	\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1955	Communication Equipment	\$0	\$26,430,482	\$26,430,482		\$0	\$26,430,482	\$26,430,482	\$0	\$26,430,482	\$0
1960	Miscellaneous Equipment	\$0	\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1970	Load Management Controls - Customer Premises	\$0	\$4,352,294	\$4,352,294		\$0	\$4,352,294	\$4,352,294	\$0	\$4,352,294	\$0
1975	Load Management Controls - Utility Premises	\$0	\$554,382	\$554,382		\$0	\$554,382	\$554,382	\$0	\$554,382	\$0
1980	System Supervisory Equipment	\$0	\$54,641,442	\$54,641,442		\$0	\$54,641,442	\$54,641,442	\$0	\$54,641,442	\$0
1990	Other Tangible Property	\$0	\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
1995	Contributions and Grants - Credit	(\$276,410,062)	\$0	(\$276,410,062)		\$0	(\$276,410,062)	(\$276,410,062)	\$0	(\$276,410,062)	(\$0)
2005	Property Under Capital Leases	\$0	\$788,988	\$788,988		\$0	\$788,988	\$788,988	\$0	\$788,988	\$0
2010	Electric Plant Purchased or Sold	\$0	\$0	\$0		\$0	\$0	\$0	\$0	\$0	\$0
2105	Accum. Amortization of Electric Utility Plant - Property, Plant, & Equipment	(\$2,316,658,753)		(\$2,316,658,753)		\$0	(\$2,316,658,753)	(\$2,316,658,753)	\$0	(\$2,316,658,753)	(\$0)
2120	Accumulated Amortization of Electric Utility Plant - Intangibles	(\$14,489,365)		(\$14,489,365)		\$0	(\$14,489,365)	(\$14,489,365)	\$0	(\$14,489,364.93)	(\$0)
3046	Balance Transferred From Income	(\$87,565,862)		(\$87,565,862)		\$0	(\$87,565,862)	(\$87,565,862)	\$0	(\$87,565,862)	\$0
4080	Distribution Services Revenue	(\$522,044,344)		(\$522,044,344)		\$0	(\$522,044,344)	(\$522,044,344)	\$0	(\$522,044,344)	\$0
4082	Retail Services Revenues	(\$887,500)		(\$887,500)		\$0	(\$887,500)	(\$887,500)	\$0	(\$887,500)	\$0
4084	Service Transaction Requests (STR) Revenues	(\$30,000)		(\$30,000)		\$0	(\$30,000)	(\$30,000)	\$0	(\$30,000)	\$0
4090	Electric Services Incidental to Energy Sales	(\$1,700,000)		(\$1,700,000)		\$0	(\$1,700,000)	(\$1,700,000)	\$0	(\$1,700,000)	\$0
4205	Interdepartmental Rents	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4210	Rent from Electric Property	(\$4,120,056)		(\$4,120,056)		\$0	(\$4,120,056)	(\$4,120,056)	\$0	(\$4,120,056)	\$0
4215	Other Utility Operating Income	(\$503,000)		(\$503,000)		\$0	(\$503,000)	(\$503,000)	\$0	(\$503,000)	\$0
4220	Other Electric Revenues	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4225	Late Payment Charges	(\$4,900,000)		(\$4,900,000)		\$0	(\$4,900,000)	(\$4,900,000)	\$0	(\$4,900,000)	\$0
4235	Miscellaneous Service Revenues	(\$7,580,526)		(\$7,580,526)		\$0	(\$7,580,526)	(\$7,580,526)	\$0	(\$7,580,526)	\$0
4240	Provision for Rate Refunds	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4245	Government Assistance Directly Credited to Income	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4305	Regulatory Debits	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4310	Regulatory Credits	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4315	Revenues from Electric Plant Leased to Others	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4320	Expenses of Electric Plant Leased to Others	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4325	Revenues from Merchandise, Jobbing, Etc.	(\$13,822,018)		(\$13,822,018)		\$0	(\$13,822,018)	(\$13,822,018)	\$0	(\$13,822,018)	\$0
4330	Costs and Expenses of Merchandising, Jobbing, Etc.	\$7,522,018		\$7,522,018		\$0	\$7,522,018	\$7,522,018	\$0	\$7,522,018	\$0
4335	Profits and Losses from Financial Instrument Hedges	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0

USoA Account #	Accounts	Financial Statement	Financial Statement - Asset Break Out includes Acc Dep and Contributed Capital	Adjusted TB	Excluded from COSS	Excluded	Included	Balance in O5	Difference	Balance in O4 Summary	Difference
4340	Profits and Losses from Financial Instrument Investments	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4345	Gains from Disposition of Future Use Utility Plant	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4350	Losses from Disposition of Future Use Utility Plant	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4355	Gain on Disposition of Utility and Other Property	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4360	Loss on Disposition of Utility and Other Property	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4365	Gains from Disposition of Allowances for Emission	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4370	Losses from Disposition of Allowances for Emission	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4390	Miscellaneous Non-Operating Income	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4395	Rate-Payer Benefit Including Interest	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4398	Foreign Exchange Gains and Losses, Including Amortization	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4405	Interest and Dividend Income	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4415	Equity in Earnings of Subsidiary Companies	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4705	Power Purchased	\$1,868,495,162		\$1,868,495,162		\$0	\$1,868,495,162	\$1,868,495,162	\$0	\$1,868,495,162	\$0
4708	Charges-WMS	\$118,474,436		\$118,474,436		\$0	\$118,474,436	\$118,474,436	\$0	\$118,474,436	\$0
4710	Cost of Power Adjustments	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4712	Charges-One-Time	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4714	Charges-NW	\$121,678,219		\$121,678,219		\$0	\$121,678,219	\$121,678,219	\$0	\$121,678,219	\$0
4715	System Control and Load Dispatching	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
4716	Charges-CN	\$99,806,438		\$99,806,438		\$0	\$99,806,438	\$99,806,438	\$0	\$99,806,438	\$0
4730	Rural Rate Assistance Expense	\$33,481,906		\$33,481,906		\$0	\$33,481,906	\$33,481,906	\$0	\$33,481,906	\$0
5005	Operation Supervision and Engineering	\$38,419,775		\$38,419,775		\$0	\$38,419,775	\$38,419,775	\$0	\$38,419,775	\$0
5010	Load Dispatching	\$9,261,288		\$9,261,288		\$0	\$9,261,288	\$9,261,288	\$0	\$9,261,288	\$0
5012	Station Buildings and Fixtures Expense	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5014	Transformer Station Equipment - Operation Labour	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5015	Transformer Station Equipment - Operation Supplies and Expenses	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5016	Distribution Station Equipment - Operation Labour	\$3,163,351		\$3,163,351		\$0	\$3,163,351	\$3,163,351	\$0	\$3,163,351	\$0
5017	Distribution Station Equipment - Operation Supplies and Expenses	\$813,170		\$813,170		\$0	\$813,170	\$813,170	\$0	\$813,170	\$0
5020	Overhead Distribution Lines and Feeders - Operation Labour	\$883,994		\$883,994		\$0	\$883,994	\$883,994	\$0	\$883,994	\$0
5025	Overhead Distribution Lines & Feeders - Operation Supplies and Expenses	\$1,485,011		\$1,485,011		\$0	\$1,485,011	\$1,485,011	\$0	\$1,485,011	\$0
5030	Overhead Subtransmission Feeders - Operation	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5035	Overhead Distribution Transformers-Operation	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5040	Underground Distribution Lines and Feeders - Operation Labour	\$1,322,506		\$1,322,506		\$0	\$1,322,506	\$1,322,506	\$0	\$1,322,506	\$0
5045	Underground Distribution Lines & Feeders - Operation Supplies & Expenses	\$5,889,251		\$5,889,251		\$0	\$5,889,251	\$5,889,251	\$0	\$5,889,251	\$0
5050	Underground Subtransmission Feeders - Operation	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5055	Underground Distribution Transformers - Operation	\$1,817,693		\$1,817,693		\$0	\$1,817,693	\$1,817,693	\$0	\$1,817,693	\$0
5065	Meter Expense	\$7,549,277		\$7,549,277		\$0	\$7,549,277	\$7,549,277	\$0	\$7,549,277	\$0
5070	Customer Premises - Operation Labour	\$3,537,466		\$3,537,466		\$0	\$3,537,466	\$3,537,466	\$0	\$3,537,466	\$0
5075	Customer Premises - Materials and Expenses	\$1,027,668		\$1,027,668		\$0	\$1,027,668	\$1,027,668	\$0	\$1,027,668	\$0
5085	Miscellaneous Distribution Expense	\$3,333,359		\$3,333,359		\$0	\$3,333,359	\$3,333,359	\$0	\$3,333,359	\$0

USoA Account #	Accounts	Financial Statement	Financial Statement - Asset Break Out includes Acc Dep and Contributed Capital	Adjusted TB	Excluded from COSS	Excluded	Included	Balance in O5	Difference	Balance in O4 Summary	Difference
5090	Underground Distribution Lines and Feeders - Rental Paid	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5095	Overhead Distribution Lines and Feeders - Rental Paid	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5096	Other Rent	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5105	Maintenance Supervision and Engineering	\$6,075,269		\$6,075,269		\$0	\$6,075,269	\$6,075,269	\$0	\$6,075,269	\$0
5110	Maintenance of Buildings and Fixtures - Distribution Stations	\$16,560,453		\$16,560,453		\$0	\$16,560,453	\$16,560,453	\$0	\$16,560,453	\$0
5112	Maintenance of Transformer Station Equipment	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5114	Maintenance of Distribution Station Equipment	\$2,983,582		\$2,983,582		\$0	\$2,983,582	\$2,983,582	\$0	\$2,983,582	\$0
5120	Maintenance of Poles, Towers and Fixtures	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5125	Maintenance of Overhead Conductors and Devices	\$6,479,871		\$6,479,871		\$0	\$6,479,871	\$6,479,871	\$0	\$6,479,871	\$0
5130	Maintenance of Overhead Services	\$382,481		\$382,481		\$0	\$382,481	\$382,481	\$0	\$382,481	\$0
5135	Overhead Distribution Lines and Feeders - Right of Way	\$3,799,311		\$3,799,311		\$0	\$3,799,311	\$3,799,311	\$0	\$3,799,311	\$0
5145	Maintenance of Underground Conduit	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5150	Maintenance of Underground Conductors and Devices	\$7,728,916		\$7,728,916		\$0	\$7,728,916	\$7,728,916	\$0	\$7,728,916	\$0
5155	Maintenance of Underground Services	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5160	Maintenance of Line Transformers	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5175	Maintenance of Meters	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5305	Supervision	\$318,617		\$318,617		\$0	\$318,617	\$318,617	\$0	\$318,617	\$0
5310	Meter Reading Expense	\$671,121		\$671,121		\$0	\$671,121	\$671,121	\$0	\$671,121	\$0
5315	Customer Billing	\$11,813,305		\$11,813,305		\$0	\$11,813,305	\$11,813,305	\$0	\$11,813,305	\$0
5320	Collecting	\$14,661,468		\$14,661,468		\$0	\$14,661,468	\$14,661,468	\$0	\$14,661,468	\$0
5325	Collecting- Cash Over and Short	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5330	Collection Charges	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5335	Bad Debt Expense	\$7,385,000		\$7,385,000		\$0	\$7,385,000	\$7,385,000	\$0	\$7,385,000	\$0
5340	Miscellaneous Customer Accounts Expenses	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5405	Supervision	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5410	Community Relations - Sundry	\$544,740		\$544,740		\$0	\$544,740	\$544,740	\$0	\$544,740	\$0
5415	Energy Conservation	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5420	Community Safety Program	\$3,584,007		\$3,584,007		\$0	\$3,584,007	\$3,584,007	\$0	\$3,584,007	\$0
5425	Miscellaneous Customer Service and Informational Expenses	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5505	Supervision	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5510	Demonstrating and Selling Expense	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5515	Advertising Expense	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5520	Miscellaneous Sales Expense	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5605	Executive Salaries and Expenses	\$1,841,406		\$1,841,406		\$0	\$1,841,406	\$1,841,406	\$0	\$1,841,406	\$0
5610	Management Salaries and Expenses	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5615	General Administrative Salaries and Expenses	\$50,634,669		\$50,634,669		\$0	\$50,634,669	\$50,634,669	\$0	\$50,634,669	\$0
5620	Office Supplies and Expenses	\$2,110		\$2,110		\$0	\$2,110	\$2,110	\$0	\$2,110	\$0
5625	Administrative Expense Transferred Credit	(\$1,644,231)		(\$1,644,231)		\$0	(\$1,644,231)	(\$1,644,231)	\$0	(\$1,644,231)	\$0
5630	Outside Services Employed	\$9,723,640		\$9,723,640		\$0	\$9,723,640	\$9,723,640	\$0	\$9,723,640	\$0
5635	Property Insurance	\$3,268,553		\$3,268,553		\$0	\$3,268,553	\$3,268,553	\$0	\$3,268,553	\$0
5640	Injuries and Damages	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5645	Employee Pensions and Benefits	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5650	Franchise Requirements	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5655	Regulatory Expenses	\$4,133,635		\$4,133,635		\$0	\$4,133,635	\$4,133,635	\$0	\$4,133,635	\$0
5660	General Advertising Expenses	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5665	Miscellaneous General Expenses	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5670	Rent	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5675	Maintenance of General Plant	\$896,931		\$896,931		\$0	\$896,931	\$896,931	\$0	\$896,931	\$0
5680	Electrical Safety Authority Fees	\$369,900		\$369,900		\$0	\$369,900	\$369,900	\$0	\$369,900	\$0

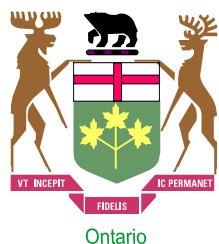


USoA Account #	Accounts	Financial Statement	Financial Statement - Asset Break Out includes Acc Dep and Contributed Capital	Adjusted TB	Excluded from COSS	Excluded	Included	Balance in O5	Difference	Balance in O4 Summary	Difference
5685	Independent Market Operator Fees and Penalties	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5705	Amortization Expense - Property, Plant, and Equipment	\$134,116,965		\$134,116,965		\$0	\$134,116,965	\$134,116,965	\$0	\$134,116,965	(\$0)
5710	Amortization of Limited Term Electric Plant	\$3,393,883		\$3,393,883		\$0	\$3,393,883	\$3,393,883	\$0	\$3,393,883	(\$0)
5715	Amortization of Intangibles and Other Electric Plant	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5720	Amortization of Electric Plant Acquisition Adjustments	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5730	Amortization of Unrecovered Plant and Regulatory Study Costs	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5735	Amortization of Deferred Development Costs	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
5740	Amortization of Deferred Charges	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
6005	Interest on Long Term Debt	\$70,966,738		\$70,966,738		\$0	\$70,966,738	\$70,966,738	\$0	\$70,966,738	\$0
6105	Taxes Other Than Income Taxes	\$6,802,382		\$6,802,382		\$0	\$6,802,382	\$6,802,382	\$0	\$6,802,382	\$0
6110	Income Taxes	\$11,723,984		\$11,723,984		\$0	\$11,723,984	\$11,723,984	\$0	\$11,723,984	\$0
6205	Donations	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
6210	Life Insurance	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
6215	Penalties	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
6225	Other Deductions	\$0		\$0		\$0	\$0	\$0	\$0	\$0	\$0
Total		(\$527,828,537)	\$4,570,559,949	\$4,042,731,412	Control	\$0	\$4,042,731,412	\$4,042,731,412	\$0	\$4,042,731,413	(\$1)

USoA Account #	Accounts	Financial Statement	Financial Statement - Asset Break Out includes Acc Dep and Contributed Capital	Adjusted TB	Excluded from COSS	Excluded	Included	Balance in O5	Difference	Balance in O4 Summary	Difference
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Grouping by Allocator		Adjusted TB	Excluded from COSS		Excluded	Included	Balance in O5		Difference	Balance in O4 Summary	Difference
1808	\$	16,560,453	\$ -	\$ -	\$ -	16,560,453	\$ 16,560,453	\$ -	\$ -	16,560,453	\$ -
1815	\$	-	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -	-	\$ -
1820	\$	6,960,103	\$ -	\$ -	\$ -	6,960,103	\$ 6,960,103	\$ -	\$ -	6,960,103	\$ -
1830	\$	-	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -	-	\$ -
1835	\$	6,479,871	\$ -	\$ -	\$ -	6,479,871	\$ 6,479,871	\$ -	\$ -	6,479,871	\$ -
1840	\$	-	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -	-	\$ -
1845	\$	7,728,916	\$ -	\$ -	\$ -	7,728,916	\$ 7,728,916	\$ -	\$ -	7,728,916	\$ -
1850	\$	1,817,693	\$ -	\$ -	\$ -	1,817,693	\$ 1,817,693	\$ -	\$ -	1,817,693	\$ -
1855	\$	382,481	\$ -	\$ -	\$ -	382,481	\$ 382,481	\$ -	\$ -	382,481	\$ -
1860	\$	-	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -	-	\$ -
1815-1855	\$	57,089,692	\$ -	\$ -	\$ -	57,089,692	\$ 57,089,692	\$ -	\$ -	57,089,692	\$ -
1830 & 1835	\$	6,168,316	\$ -	\$ -	\$ -	6,168,316	\$ 6,168,316	\$ -	\$ -	6,168,316	\$ -
1840 & 1845	\$	7,211,757	\$ -	\$ -	\$ -	7,211,757	\$ 7,211,757	\$ -	\$ -	7,211,757	\$ -
BCP	\$	-	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -	-	\$ -
BDHA	\$	7,385,000	\$ -	\$ -	\$ -	7,385,000	\$ 7,385,000	\$ -	\$ -	7,385,000	\$ -
Break Out	\$	137,510,848	\$ -	\$ -	\$ -	137,510,848	\$ 137,510,848	\$ -	\$ -	137,510,848	\$ (0)
CCA	\$	4,565,134	\$ -	\$ -	\$ -	4,565,134	\$ 4,565,134	\$ -	\$ -	4,565,134	\$ -
CDMPP	\$	15,702,253	\$ -	\$ -	\$ -	15,702,253	\$ 15,702,253	\$ -	\$ -	15,702,253	\$ -
CEN	\$	227,253,852	\$ -	\$ -	\$ -	227,253,852	\$ 227,253,852	\$ -	\$ -	227,253,852	\$ -
CEN EWMP	\$	2,020,451,504	\$ -	\$ -	\$ -	2,020,451,504	\$ 2,020,451,504	\$ -	\$ -	2,020,451,504	\$ -
CREV	\$	-	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -	-	\$ -
CWCS	\$	408,275,022	\$ -	\$ -	\$ -	408,275,022	\$ 408,275,022	\$ -	\$ -	408,275,022	\$ -
CWMC	\$	228,353,512	\$ -	\$ -	\$ -	228,353,512	\$ 228,353,512	\$ -	\$ -	228,353,512	\$ -
CWMR	\$	671,121	\$ -	\$ -	\$ -	671,121	\$ 671,121	\$ -	\$ -	671,121	\$ -
CWNB	\$	17,512,864	\$ -	\$ -	\$ -	17,512,864	\$ 17,512,864	\$ -	\$ -	17,512,864	\$ -
DCP	\$	61,672,008	\$ -	\$ -	\$ -	61,672,008	\$ 61,672,008	\$ -	\$ -	61,672,008	\$ -
LPHA	\$ (4,900,000)	\$ -	\$ -	\$ -	\$ (4,900,000)	\$ (4,900,000)	\$ (4,900,000)	\$ -	\$ (4,900,000)	\$ -	\$ -
LTNCP	\$	705,890,901	\$ -	\$ -	\$ -	705,890,901	\$ 705,890,901	\$ -	\$ -	705,890,901	\$ -
NFA	\$	78,570,048	\$ -	\$ -	\$ -	78,570,048	\$ 78,570,048	\$ -	\$ -	78,570,048	\$ -
NFA ECC	\$	541,690,564	\$ -	\$ -	\$ -	541,690,564	\$ 541,690,564	\$ -	\$ -	541,690,564	\$ -
O&M	\$	66,502,800	\$ -	\$ -	\$ -	66,502,800	\$ 66,502,800	\$ -	\$ -	66,502,800	\$ -
PNCP	\$	1,788,496,322	\$ -	\$ -	\$ -	1,788,496,322	\$ 1,788,496,322	\$ -	\$ -	1,788,496,322	\$ -
SNCP	\$	764,934,133	\$ -	\$ -	\$ -	764,934,133	\$ 764,934,133	\$ -	\$ -	764,934,133	\$ -
TCP	\$	23,895,314	\$ -	\$ -	\$ -	23,895,314	\$ 23,895,314	\$ -	\$ -	23,895,314	\$ -
Total	\$	7,204,832,486	\$ -	\$ -	\$ -	7,204,832,486	\$ 7,204,832,486	\$ -	\$ -	7,204,832,486	\$ (0)



## 2011 COST ALLOCATION Toronto Hydro-Electric System Limited

### Sheet E5 Reconciliation Worksheet - First Run

If you have completed the Cost Allocation filing model and prepared to submit your findings to the Ontario Energy Board, please note that you have 2 saving options.

#### **OPTION #1 - Detailed**

- Step 1: Save this file as "LDCname\_Detailed\_CA\_model\_RUN#.xls"  
Step 2: Printout sheets I2, I4, and O1

#### **OPTION #2 - Rolled Up**

- Step 1: Save this file as "LDCname\_Detailed\_CA\_model\_RUN#.xls"  
Step 2: **Click on the Option 2 Button**  
Step 3: **Save this file as "LDCname\_RolledUp\_CA\_model\_RUN#.xls"**  
Step 4: Printout sheets I2, I4, and O1

**OPTION 2**

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 **INTERROGATORY 11:**

2 **Reference(s):**           **none provided**

3

4 **ISSUE(S):**    **10**

5

6 Please provide the terms of reference for the study produced by Dr. Church. Was Dr.  
7 Church retained through an RFP process? If so, please provide a copy of the RFP. If not,  
8 why not? What are the total expected costs associated with retaining Dr. Church as an  
9 expert in this proceeding? What have been the costs incurred to date? Please provide all  
10 details. How are these costs to be recovered?

11

12 **RESPONSE:**

13 The terms of reference for the study by Dr. Church are included Dr. Church's Evidence at  
14 section 1.2. Dr. Church was not retained through an RFP process because he is one of the  
15 leading experts in this field. His expertise has been accepted by competition policy  
16 makers, regulatory tribunals, and courts. In THESL's submission, it was in the best  
17 interest of all the parties to retain the most qualified expert available. As such, a  
18 competitive RFP process would not have been effective use of THESL's resources.

19

20 THESL is unable to provide an estimate of the total expected costs associated with  
21 retaining Dr. Church as an expert in this proceeding. The costs incurred to date for Dr.  
22 Church's services are approximately \$300,000. THESL proposes to address the recovery  
23 of these costs in its 2015-2019 rate application.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 **INTERROGATORY 12:**

2 **Reference(s):**           **none provided**

3

4 **ISSUE(S):**    **10**

5

6 Please provide the terms of reference for the study produced by Dr. Jackson. Was Dr.  
7 Jackson retained through an RFP process? If so please provide a copy of the RFP. If not,  
8 why not? What are the total expected costs associated with retaining Dr. Jackson as an  
9 expert in this proceeding? What have been the costs incurred to date? Please provide all  
10 details. How are these costs to be recovered?

11

12 **RESPONSE:**

13 The terms of reference for the study by Dr. Jackson are included Dr. Jackson's Evidence  
14 at section 1. Dr. Jackson was not retained through an RFP process because he is one of  
15 the leading experts in this field. His expertise has been accepted by competition policy  
16 makers, regulatory tribunals, and courts. In THESL's submission, it was in the best  
17 interest of all the parties to retain the most qualified expert available. As such, a  
18 competitive RFP process would not have been effective use of THESL's resources.

19

20 THESL is unable to provide an estimate of the total expected costs associated with  
21 retaining Dr. Jackson as an expert in this proceeding. The costs incurred to date for Dr.  
22 Jackson's services are approximately \$45,000. THESL proposes to address the recovery  
23 of these costs in its 2015-2019 rate application.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 **INTERROGATORY 13:**

2 **Reference(s):**           **none provided**

3

4 **ISSUE(S):**    **10**

5

6 The Counsel [sic] is concerned that the overall costs of this proceeding may outweigh any  
7 benefits flowing to ratepayers from forbearance. Has THESL done a cost-benefit  
8 analysis regarding this application? If so, please provide that analysis. If not, why not?  
9 Please provide a schedule setting out the total expected costs of this application. Please  
10 include forecasts and all actual costs incurred to date. Please include external legal costs,  
11 external consulting costs, other expert costs (intervenor and Board Staff), and intervenor  
12 costs. Please include all assumptions including hours, hourly rates etc. What is  
13 THESL's proposal regarding how these costs should be recovered?

14

15 **RESPONSE:**

16 Please see THESL's responses to CCC interrogatories 7 and 17 (Tab I, Schedule 2-7 and  
17 Schedule 2-17, respectively).

18

19 As to the costs of the proceeding, THESL's view is that such analysis is a matter properly  
20 considered at its conclusion, and at the time the allocation of revenues is determined by  
21 the OEB.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 **INTERROGATORY 14:**

2 **Reference(s):**           **none provided**

3

4 **ISSUE(S):**    **10**

5

6 To what extent has THESL, its consultants, or Counsel has corresponded with other  
7 LDCs regarding this application. Please provide any correspondence provided to other  
8 Ontario LDCs regarding this application.

9

10 **RESPONSE:**

11 THESL's correspondence with other LDCs regarding this application has consisted of  
12 periodic procedural updates, delivered on conference calls with the Coalition of Large  
13 Distributors ("CLD"). THESL has identified one email related to this application sent to  
14 the members of the CLD; a copy of this email is attached as Appendix A to this Schedule.

15

16 THESL's consultants have not corresponded with other LDCs regarding this application.

17

18 Correspondence from THESL's counsel in relation to this application is privileged.

**Rob Barrass - Pole Attachments - THESL Forbearance Application (Time Sensitive Request)"**

**From:** Amanda Klein  
**To:** CLD  
**Date:** 04/07/2013 9:12 AM  
**Subject:** Pole Attachments - THESL Forbearance Application (Time Sensitive Request)"  
**CC:** Amanda Klein; Jack Lenartowicz; Rob Barrass

Toronto Hydro-Electric System Limited  
EB-2013-0234  
Tab J  
Schedule 2-14  
Appendix A  
Filed: 2014 Feb 28  
(1 page)

Dear all, as you may know, following the OEB's decision in CANDAS, THESL just recently filed an application asking the OEB to forbear from regulating wireless pole attachments within our franchise area. The case is predicated on a very detailed market analysis which is restricted to Toronto. In our view, the case has no inherent relevance to other franchises, who would have to undertake their own respective market assessments.

The application documents can be found at the following link:

[http://www.rds.ontarioenergyboard.ca/webdrawer/webdrawer.dll/webdrawer/rec/399754/view/THESL\\_APPL\\_20130614.PDF](http://www.rds.ontarioenergyboard.ca/webdrawer/webdrawer.dll/webdrawer/rec/399754/view/THESL_APPL_20130614.PDF)

We understand that the Board may be interested in devising some form of "generic" proceeding to deal with the issue, an approach we do not favour. We would like to have our application considered on its merits, and on the very specific evidence we have filed.

We do see that our approach may serve as a kind of template for future like applications, a process we think might serve to simplify and expedite their consideration. We'd like to have your tacit support for resisting any proposal for a "generic" proceeding. We would be happy to discuss any aspect of our filing. We would appreciate having your perspective.

Amanda Klein  
Director, Rates and Regulatory Affairs  
Toronto Hydro-Electric System Limited  
14 Carlton Street  
Toronto, Ontario | M5B 1K5

Phone: 416.542.2729  
Mobile: 416.903.1423  
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E-mail: [aklein@torontohydro.com](mailto:aklein@torontohydro.com)

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## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 **INTERROGATORY 15:**

2 **Reference(s):** **none provided**

3

4 **ISSUE(S):** **10**

5

6 The Council is interested in how THESL proposes that Board forbear from regulating  
7 access to a utility pole, that has been, or is being paid for by utility ratepayers. What is  
8 THESL's proposal regarding the treatment of revenues and costs? How will costs be  
9 allocated to the new unregulated activity? How will THESL ensure that the regulated  
10 distribution business is not cross-subsidizing the unregulated activities?

11

12 **RESPONSE:**

13 Please see THESL's response to CCC interrogatory 6, part b (Tab I, Schedule 2-6, part  
14 b).

15

16 THESL proposes to track all direct and indirect ongoing costs that are associated with  
17 pole ownership, as outlined in its response to SEC interrogatory 6b (Tab J, Schedule 4-6,  
18 part b). All costs associated with individual applications, such as review, inspection, and  
19 hydro make ready work, are expected to be recovered through one time charges to the  
20 attacher. To ensure the regulated distribution business does not cross-subsidize the  
21 unregulated activities, THESL proposes to track the unregulated activities accordingly  
22 via proper work order and account code management.

23

24 The regulated rates that ratepayers pay entitle them to the delivery of electricity on the  
25 prescribed terms and conditions. Ratepayers do not acquire ownership rights to the assets  
26 comprising the distribution system.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 THESL contemplates a sharing of the revenues pursuant to a mechanism approved by the  
2 OEB. The specific allocation of revenues would depend on the terms and conditions  
3 governing it. For example, if the revenues were to be simply allocated as between the  
4 ratepayers and the shareholder, a 50/50 split might be a reasonable outcome-with half of  
5 the revenue going to offset revenue requirement and the other going to the shareholder.  
6 On the other hand, if the revenues were to be earmarked for a special purpose – for  
7 example assistance to low income consumers – a different allocation may be reasonable.  
8 An allocation made today may be time-limited to be re-visited at a later date.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 **INTERROGATORY 16:**

2 **Reference(s):** **none provided**

3

4 **ISSUE(S):** **10**

5

6 The evidence indicates that the current authorized rate for pole attachments is \$22.35 and  
7 that it is intended to cover direct and indirect costs. In addition, the evidence indicates  
8 that THESL's direct and indirect costs for pole attachments are higher than that. Provide  
9 a schedule setting out all of the direct and indirect costs associated with pole attachments.  
10 If THESL were to develop a cost-based rate what would that rate be?

11

12 **RESPONSE:**

15 This response has been filed confidentially in accordance with the OEB's *Rules of*  
16 *Practice and Procedure* and the OEB's *Practice Direction on Confidential Filings*.

## **RESPONSES TO SCHOOL ENERGY COALITION INTERROGATORIES**

**INTERROGATORY 5:**

**Reference(s):**        **EB-2011-0120 THESL Response to VECC IR 5,  
Tab 3, Schedule 5**

**ISSUE(S):**        **10**

In response to an interrogatory seeking THESL explanation on how forbearance from regulating wireless attachments would affect the regulatory treatment of revenues obtained, THESL stated:

Forbearance with respect to wireless attachment rates would have no impact on the treatment of revenues derived from pole attachments. This revenue, whether produced under regulated rates or market-based rates, would continue to be credited to customers via revenue offsets.

Has THESL changed its position? If so, on what basis?

**RESPONSE:**

While the issue of forbearance was not assessed or determined by the OEB in the referenced proceeding, THESL continues to take the position that this net revenue, whether produced under regulated rates or market-based rates, would continue to be credited to customers. As THESL has noted elsewhere in this proceeding, it proposes to share the benefit of any revenues in excess of costs with ratepayers. THESL is at present unable to forecast the revenues from wireless attachments that may result from a changing market rate, and no mechanism by which that sharing will be accomplished has yet been established. THESL has undertaken to address these details in its next rate case following the conclusion of this proceeding. Please refer to SEC interrogatory 6 part b

## **RESPONSES TO SCHOOL ENERGY COALITION INTERROGATORIES**

- 1 (Tab J, Schedule 4-6, part b) for a description of how THESL proposes to track and
- 2 record costs and revenues for all wireless attachments to its poles.
- 3
- 4 Having said that, THESL is prepared now, or at any other time to discuss the appropriate
- 5 allocation of revenues deriving from the subject activity.

## **RESPONSES TO SCHOOL ENERGY COALITION INTERROGATORIES**

1 **INTERROGATORY 6:**

2 **Reference(s):** **THESL Letter to the Board (August 15, 2014)/p.3**

3

4 **ISSUE(S):** **10**

5

6 In its August 15<sup>th</sup> letter to the Board, THESL stated:

7 That any excess of revenues over costs will be used to the benefit of ratepayers, in  
8 a mechanism to be dealt with in a THESL rate application. The undertaking to  
9 that effect is found in our letter of July 19, 2013, to the Board.

10

11 For the purposes of the undertaking:

12 a) What elements will make up the costs?

13 b) How does THESL propose to track the revenues and costs?

14

15 **RESPONSE:**

16 a) Please refer to THESL's response to CCC interrogatory 16 (Tab J, Schedule 2-16).

17

18 b) In the 2015-2019 rate case, THESL proposes to request the establishment of a  
19 deferral and variance account to track costs and revenues associated with wireless  
20 attachments. Operationally, THESL proposes to track revenues and costs through its  
21 work structure management system.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 **INTERROGATORY 21:**

2 **Reference(s):** **THESL Reply Letter, Supplementary Evidence**

3 **August 14, 2013, Page 2, Para 3**

4  
5 **ISSUE(S): 10**

6  
7 That any excess of revenues over costs will be used to the benefit of ratepayers, in a  
8 mechanism to be dealt with in a THESL rate application. The undertaking to that effect  
9 is found in our letter of July 19, 2013, to the Board.

10

11 a) Does THESL agree that this is matter which in principle needs to be determined *now*?  
12 Please discuss.

13 b) Explain this “Mechanism” in regulatory terms e.g. cost revenue offset.

14 c) Provide an example of how it would work based on 2013 data.

15 d) Compare to the actual cost recovery/benefit to ratepayers in 2013.

16

17 **RESPONSE:**

18 a) Please see the discussion in part b of THESL’s response to CCC interrogatory 6 (Tab  
19 I, Schedule 2-6, part b).

20

21 b), c) and d) There are a number of approaches that could be used to develop the  
22 mechanism. One compelling approach would be highly analogous to that employed in  
23 the gas distribution environment. Net revenues derived from the leverage of the  
24 distribution system by way of attachments would be subject to a percentage allocation as  
25 between the ratepayer interest and the shareholder. The ratepayer allocation could be  
26 applied to offset revenue requirement. Other approaches could involve earmarking the

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 net revenues from the leverage of the distribution system to specific ratepayer-centric  
2 purposes, for example as emergency funding for qualifying consumers, or even fuel  
3 switching. This purpose could change from time to time according to exigent  
4 circumstances. In other words, a methodology could be established for a period of years,  
5 to be revisited. THESL is open to focused discussions respecting the allocation  
6 methodology. THESL submits that the mechanism arrived at should be subject to OEB  
7 approval and oversight.  
8  
9 Given the preceding response, it is not possible to provide examples or cost  
10 recovery/benefit analysis based on 2013 data.



## RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES

1 **INTERROGATORY 17:**

2 **Reference(s):** none provided

3

4 **ISSUE(S):** 11

5

6 What does THESL view as to definition of the public interest for the purposes of this  
7 application?

8

9 **RESPONSE:**

10 THESL does not regard section 28.02 of the OEB's *Rules of Practice and Procedure* as  
11 contemplating questions of this nature. In THESL's submission, argument should be left  
12 to argument and not interrogatory exchange. Having said that, in the interest of being  
13 constructive THESL is prepared to provide some insight into its appreciation of the  
14 public interest.

15

16 First, THESL's view is that the OEB's consideration of the public interest should  
17 substantially be rooted in the objectives that the Legislature has provided to the OEB in  
18 section 1 of the *Ontario Energy Board Act, 1998*. Externalities, such as telecom policy or  
19 other matters unrelated to the distribution of electricity regulatory context should not  
20 form part of the OEB's definition of public interest. In THESL's view this is so because  
21 the OEB's mandate should always be read to encompass matters falling within its  
22 enabling statute, and generally little more.

23

24 Second, THESL thinks that section 29 itself provides important guidance as to what the  
25 public interest encompasses. Competition is posed as the alternative to regulation, and  
26 the OEB is required by the section to forbear if there is or will be sufficient competition

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 to protect the public interest. That means that provided the competition within the  
2 relevant market meets a given standard the public interest is met.

3

4 Third, whatever else might be true, THESL's position is that the status quo cannot be in  
5 the public interest, which is one of the bases for this application. As outlined in THESL's  
6 response to CCC interrogatory 16 (Tab J, Schedule 2-16), the rate governing the  
7 placement of wireless equipment on THESL's poles is inadequate.

8

9 Fourth, THESL notes that the private enterprises most directly impacted by this initiative  
10 have chosen not to intervene. If someone were to suggest that THESL's initiative would  
11 be prejudicial to some broader interest within certain industries, affected companies  
12 would have chosen not to observe the proceeding but to engage in it aggressively. Their  
13 absence as intervenors in this proceeding is significant. In THESL's view, the OEB may  
14 take from this a high degree of confidence that important commercial or social interests  
15 have not been overlooked.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 **INTERROGATORY 18:**

2 **Reference(s):**           **none provided**

3

4 **ISSUE(S):**    **11**

5

6 On December 16, 2013, the Toronto City Council passed a series of motions regarding  
7 the safety of telecommunications towers and antenna. Please explain the nature of these  
8 motions. Please explain the extent to which they may impact THESL's application. To  
9 what extent will these requirements impact the market for wireless attachments? What  
10 are the incremental costs associated with complying with these motions?

11

12 **RESPONSE:**

13 THESL is unable to explain the nature of the motions passed by Toronto City Council.  
14 THESL has made a preliminary assessment of the extent to which the company is  
15 engaged by them. It is THESL's view that these motions may have little or no effect on  
16 this application. THESL has not identified any incremental costs associated with  
17 complying with these motions, nor is it in a position to assess the potential implications  
18 these motions on the market for wireless attachments.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 **INTERROGATORY 19:**

2 **Reference(s):** **none provided**

3

4 **ISSUE(S):** **11**

5

6 Please provide the current Industry Canada and Health Canada regulations regarding  
7 wireless attachments. Are these expected to change in the near future (i.e. more controls  
8 regarding placement, notification, consultation, emissions etc?) How do these  
9 regulations affect THESL's ability to facilitate wireless attachments?

10

11 **RESPONSE:**

12 The current regulations regarding wireless attachments from Health Canada and Industry  
13 Canada are Safety Code 6, revisions 2009 and 2011, respectively. There is currently a  
14 request from Health Canada to the Royal Society of Canada to assemble an expert panel  
15 to conduct a review of Safety Code 6 which is currently underway. The regulations  
16 govern minimum clearance requirements.

## **RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES**

1 **INTERROGATORY 27:**

2 **Reference(s):** **Evidence of Dr. Church**

3

4 **ISSUE(S):** **11**

5

6 At paragraph 83, Dr. Church states:

7 There are two effects from the exercise of market power in the upstream market. The  
8 first is a transfer of profits from downstream firms to the upstream supplier on infra-  
9 marginal units – the units that the downstream firms continue to purchase even though  
10 price has risen.

11

12 In Dr. Church's opinion:

13 a) Does such a transfer of profits constitute a concern for the Board?

14 b) Is it consistent with regulating in the public interest?

15

16 **RESPONSE:**

17 a) The role of an economist is to identify effects on market outcomes, for instance prices  
18 and quantities, and on the welfare of different participants, for instance consumers in  
19 the downstream market, firms in the downstream market, and producers in the input  
20 markets. The importance of these effects and which matter or do not matter with  
21 respect to the public interest is the responsibility and duty of the regulator, in this case  
22 the Ontario Energy Board.

23

24 In the discussion in paragraph 84 of Dr. Church's Evidence the harm in the  
25 downstream market from the exercise of market power in the upstream market is the  
26 sum of the effects on the welfare of producers and consumers in the downstream

## RESPONSES TO VULNERABLE ENERGY CONSUMERS COALITION INTERROGATORIES

1 market (i.e., the loss in consumer surplus and the loss in profits of downstream  
2 firms.)<sup>1</sup> Indeed, depending on the extent of pass through of an increase in their input  
3 price it is possible that, at least in the short run, the producers surplus of downstream  
4 producers might *increase and downstream firms benefit from the exercise of market*  
5 *power upstream*. For instance, this could be the case when elasticity downstream is  
6 very inelastic and firms competitive with upward sloping supply functions. When  
7 this happens most of the price increase gets passed on to final consumers and the  
8 quantity reduction downstream is relatively small. It is important to recognize that  
9 unlike in a market where consumers are the buyers, in an input market the net effect  
10 on the buyers—the downstream firms—of the exercise of market power depends on  
11 both the increase in price for inframarginal units and the effect on their profits of  
12 changes in the downstream market when their costs rise (pass through, the second  
13 effect discussed in Dr. Church's Evidence at paragraph 83).

14  
15 For the reasons given at paragraph 85 in Dr. Church's Evidence, the total loss to  
16 downstream market participants will be small if the usage of the input is small and the  
17 effect of its price on the marginal cost downstream is small (both of which appear to  
18 be true in the case of pole access for wireless attachments, as discussed in Dr.  
19 Church's Evidence at paragraphs 183 to 185).

20  
21 b) Please refer to the response in part a), above.

---

<sup>1</sup> See page 483 of Verboven and Van Dijk, the reference cited in Dr. Church's Evidence at fn. 46.

## **RESPONSES TO SCHOOL ENERGY COALITION INTERROGATORIES**

1 **INTERROGATORY 7:**

2 **Reference(s):**           **none provided**

3

4 **ISSUE(S):**    **11**

5

6 Please provide the annual revenue from attachments to THESL polls [sic] of wireless  
7 telecommunication attachments for each from 2008-2013. Please forecast the expected  
8 revenue per year under the existing regulated rate for 2014-2019.

9

10 **RESPONSE:**

11 This response has been filed confidentially in accordance with the OEB's *Rules of*  
12 *Practice and Procedure* and the OEB's *Practice Direction on Confidential Filings*.

13

14 THESL has not forecasted the expected revenues for wireless attachments for 2014 to  
15 2019.

**RESPONSES TO SCHOOL ENERGY COALITION  
INTERROGATORIES, ISSUE 11**

1 **INTERROGATORY 8:**

2 **Reference(s):**           **none provided**

3

4 **ISSUE(S):**    **11**

5

6 What does THESL believe is the public interest for the purposes of this application?

7

8 **RESPONSE:**

9 Please see THESL's response to CCC interrogatory 17 (Tab K, Schedule 2-17).



## **RESPONSES TO SCHOOL ENERGY COALITION INTERROGATORIES**

1 **INTERROGATORY 9:**

2 **Reference(s):** Pre-filled [sic] Evidence at para 16

3

4 **ISSUE(S):** 11

5

6 For the purposes of this application, what does THESL define as:

- 7 a) Terms  
8 b) Conditions  
9 c) Rates

10

11 **RESPONSE:**

12 For definitions of requested terms please refer to the following excerpts from the Black's  
13 Law Dictionary:

- 14 • Appendix A for the definition of "Terms";  
15 • Appendix B for the definition of "Conditions"; and  
16 • Appendix C for the definition of "Rates"

17

18 THESL has no extraordinary definitions for these terms in the context of this proceeding  
19 beyond those provided in the above-referenced appendices.

# Black's Law Dictionary®

**Eighth Edition**

Toronto Hydro-Electric System Limited  
EB-2013-0234  
Tab K  
Schedule 4-9  
Appendix A  
Filed: 2014 Feb 28  
(2 pages)

**Bryan A. Garner**  
Editor in Chief

**THOMSON**  
  
**WEST**

10-Q is less detailed than the 10-K. — Also termed *Form 10-Q*. [Cases: Securities Regulation ⚭60.27(6). C.J.S. *Securities Regulation* § 176.]

**tentative agenda.** See *proposed agenda* under AGENDA.

**tentative trust.** See *Totten trust* under TRUST.

**Tenth Amendment.** The constitutional amendment, ratified as part of the Bill of Rights in 1791, providing that any powers not constitutionally delegated to the federal government, nor prohibited to the states, are reserved for the states or the people. — Also termed *Reserved Power Clause*. [Cases: States ⚭4.16. C.J.S. *States* §§ 25–26.]

**1031 exchange (ten-thər-tee-wən).** An exchange of like-kind property that is exempt from income-tax consequences under IRC (26 USCA) § 1031. [Cases: Internal Revenue ⚭3184. C.J.S. *Internal Revenue* §§ 120–121, 124.]

**tenure (ten-yər), n.** 1. A right, term, or mode of holding lands or tenements in subordination to a superior. • In feudal times, real property was held predominantly as part of a tenure system. 2. A particular feudal mode of holding lands, such as socage, gavelkind, villeinage, and frankalmoign.

"Most of the feudal incidents and consequences of socage tenure were expressly abolished in New York by the act of 1787; and they were [later] wholly and entirely annihilated by the New York Revised Statutes .... They were also abolished by statute in Connecticut, 1793; and they have never existed, or they have ceased to exist, in all essential respects, in every other state. The only feudal fictions and services to be retained in any part of the United States consist of the feudal principle, that the lands are held of some superior or lord, to whom the obligation of fealty, and to pay a determinate rent, are due. .... The lord paramount of all socage land was none other than the people of the state, and to them, and them only, the duty of fealty was to be rendered ...." 3 James Kent, *Commentaries on American Law* \*509–10 (George Comstock ed., 11th ed. 1866).

**base tenure.** *Hist.* The holding of property in villeinage rather than by military service or free service. See VILLEINAGE.

**copyhold tenure.** See COPYHOLD.

**lay tenure.** *Hist.* Any tenure not held through religious service, such as a base tenure or a freehold tenure. • The three historical types of lay tenures are *knight-service*, *socage*, and *serjeanty*. See KNIGHT-SERVICE; SOCAGE; SERJEANTY. Cf. *tenure by divine service*.

**military tenure.** A tenure that bears some relation to military service, such as knight-service, grand serjeanty, and cornage. — Also termed *tenure in chivalry*.

**spiritual tenure.** A tenure that bears some relation to religious exercises, such as frankalmoign and tenure by divine service.

**tenure ad furcam et flagellum** (ad fər-kəm et flə-jel-əm). [Latin] *Hist.* Tenure by gallows and whip. • This was the meanest of the servile tenures — the bondman was at the disposal of the lord for life and limb.

**tenure by divine service.** *Hist.* A tenure obligating the tenant to perform an expressly defined divine service, such as singing a certain number of masses or distributing a fixed sum of alms. Cf. *lay tenure*.

## term

**tenure in chivalry.** See *military tenure*.

**villein tenure.** See VILLEINAGE.

3. A status afforded to a teacher or professor as a protection against summary dismissal without sufficient cause. • This status has long been considered a cornerstone of academic freedom. [Cases: Colleges and Universities ⚭8.1(2); Schools ⚭133.6. C.J.S. *Colleges and Universities* § 24; *Schools and School Districts* §§ 222–223, 226–228, 236–238.] 4. More generally, the legal protection of a long-term relationship, such as employment. [Cases: Officers and Public Employees ⚭60. C.J.S. *Officers and Public Employees* §§ 119, 130, 134.] — **tenurial** (ten-yur-ee-əl), *adj.*

**tenured faculty.** The members of a school's teaching staff who hold their positions for life or until retirement, and who may not be discharged except for cause. [Cases: Colleges and Universities ⚭8.1(2). C.J.S. *Colleges and Universities* § 24.]

**tenure in capite.** See IN CAPITE.

**tenure in chivalry.** See *military tenure* under TENURE.

**teratogen** (tə-rat-ə-jən), *n.* An agent, usu. a chemical, that causes injury to a fetus or any of various birth defects <alcohol is a teratogen to the developing brain of a fetus>. — **teratogenic** (tə-rat-ə-jen-ik), *adj.*

**terce.** *Hist. Scots law.* A widow's interest in one-third of her husband's real property, if she has not accepted some other special provision. • The couple must have been married at least a year and a day or else have produced a living child together. See DOWER.

**terce land.** *Hist. Scots law.* Income-producing real property in which a widow has a pecuniary interest because it was owned by her husband.

**tercer.** *Hist. Scots law.* A widow who has an interest in one-third of her husband's real property. — Also spelled *tiercear*.

**tergiversatio** (tər-jiv-ər-say-shee-oh), *n.* [Latin "being reluctant, hanging back"] *Roman law.* A delay tactic, esp. an accuser's failure to pursue a criminal charge, perhaps by not appearing at the trial. • To withdraw an accusation, it was necessary to obtain the court's permission for an annulment (*abolitio*). In A.D. 61, a law was passed by which anyone convicted of *tergiversatio* was subject to a fine. See CALUMNIA. Cf. PRAEVARICATIO. Pl. *tergiversationes* (tər-jiv-ər-say-shee-oh-nee-z).

**term, n.** 1. A word or phrase; esp., an expression that has a fixed meaning in some field <term of art>. 2. A contractual stipulation <the delivery term provided for shipment within 30 days>. See CONDITION (3).

**essential term.** See *fundamental term*.

**fundamental term.** 1. A contractual provision that must be included for a contract to exist; a contractual provision that specifies an essential purpose of the contract, so that a breach of the provision through inadequate performance makes the performance not only defective but essentially different from what had been promised. [Cases: Contracts ⚭9(1), 15. C.J.S. *Contracts* §§ 33, 35–36, 38, 42–43.] 2. A contractual provision that must be included in the contract to satisfy the statute of

## conditio

action for the recovery of a specified quantity of a named commodity.

**conditio** (kən-dish-ee-oh). [Latin] A condition.

**conditio sine qua non.** See SINE QUA NON.

**conditio si sine liberis decesserit** (kən-dish-ee-oh si sine lib-ər-is di-ses-ər-it). [Latin "the condition if he should have died childless"] *Roman law.* An express or implied clause in a will providing that if the heir or legatee dies childless, the property is to go to another person, such as the testator's own descendants.

**condition, n.** 1. A future and uncertain event on which the existence or extent of an obligation or liability depends; an uncertain act or event that triggers or negates a duty to render a promised performance. • For example, if Jones promises to pay Smith \$500 for repairing a car, Smith's failure to repair the car (an implied or constructive condition) relieves Jones of the promise to pay. [Cases: Contracts §§ 218–227. C.J.S. *Architects* § 16; *Contracts* §§ 355–358, 362, 444–445, 450, 557–560.]

"'Condition' is used in this Restatement to denote an event which qualifies a duty under a contract. It is recognized that 'condition' is used with a wide variety of other meanings in legal discourse. Sometimes it is used to denote an event that limits or qualifies a transfer of property. In the law of trusts, for example, it is used to denote an event such as the death of the settlor that qualifies his disposition of property in trust. Sometimes it is used to refer to a term in an agreement that makes an event a condition, or more broadly to refer to any term in an agreement (e.g., 'standard conditions of sale'). For the sake of precision, 'condition' is not used here in these other senses." *Restatement (Second) of Contracts* § 224 cmt. a (1981).

"Strictly, a condition is a fact or event on the occurrence of which some legal right or duty comes into existence; a party may promise that this fact is so, or that the event will take place, but it is equally possible that no party to the contract promises this. An insurance company promises to pay £10,000 to an insured person if his house is destroyed by fire; the destruction of the house by fire is a condition of the insurer's promise to pay, but neither party promises to burn the house." P.S. Atiyah, *An Introduction to the Law of Contract* 146 (3d ed. 1981).

"Promises and the duties they generate can be either unconditional ('I promise to pay you \$100,000') or conditional ('I promise to pay you \$100,000 if your house burns down'). Lawyers use *condition* in several senses. Sometimes they use it to refer to the term in the agreement that makes the promise conditional. . . . However, lawyers also use *condition* to refer to an operative fact rather than to a term. According to the Restatement Second a condition is 'an event, not certain to occur, which must occur, unless occurrence is excused, before performance under a contract becomes due.' This use of the word has the support of leading writers." E. Allan Farnsworth, *Contracts* § 8.2, at 519–20 (3d ed. 1999).

2. A stipulation or prerequisite in a contract, will, or other instrument, constituting the essence of the instrument. • If a court construes a contractual term to be a condition, then its untruth or breach will entitle the party to whom it is made to be discharged from the obligation.

**collateral condition.** A condition of the performance of an act having no relation to the agreement's main purpose.

**compulsory condition.** A condition that requires that a thing be done, such as the payment of rent on a certain day.

**concurrent condition.** A condition that must be performed at the same time as the condition, the performance of which is necessarily operating as a condition to the performance of the condition that is mutually dependent. It arises when the parties to a contract have change performances simultaneously. It is termed *condition concurrent*. [Cases: Contracts §§ 225. C.J.S. *Contracts* § 362.]

"Conditions concurrent are acts or events which are under duties of performance each party being separately obligated to perform. The act is not concurrent with the condition, but only with the act of the other party. Anson, *Principles of the Law of Contract* 191 (Corbin ed., 3d Am. ed. 1919).

**condition implied by law.** See *condition implied in law*.

**condition implied in law.** See *condition implied by law*.

**condition precedent** (prə-seed-ent). A condition that must exist or occur before something promised arises. • A condition precedent is not excused unless the performance need not be rendered. It is a common condition contemplated by a contract, immediate or unconditional, which is to be performed by a promisor. [Cases: Contracts §§ 356, 444–445, 450.]

"Before one gets too confused by the numerous and subsequent classifications, it might be said that contract law there is no substantive difference between the two. . . . However, in the area of contract law, significance may be placed upon the distinction between a condition precedent and subsequent. The burden of pleading and proving the condition precedent usually being on the promisee, and the burden of pleading and proving the condition subsequent usually being on the promisor. . . . It is a condition precedent that would terminate his duty. . . . Gordon D. Schaber, *Contracts in a Nutshell* 1997).

**condition subsequent.** A condition that, if it occurs, will bring something else to an end. It is a condition of the existence of which, by agreement, the promisor discharges a duty of performance. [Cases: Contracts §§ 226. C.J.S. *Contracts* § 357.]

"If . . . the deed or will uses such language as 'provided, however, that the condition shall not be intended.' Thomas F. Bergin & Paul F. Atiyah, *Principles of the Law of Contract* 191 (Corbin ed., 3d Am. ed. 1919).

**rapine (rap-in)**. 1. Forcible seizure and carrying off of another's property; pillage or plunder. 2. *Archaic*. Rape.

**rapport à succession** (ra-por ah sook-ses-syawn), *n*. [French "return to succession"] *Civil law*. The restoration to an estate of property that an heir received in advance from the decedent, so that an even distribution may be made among all the heirs. Cf. HOTCHPOT.

**rapporteur** (ra-por-tuur or -tør), *n*. [French] An official who makes a report of committee proceedings for a larger body (esp. a legislature).

**rapprochement** (ra-prosh-mahn). The establishment or restoration of cordial relations between two or more nations. — Also spelled *rapprochment*.

**rap sheet**. *Slang*. A person's criminal record.

**raptu haeredis** (rap-t[y]oo hæ-ree-dis), *n*. [Latin] *Hist.* A writ for taking away an heir held in socage. See SOCAGE.

**rapture**. *Archaic*. 1. Forcible seizure and carrying off of another person (esp. a woman); abduction. 2. RAPE (1). See RAPUIT.

**raptu virginum** (rap-t[y]oo vər-ji-nəm). See DE RAPTU VIRGINUM.

**rapuit** (rap-yoo-it). [Latin] *Hist.* Ravished. • The term was formerly used in indictments for rape. See RAVISHMENT.

**RAR**. *abbr.* REVENUE AGENT'S REPORT.

**rasure** (ray-zhər). 1. The scraping or shaving of a document's surface to remove the writing from it; erasure. 2. Obliteration. — **rase**, *vb*.

**rat**. *Slang*. See STOOL PIGEON (1).

**ratable** (ray-tə-bəl), *adj.* 1. Proportionate <ratable distribution>. 2. Capable of being estimated, appraised, or apportioned <because hundreds of angry fans ran onto the field at the same time, blame for the goalpost's destruction is not ratable>. 3. Taxable <the government assessed the widow's ratable estate>. See PRO RATA.

**ratchet theory**. *Constitutional law*. The principle that Congress, in exercising its enforcement power under the 14th Amendment, can increase but not dilute the scope of 14th Amendment guarantees as previously defined by the Supreme Court. • The thought underlying the term is that the enabling clause works in only one direction, like a ratchet. The theory was stated by Justice Brennan in *Katzenbach v. Morgan*, 384 U.S. 641, 86 S.Ct. 1717 (1966), but was repudiated by the Supreme Court in *City of Boerne v. Flores*, 521 U.S. 507, 117 S.Ct. 2157 (1997). — Also termed *one-way ratchet theory*.

**rate**, *n*. 1. Proportional or relative value; the proportion by which quantity or value is adjusted <rate of inflation>. 2. An amount paid or charged for a good or service <the rate for a business-class fare is \$550>.

**class rate**. A single rate applying to the transportation of several articles of the same general charac-

ter. [Cases: Carriers Ⓒ189. C.J.S. *Aeronautics and Aerospace* § 231; *Carriers* §§ 470–472, 474.]

**confiscatory rate**. A utility rate set so low by the government that the utility company cannot realize a reasonable return on its investment. [Cases: Public Utilities Ⓒ129. C.J.S. *Public Utilities* §§ 35, 38–41, 57.]

**freight rate**. A rate charged by a carrier for the transportation of cargo, usu. based on the weight, volume, or quantity of goods but sometimes also on the goods' value or the mileage. [Cases: Carriers Ⓒ12, 189. C.J.S. *Aeronautics and Aerospace* § 231; *Carriers* §§ 367–368, 470–472, 474.]

**joint rate**. A single rate charged by two or more carriers to cover a shipment of goods over a single route. [Cases: Carriers Ⓒ26, 193. C.J.S. *Carriers* §§ 138–140, 482.]

**union rate**. The wage scale set by a union as a minimum wage to be paid and usu. expressed as an hourly rate or piecework rate.

3. INTEREST RATE <the rate on the loan increases by 2% after five years>. 4. PREMIUM RATE. 5. *English law*. A sum assessed or payable to the local government in the place where a ratepayer dwells or has property. See RATEPAYER. — **rate**, *vb*.

**rate base**. The investment amount or property value on which a company, esp. a public utility, is allowed to earn a particular rate of return. [Cases: Public Utilities Ⓒ124. C.J.S. *Public Utilities* §§ 23–26, 30–33, 48–49.]

**rate-base value**. See *net book cost* under COST (1).

**rate of interest**. See INTEREST RATE.

**rate of return**. The annual income from an investment, expressed as a percentage of the investment. See RETURN (5).

**fair rate of return**. The amount of profit that a public utility is permitted to earn, as determined by a public utility commission. [Cases: Public Utilities Ⓒ129. C.J.S. *Public Utilities* §§ 35, 38–41, 57.]

**internal rate of return**. *Accounting*. A discounted-cash-flow method of evaluating a long-term project, used to determine the actual return on an investment. — *Abbr.* IRR.

**ratepayer**. *English law*. A person who pays local taxes; a person liable to pay rates. See RATE (4).

**ratification**, *n*. 1. Adoption or enactment, esp. where the act is the last in a series of necessary steps or consents <The Ratification of the Conventions of nine States, shall be sufficient for the Establishment between the States so ratifying sense, ratification runs the approval of a constitutional ind-file approval of a labor aining agreement with man- (5). Cf. SANCTION (1). 2. Confir- e of a previous act, thereby rom the moment it was done ors' ratification of the presi- [This sense includes action tak- ) make binding a treaty nego- ve. [Cases: Estoppel Ⓒ90(1).

## **RESPONSES TO SCHOOL ENERGY COALITION INTERROGATORIES**

1 **INTERROGATORY 10:**

2 **Reference(s):**           **none provided**

3

4 **ISSUE(S):**    **11**

5

6 Please provide a copy of the standard agreement that THESL provides to parties who  
7 wish to attach wireless telecommunication attachments to THESL poles.

8

9 **RESPONSE:**

10 THESL does not have a standard agreement for parties wishing to attach wireless  
11 telecommunications attachments to THESL poles because the need for one was not  
12 warranted. As the demand to attach wireless telecommunications attachments increases,  
13 THESL would likely then look to establish a standard set of agreement terms and  
14 conditions for access and occupancy.

## **RESPONSES TO SCHOOL ENERGY COALITION INTERROGATORIES, ISSUE 11**

**INTERROGATORY 11:**

**Reference(s):**        **EB-2011-0120 - Decision on Motion and Procedural Order  
No.8, THESL Affidavit of Documents in Respect of Procedural  
Order No. 8/Appendix A**

**ISSUE(S):**    **11**

In EB-2011-0120, THESL contended that wireless attachments impair operations efficiency and present incremental safety hazards to electricity distribution.

- a) Does THESL still believe that this is the case? If so, please explain why THESL believes this.
- b) How does THESL plan to ensure that ratepayers are not harmed by operational efficiency and the incremental safety hazard?
- c) Please provide a copy of the information THESL previously provided in response to Part II of *Decision on Motion and Procedural Order No.8* in EB-2011-0120.

**RESPONSE:**

- a) Yes. Any hardware or energized equipment may impair operations efficiency including wireless attachments due to limits of approach, minimum clearance requirements and pole congestion.
- b) Please refer to THESL's response to CCC interrogatory 22 (Tab L, Schedule 2-22).
- c) THESL has reviewed the information requested, which was filed confidentially in EB-2011-0120. On THESL's review, this information does not appear to be relevant to any issue before the OEB in this proceeding. The bulk of the information pertains

**RESPONSES TO SCHOOL ENERGY COALITION  
INTERROGATORIES, ISSUE 11**

1 to the assets and plans of specific parties. In addition to the confidential nature of  
2 these materials, they do not appear to relate to any issue to be determined by the OEB  
3 under section 29 of the *Ontario Energy Board Act, 1998*.

4  
5 However, if SEC believes that some of the materials requested may be relevant to the  
6 issues in this proceeding and is able to identify either specific materials or areas of  
7 information that may be relevant to the issues in this proceeding, THESL would be  
8 willing to update this response.



## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

1 **INTERROGATORY 22:**

2 **Reference(s):** **BRG Report (Dr. Church) at Para 13**

3

4 **ISSUE(S):** **11**

5

6 Professor Church states that he was requested by counsel to prepare a report “assessing  
7 the extent to which wireless telecommunications in THESL’s service territory is, or will  
8 be, competitive if the OEB refrains from regulating the rates, terms and conditions upon  
9 which access for wireless telecommunications services is made available by THESL.”

10

11 a) What concern does the OEB have with whether retail wireless telecommunications in  
12 THESL’s service territory are competitive?

13 b) Are there other reasons that the OEB might take an interest in THESL’s extension of  
14 the use of regulated assets in areas/markets that do not come under the Board’s  
15 jurisdiction?

16

17 **RESPONSE:**

18 a) THESL listed the following ground in the Notice of Application filed in this  
19 proceeding:

20

21 “In the alternative, if the public interest relevant to assessing whether competition  
22 is sufficient is the public interest in wireless markets, competition will be  
23 sufficient to protect that public interest.”

24

25 The referenced request made of Professor Church pertains to this ground of the  
26 Application.

## **RESPONSES TO ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES**

- 1    b) It is THESL's view that the OEB should encourage the exploitation of business
- 2       opportunities that are created through the leverage of the distribution system. To do
- 3       so is to provide the possibility of incremental revenues, derived in a commercial
- 4       environment, that can operate to enhance shareholder value and offset rate increases.

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 **INTERROGATORY 20:**

2 **Reference(s):**        **none provided**

3

4 **ISSUE(S):**    **12**

5

6 Would THESL be amenable to the Board continuing to regulate the terms and conditions  
7 for the attachment of wireless telecommunications devices, while allowing for the rates to  
8 be based on market rates? If not, why not?

9

10 **RESPONSE:**

11 Please see THESL's response to CCC interrogatory 10 (Tab I, Schedule 2-10).

**RESPONSES TO CONSUMERS COUNCIL OF CANADA  
INTERROGATORIES, ISSUE 12**

1 **INTERROGATORY 21:**

2 **Reference(s):**        **none provided**

3

4 **ISSUE(S):**    **12**

5

6 Has THESL considered a scenario whereby access to the utility assets are still regulated,  
7 but the rates are based a market based range? If not, why not?

8

9 **RESPONSE:**

10 Please see THESL's response to CCC interrogatory 10 (Tab I, Schedule 2-10).

## **RESPONSES TO CONSUMERS COUNCIL OF CANADA INTERROGATORIES**

1 **INTERROGATORY 22:**

2 **Reference(s):** **none provided**

3

4 **ISSUE(S):** **12**

5

6 Please explain how THESL intends to ensure that when facilitating wireless attachments  
7 the operation of its distribution system is not compromised.

8

9 **RESPONSE:**

10 To mitigate operational efficiency, reliability and potential incremental safety risks,  
11 THESL has processes to govern new product introduction and incoming permitting  
12 review to evaluate new products and installations prior to implementation. As described  
13 in THESL's response to OEB Staff interrogatory 1a (Tab A, Schedule 1, part a), the  
14 incoming permitting review process helps verify that the third party attachment is  
15 compliant with THESL's construction standards and Ontario Regulation 22/04 (Electrical  
16 Distribution Safety). Any attachments that are not covered by THESL's construction  
17 standards are subjected to an internal review process where new attachment types and  
18 construction proposals not conforming to current standards are evaluated. Based on the  
19 evaluation, new sketches/standards are prepared in conjunction with approved field  
20 practices and operational feasibility. Once the new type of installation is accepted  
21 through a sketch or standard, meeting all safety, operational and practical application  
22 requirements, future requests that satisfy the standard are generally expected to be  
23 approved.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES, ISSUE 13**

1 **INTERROGATORY 33:**

2 **Reference(s):**           **none provided**

3

4 **ISSUE(S):**    **13**

5

6 a) If the Board determined that it would forbear, in whole or in part, from regulating the  
7 rates for attachment of wireless equipment to THESL's distribution poles, please  
8 indicate whether THESL would agree to each of the following conditions:

9           (i) a requirement that THESL provide access for all wireless attachers to its  
10           distribution poles on a non-discriminatory basis;

11           (ii) compliance with appropriate rules (set by the Board) for non-  
12           discriminatory access to THESL's distribution system for wireless  
13           attachers; and

14           (iii) reporting requirements associated with the requirement to provide non-  
15           discriminatory access?

16 b) For (a) (i) through (iii), if the answer is no, please provide a detailed explanation as to  
17 why not including any assumptions or dependencies underlying the answers.

18 c) For each of (a)(i) through (iii), if the answer is yes, please provide detailed examples,  
19 descriptions and language of the requirement (i), rules (ii) or reporting requirements  
20 (iii), as applicable, which in THESL's view, would be appropriate.

21

22 **RESPONSE:**

23 i), ii), and iii) Yes, provided that a "non-discriminatory basis" comprehends scenarios  
24 where access is dependent on a proponent meeting the then-prevailing commercial  
25 conditions, and that those commercial conditions have been derived from transparent and  
26 conventional processes.

**RESPONSES TO ONTARIO ENERGY BOARD STAFF  
INTERROGATORIES, ISSUE 13**

1

2 For example, if access to poles within a given geographic area were to be subject to an  
3 offering (i.e., where exclusive access was to be offered to the highest bidder), THESL  
4 would expect that process to be effective, provided the offering was undertaken in a fair  
5 and transparent manner, according to prevailing commercial standards. That is the most  
6 extreme case. If the commercial conditions are clearly comprehended, THESL would be  
7 amenable to a provision that required the company to make access available on a non-  
8 discriminatory basis.

9

10 As to reporting, THESL would be amenable to a reporting regime that describes the  
11 amount of activity, and highlights any concerns raised by our counterparties with respect  
12 to THESL's practices. The financial arrangements would, of course, be subject to the  
13 strictest confidentiality protection, given the fact that it reveals the product of  
14 negotiations within a competitive environment.

## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 34:**

2 **Reference(s):** none provided

3

4 **ISSUE(S):** 13

5

- 6 a) If the Board determined that it would forbear, in whole or in part, from regulating the  
7 rates for attachment of wireless equipment to its distribution poles, please indicate  
8 whether THESL would agree to a condition whereby forbearance was limited to a  
9 certain number of years (for example 5 years) after which THESL would be required  
10 to file evidence sufficient to prove to the Board that the conditions for forbearance  
11 from regulation under s. 29 of the Ontario Energy Board Act, 1998 continue to exist.
- 12 b) If yes, please provide a detailed description, including the number of years and the  
13 nature of the subsequent filing, of the condition that would, in THESL's view, be  
14 appropriate. If not, why not.

15

16 **RESPONSE:**

17 The difficulty with the premise of the question is the extent to which the competitive  
18 environment could be subverted by being time-limited, or appearing to be time-limited.  
19 THESL notes that forbearance is not inherently uni-directional. THESL's view of  
20 section 29 is that the OEB could, at its own motion, or upon the application of another  
21 person, reverse forbearance if it felt that the competitive environment giving rise to an  
22 initial finding had changed so as to make continued forbearance unreasonable or unsafe.  
23 In THESL's view, that is the best approach to take in this case. The participants in this  
24 market are typically extremely sophisticated, and perfectly capable of addressing  
25 dysfunction should it arise (which is, in THESL's view, an unlikely scenario given the  
26 evidence presented).



## **RESPONSES TO ONTARIO ENERGY BOARD STAFF INTERROGATORIES**

1 **INTERROGATORY 35:**

2 **Reference(s):** **none provided**

3

4 **ISSUE(S):** **13**

5

- 6 a) If the Board were to forbear, in whole or in part, from regulating the rates for  
7 attachment of wireless equipment to THESL's distribution poles, is THESL or are  
8 either of its experts aware of any other post-forbearance criteria or conditions that  
9 could apply or that have been applied under similar or analogous circumstances in  
10 Canada or in any other jurisdiction?
- 11 b) Please describe the criteria or conditions fully and explain why, in THESL's view,  
12 they should or should not apply.

13

14 **RESPONSE:**

- 15 a) No. But the OEB could consider having an ex post mechanism under which a  
16 wireless provider could seek regulated access to a specific pole or set of poles by  
17 establishing that the commercial rate THESL is charging reflects the exercise of  
18 inefficient market power.

19

- 20 b) The criteria proposed by the experts are described in the response to part a) above.

21

22 THESL has discussed its view on the conditions that may potentially apply to the  
23 OEB's decision to forbear elsewhere in these responses. In particular, please see  
24 THESL's response to OEB Staff interrogatory 33 (Tab M, Schedule 1-33) and CCC  
25 interrogatory 10 (Tab I, Schedule 2-10).