EB-2014-0116

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

AND IN THE MATTER OF an application by Toronto Hydro-Electric System Limited for an order approving just and reasonable rates and other charges for electricity distribution to be effective May 1, 2015 and for each following year effective January 1 through December 31, 2019.

EXPERT EVIDENCE OF SUZANNE BLACKWELL

March 26, 2015

Methodology, Data Inputs and Determination of a Just and Reasonable Pole Access Charge (Wireline Attachments) by Toronto Hydro-Electric System

A. INTRODUCTION

1. My name is Suzanne Blackwell. I have over 20 years experience in the communications industry in Canada, providing expert evidence and testimony in regulatory economics for leading communications firms. A copy of my cv is attached to this report as Appendix A. I have been asked by Rogers Communications Partnership, Cogeco Cable Inc. on behalf of itself and its affiliates, including Cogeco Cable Canada LP and Cogeco Data Services Inc., Allstream Inc. and TELUS Communications Company and its affiliates (the "Carriers") to provide my views on the appropriate methodology and cost inputs for determination of a pole access charge (wireline attachments) in light of the cost data that has been submitted by Toronto Hydro-Electric System ("THESL") in this proceeding.

2. This evidence addresses the following issues:

   (i) background on basic principles applicable to the determination of the rate for wireline attachments in the communications space of a pole (the "wireline pole attachment rate");

   (ii) the methodology for determining the wireline attachment rate; and

   (iii) application of the methodology to data inputs provided by THESL, including required adjustments to the extent possible based on the current record in this proceeding.

B. SUMMARY OF CONCLUSIONS

3. Due to the numerous gaps and inconsistencies in the evidence that has been filed to date by THESL it is not possible at this juncture to complete an assessment of the cost inputs to the wireline pole attachment rate. However,

based on the current evidentiary record, it is my view that an appropriate annual wireline pole attachment rate for THESL will be lower than $25.17 per pole. I am not able to determine how much lower the rate should be based on the existing evidence. I note though that this upper bound rate is based on, amongst other things, an extremely high net embedded pole cost that bears no relationship to the embedded pole costs submitted by other pole owners in regulatory proceedings, and a conservative estimate of the number of wireline attachers to THESL poles.

4. I note also that any rate that exceeds $2.67 will cover all of THESL's incremental costs of wireline pole attachments. THESL also recovers separately through other fees its costs of administering permits for wireline pole attachments and inspections of these attachments. Accordingly, the current approved rate of $22.35 provides a very generous contribution to the indirect pole costs which THESL incurs in any event for the provision of hydro services.

5. Appendix B provides a summary of the adjustments that I have made to the cost inputs to the wireline pole attachment rate and of additional adjustments that need to be made based on further information.

6. Appendix C summarizes the gaps and inconsistencies in the available evidence.

B. Background

7. The current rate for wireline pole attachments to THESL poles was set by the Board in RP-2003-0249. In that decision, the Board recognized that for purposes of wireline communications attachments, power poles are "essential facilities" and, in these circumstances, non-discriminatory access should be provided at just and reasonable rates:

> The Board agrees that power poles are essential facilities. It is a well-established principle of regulatory law that where a party controls essential facilities, it is important that non-discriminatory access be provided to other parties. Not only must rates be just and reasonable, there must be

> no preference in favour of the holder of the essential facilities. Duplication of poles is neither viable nor in the public interest.[1]

8. To satisfy the basic principles of non-discrimination and just and reasonable rates, the pole attachment rate must be set at a level that does not subsidize either the owner of the pole or the third party attacher. Related to this requirement, the rate set for third party attachers should not contribute to costs that are solely attributable to power requirements. This would include, for example, those portions of the poles and equipment on the poles that are required solely for purposes of the provision of electricity services.

9. Regulators have also consistently recognized the requirement to provide incentives to regulated companies to engage in efficient investment and provision of regulated services. This can be accomplished through price cap regulation and/or by approving rates that reflect the costs of an efficient service provider.

C. Methodology

10. There are two basic elements to the methodology for setting the pole attachment rate for wireline attachments in the communications space on a pole - direct costs and indirect costs. Each of these costs, including their components and their allocation to the wireline pole attachment rate, is discussed below. In setting the rate, any other third party revenues received by THESL in respect of pole attachments (both wireline and other attachments), including in particular revenues received to recover costs (or activities) associated with third party wireline attachments, should also be taken into account to ensure there is no double-recovery of costs.

(i) Direct Costs

11. Direct or incremental costs are the costs that are caused by the presence of wireline attachments in the communications space on a pole. In other words,

[1] RP-2003-0249, page 3.

these are costs that would not be incurred by the pole owner if there were no third party wireline attachments on a pole.

12. There are two sub-categories of direct costs:

(1) administration costs, which are the costs of administering wireline third party access to the poles that are not recovered through separate permit and other fees (i.e. costs of billing and collection); and

(2) loss of productivity costs, which are additional costs incurred by the pole owner in accessing or maintaining the poles due to the presence of third party wireline attachments.

13. These direct costs need to be ascertained on a per pole basis, and then allocated amongst the third party wireline attachers to the pole.

14. It is also critical that direct costs do not include the costs of activities that are recovered through other fees. For example, THESL charges a separate permit fee for each application to attach wireline attachments on its poles.[2] THESL also charges a separate bonding fee for the connection of an attacher's facilities to THESL's power system neutral.[3] In addition, third party wireline attachers are solely responsible for performing any tree trimming or other vegetation management necessary to establish clearance for their attachments on THESL poles, as well as for any "make ready" work on a pole that THESL, in its sole discretion, determines is necessary to accommodate the attachments. None of THESL's costs that are recovered through separate charges should be included in the costs used to establish the wireline pole attachment rate.

15. As long as all direct costs of wireline communications attachments are recovered through the wireline pole attachment rate, there is no subsidization of these attachments by electricity rate payers. All of the remaining costs would be borne

[2] See WR-Carriers - 20(c), which states that the permit fee is $118. Other public documents indicate that THESL also charges a permit fee of $200 for decorative/temporary attachments (but no attachment fee).
[3] See WR-Carriers-17 (a).

by electricity rate payers if there are no other attachments. While additional revenues from attachments represent an offset to THESL's revenue requirement that reduces its other rates, there is no subsidy as long as THESL's direct costs are covered.

(ii) Indirect Costs

16. Indirect costs are the annual common costs of a pole which are caused by *all* users of the pole and which are incurred by the pole owner regardless of whether there are any third party wireline attachers on the pole. Indirect costs do not change as a result of the presence of third party wireline attachments on a pole. These costs are also included in the pole owner's rate base when determining its general revenue requirement.

17. In RP-2003-0249, this Board identified three sub-categories of indirect costs:

(1) depreciation expense;

(2) maintenance expense; and

(3) capital carrying cost.

18. The net embedded cost of a pole is an input to the determination of the capital carrying cost. In ascertaining this cost, power-specific fixtures must be excluded, as the cost of these fixtures is not common to third party attachers. This is sometimes referred to as determining the cost of a "bare pole". It is best to deduct the actual costs of power-specific fixtures.[4] However, in the absence of such evidence, some regulators have chosen to use a fixed percentage to strip out power-specific fixtures from pole costs recorded by a power company. The Federal Communications Commission has, for example, applied a factor of 85% to determine the costs of a bare pole.[5] The Nova Scotia Public Utilities Board applied a factor of 72% to determine the costs of a bare pole, while New

[4] In WR-Carriers-6(b) and (c), THESL avoided providing information on adjustments for power-specific poles assets.

[5] FCC "Pole Attachment Order", CC Docket 86-212.

Brunswick Power has proposed to apply a factor of 85% to remove its power-specific fixture costs. Similarly, the Electricity Distributors Association ("EDA"), of which THESL is a member, proposed in the RP-2003-0249 proceeding before this Board to strip out power-specific costs by applying a factor of 85% to the average and embedded costs of hydro poles.

19. In addition, direct cost elements should only capture the costs of poles that are in use by third party wireline attachers. Thus, for example, the costs of poles that are not used by wireline attachers (such as streetlight poles) should not be included in the net embedded costs used to determine the wireline pole attachment rate.

20. Total direct costs are allocated across all users of the pole to determine the pole attachment rate. The determination of the allocation factor is discussed in more detail in C(iii) below.

(a) Depreciation Expense

21. Depreciation expense can be measured using the depreciation expense shown on the books of the pole owner. Typically, the average expense over a number of years is used, to ensure that the depreciation is representative of the longer term trend in depreciation expense.

22. As noted above, the depreciation expense should pertain only to pole assets that are not power-specific, and only to poles that are used by third party wireline attachers.

23. As the average age of poles decreases, the net embedded costs of the poles increase, increasing the depreciation expense. This means that if a pole owner engages in an aggressive pole replacement strategy, it can temporarily ramp up its depreciation expense. The pole attachment fee based on these temporarily inflated cost inputs will over-recover costs incurred in subsequent years.

(b) Pole Maintenance Expense

24. Pole maintenance expense should capture the cost of maintaining a pole used by third party wireline attachers, but should exclude those maintenance costs that are solely related to power-specific use or fixtures on the poles.

(c) Capital Carrying Cost

25. The capital carrying cost of a pole is the net embedded cost of a bare pole used by third party wireline attachers, times the pole owner's approved weighted average cost of capital.

(iii) Allocation of Indirect Costs

26. Regulators have not adopted a uniform approach to allocating indirect costs as between the pole owner, third party wireline attachers and other attachers. In most cases, however, allocation approaches have been based on two inputs, namely, the typical number of attachers to a pole with wireline communications attachments and use of space on a representative pole by wireline communications attachers.

(a) Number of attachers

27. The number of wireline communications attachers to a pole is a key input in the allocation of indirect pole costs. The total number of attachers to a pole is also an input under the equal allocation approach discussed below. As the number of attachers increases, the share of indirect costs allocated to any individual attacher decreases. If the pole attachment fee is based on an artificially low number of attachers, the allocation factor will be inflated and the pole attachment fee will be over-stated. This will result in the electrical utility over-recovering its indirect costs.

28. The number of wireline communications attachers and the total number of attachers used for purposes of determining the pole attachment rate should

reflect the typical number of attachers on a pole that is used by wireline communications attachers.

29. It is also reasonable to assume that there will be more than just wireline communications attachers and one hydro attacher on a pole. The same poles support wireless attachments, streetlights, cathodic protective devices, transit and trolley cables, red light cameras, traffic signs and signals, decorative attachments (e.g., banners, baskets).[6] These additional attachments may be placed in the power space or elsewhere on the pole. All of these other attachments should bear their fair share of the indirect costs of a pole.

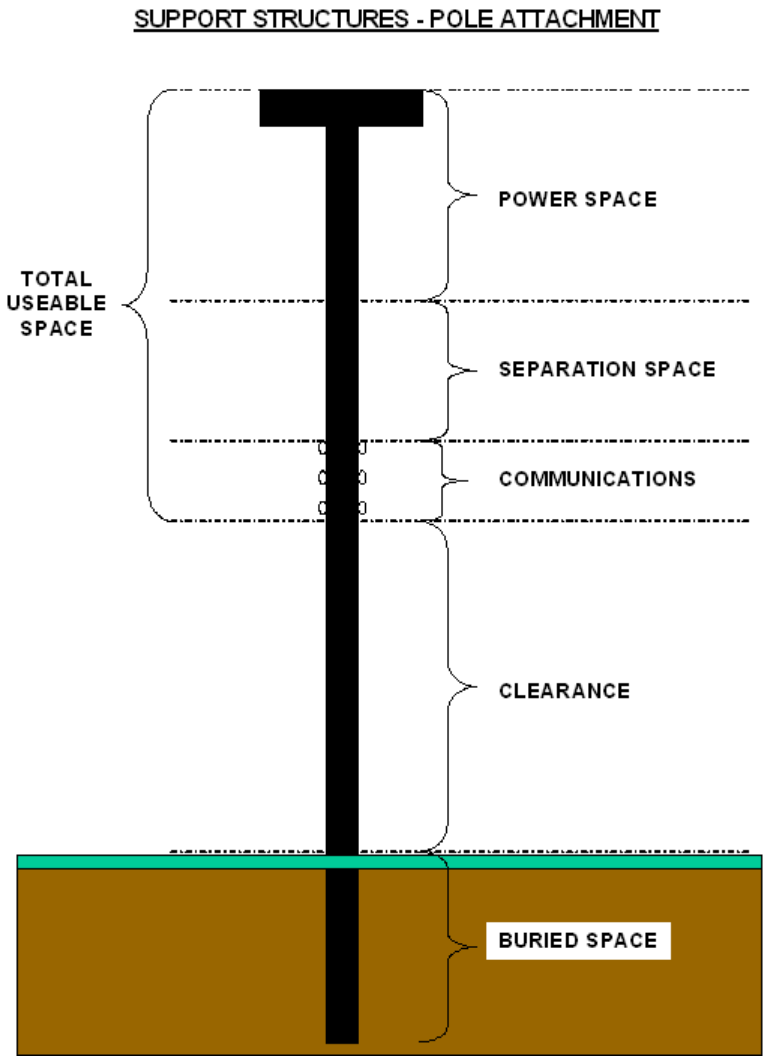
(b) Usage of Space on a Representative Pole

30. The allocation of indirect costs to third party wireline attachers in the communications space has typically been determined based on the relative use of space on a typical 40 foot pole by these attachers.

31. As shown in Figure 1 below, the space on a typical 40 foot pole comprises 6 feet of buried space, 17.25 feet of clearance space, 2 feet of communications space, 3.25 feet of separate space and 11.5 feet of power space.

[6] THESL response to WR-Carriers-2, page 2.

Figure 1



32. The buried and clearance space is common space, required by all attachers to the pole. The separation space is required in order to accommodate both power and other attachers on a pole. Finally, the communications space and power space is dedicated space to each of these types of users. The dedicated communications and power space is sometimes referred to as the useable space on the pole.

33. Under the proportionate use approach to allocating indirect costs, third party wireline communications attachers are responsible for all costs associated with

the space that is dedicated to communications attachers, as well as a share of the common space on the pole based on their proportionate use of the useable space on a pole. This approach is consistent with the premise that these attachers are incremental users of the poles. In this context, the separation space is also considered to be useable space that is dedicated to third party wireline attachers (along with the dedicated communications space) as this space is caused by the incremental use of the pole by wireline attachers.

34. Under the proportionate use approach, all third party wireline attachers are allocated 31.3% of the space and hence 31.3% of the indirect costs of a pole for purposes of determining the wireline pole attachment rate.[7] The allocation to each wireline attacher is then determined by dividing 31.3% by the number of third party wireline communications attachers on a pole. Thus, for example, if there are 2.5 wireline attachers on a pole, then each attacher pays 12.5% of the direct costs of a pole and, as noted above, wireline communications attachers cumulatively bear 31.3% of the indirect or common costs of a pole.

35. Under the "equal allocation" approach to allocating indirect costs, third party wireline communications attachers are again considered to be responsible for all costs associated with space that is dedicated to communications attachers. The common space is allocated equally amongst all attachers to the pole. This approach presumes all users of a pole receive equal benefits from the pole. If this is true, then the common space must comprise not only the buried and clearance space, but also the separation space, as it is required as much for the hydro and other third party attachers as for the communications attachers.

36. The Board adopted an equal allocation approach in RP-2003-0249. However, in doing so, it included the separation space as part of the "dedicated communications space" instead of "common space".

[7] 31.3% = 5.25 feet / 16.25 feet; where 5.25 is the sum of 2 feet of communications space and 3.25 of separation space, and 16.25 is the sum of those two parts plus 11.5 feet of power space.

37. If there are 2.5 wireline attachers, one hydro attacher and no other attachers, the equal allocation approach (with separation space included as common space) results in an allocation factor of 54.6% of the indirect costs to all communications attachers.

38. In adopting an equal allocation approach in RP-2003-0249, the Board stated:

> The most persuasive argument for equal sharing of the common cost is the practice that appears to take place when parties are in position of equal bargaining power. The LDCs point to the reciprocal agreements between the telephone companies and the power companies that have existed for a number of years. Under those agreements, each of the regulated utilities has access to the other's poles. They essentially split the common cost equally.
>
> …
>
> For many years, electricity and telephone companies in at least four provinces have openly negotiated reciprocal access agreements to telephone company poles. In all cases, these agreements appear to reflect equal allocation of common costs. This suggests that the per capital or equal sharing methodology is the appropriate one. …[8]

39. It is my understanding that the negotiated joint use ownership shares between telephone and hydro companies are as follows:

- New Brunswick: 57% hydro; 43% telco
- Nova Scotia: 60% hydro; 40% telco
- Quebec: 61% hydro; 39% telco
- Ontario: 60% hydro; 40% telco
- British Columbia: 60% hydro; 40% telco

40. In no case, has a communications company agreed to own in excess of 43% of the joint use poles it shares with a hydro company. In contrast, the equal allocation approach with 2.5 third party wireline attachers and one hydro attacher

[8] RP-2003-0249, pages 6-7.

results in the communications attachers bearing 54.6% of the indirect costs of a pole - well above the amount that the various communications companies have voluntarily agreed to. Accordingly, the negotiated agreements do not support the thesis that the equal allocation approach is consistent with negotiated joint use arrangements between power and telephone companies. Moreover, it is my understanding, based on the evidence of Tim Brown, that third party wireline communications attachers do not have equal rights to the THESL. This also militates against the equal allocation approach.

(iv) Pole Counts

41. Another important input in the determination of per pole direct and indirect costs is the number of poles. This is because costs are often tracked on an aggregate basis, and need to be determined on a per pole basis for purposes of establishing the pole attachment rate.

42. The pole count that is used in any given case should reflect the full number of poles over which the aggregate costs have been incurred, including poles which have been fully depreciated but remain in use.

D. APPLICATION OF METHODOLOGY TO THESL

43. In accordance with the methodology described above, I address each of the cost inputs to the pole rate in this section namely:

Direct Costs

- administration costs
- productivity lost costs

Indirect Costs

- net embedded costs
- depreciation expense

- maintenance expense
- capital carrying costs

Pole Counts

Number of Attachers

Allocation of Indirect Costs

(i) Direct Costs

(a) Administration Costs

44. THESL has included in its requested wireline pole attachment fee an amount of $18.77 for administration costs. According to THESL, this amount represents the "estimated operational costs of managing and administering third party attachments and licensed occupancy on [its] distribution plant."[9]

45. At $18.77, THESL will raise almost $2 million per year in administration fees, on top of the millions it will receive separately from permit, make-ready and inspection fees.

46. The claimed amount is more than 27 times the administration cost included in the current pole attachment fee of $0.69, as well as the administration costs that have been approved by other regulators.[10]

47. For the reasons discussed below, I believe that the administration costs claimed by THESL are grossly inflated.

[9] THESL Evidence, EB-2014-0116, Exhibit 8A, Tab 2, Schedule 1, Appendix B, page 2.

[10] In CRTC Telecom Decision 2010-900, the CRTC approved administration costs for Bell Canada that equate to $0.52 per third party attacher. New Brunswick Power is currently seeking $0.71 in administration costs per attacher in its application before the New Brunswick Energy and Utilities Board.

(1) THESL approach to administration cost estimate

48. In THESL's evidence, administration costs were described as including several components: payroll, vehicle, invoicing, supporting materials and IT-related usage charges. THESL's response to WR-Carriers-13 indicated that the cost estimates were derived using a top-down method, allocating a portion of the total costs of the Asset Attachment and Lease Department to pole attachments. The allocation factor was based on the number of permits issued for "Overhead" attachments, relative to the total number of permits issued by THESL that also included permits issued for "Underground" attachments.[11] According to THESL, 76% of the permits issued were for "Overhead" attachments; therefore, THESL assigned 76% of the costs of the Asset Attachment and Lease Department to the administration costs of wireline pole attachments. THESL also increased the Department's costs to include shared services costs that it claimed are attributed to the Department's activities.[12] Shared service costs include financial, legal, communications and human resources costs.

49. Table **1** reproduces the costs THESL claims are caused by the administration of third party attachments to poles, as presented in the response to WR-Carriers-13 (a). This is based on the 76% allocation of total Department costs and the inclusion of shared services costs.

[11] THESL response to WR-Carriers-13.
[12] Ibid.

Table 1 – Administration Costs

($000s)	**2012**	**2013**	**2014**	**2015 (estimate)**
Payroll costs	619.0	707.1	718.2	856.2
Vehicle costs	-2.7	22.0	24.4	28.8
Inventory Direct Purchases	12.9	17.3	6.6	16.9
Invoices/Billing Costs*	-	-	-	-
Support Costs	662.9	646.4	840.3	913.9
Usage Charges	164.3	173.6	154.0	159.4
Total administration costs (aggregated for all poles)	1456.4	1566.4	1743.5	1975.2
Total administration costs – per pole	13.91	15.32	16.47	18.77
Number of poles used to derive administration costs per pole[13]	135,986	135,986	135,986	135,986

* Invoicing/Billing Costs were not included due to their immateriality (approximately $400 per year).

(2) Arithmetic Errors

50. The total administration costs per pole shown in Table 1 do not equal the administration costs per pole that are determined by dividing total administration costs claimed by THESL by the number of poles provided. In addition, THESL allocated the total costs per pole to each attacher. The administration costs must be divided by the number of attachers that benefit from such expenses.

51. Table **2** provides the arithmetically correct administration costs per pole based on the costs claimed by THESL and two wireline communications attachers. (However, as discussed more fully below, I do not believe these administration costs accurately reflect costs incurred by THESL in respect of third party wireline attachers.)

[13] THESL applied the same count of poles in each of the years 2012 through 2015. There is no reason to expect that the number of poles would remain static.

Table 2 – Administration Costs per Pole - Correction of Arithmetic Errors

	2012	2013	2014	2015 (estimate)
Corrected total administration costs – $ per pole	10.71	11.52	12.82	14.53
Corrected administration costs - $ per pole per attacher (2.51 attachers per pole)	4.26	4.58	5.10	5.78

(3) Overstated Allocation of Costs

52. There is very little information available about the Asset Attachment and Lease Department, although it has an operating budget of $2.6 million in 2015. There is no description of the Department on the record of EB-2014-0116, either in THESL's evidence or responses to interrogatories. Nor does there appear to be a line item for the Department in the reported operations, maintenance and administration expenses.

53. THESL's website has a section titled "Hydro Pole Attachments" that includes links to a number of documents, including one titled "General Information," that states the attachment process is overseen by the Asset Attachment and Lease Department.[14] The website provides some general information on the requirements for placing attachments on its poles, most of which is specific to temporary and decorative attachments.

54. THESL indicated in a response to an interrogatory that it allows parties to place temporary or decorative attachments, such as banners, lights or flower baskets, on its poles.[15] According to the website, these attachments are also issued permits and, thus, would appear to be counted among the 76% of all permits

[14] Available at: http://www.torontohydro.com/sites/electricsystem/business/attachments/Pages/HydroPoleAttachments.aspx

[15] THESL response to WR-Carriers-2 (a).

issued by the Department that are classified as “Overhead” attachments. The permits issued for temporary and decorative attachments contribute to the Department’s costs.

55. THESL gave a presentation early in 2011 that set out a new model for temporary and decorative pole attachments.[16] Going forward, all parties seeking to place such attachments were required to enter into an agreement with THESL as part of the permitting process and file permit applications annually, although permit fees remained unchanged and no pole rental fee would be charged.[17]

56. The same 2011 presentation by THESL provided statistics on the number of attachments by attacher that showed growth in non-communications attachers between 2009 and 2010 and that non-communications attachers accounted for as much as one-third of attachment requests in 2010.[18] The number and proportionate share of attachments placed by non-communications attachers has likely increased in subsequent years.

57. It is perhaps no coincidence that the Asset Attachment and Lease Department was created in June 2011.[19] The growth in the number of non-communications attachers may have been the impetus for expanding the requirements for processing these attachments and forming the Asset and Lease Department to oversee the process. In any event, the requirement to process annual permit applications and establish formal agreements for each party with temporary and decorative attachments would have resulted in additional costs that are unrelated to wireline communications attachments.

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[16] THESL, Mary Byrne, Manager, Standards & Policy Planning, “Temporary and Decorative Pole Attachments,” January 25, 2011; available at: http://www1.toronto.ca/static_files/economic_development_and_culture/docs/meeting-topic-pole-attachments.pdf and attached as Appendix D.

[17] Ibid., slide 7.

[18] Ibid., slide 5.

[19] THESL, EB-2011-0144, Exhibit F1, Tab 5, Schedule 1, page 1. At that time, 13 full-time equivalent personnel were redeployed from the Field Services group to the Asset Attachment and Lease Department. The personnel had previously been involved in the installation of residential and small commercial smart meters since 2006; work that was largely completed by the end of 2011.

58. THESL announced further changes to the permitting process for temporary attachments that took effect in January 2013.[20] The changes required all applications for such attachments to be routed directly to THESL, rather than the City; agreements for pole attachments to be approved by THESL's legal department, including agreements for attachments to street lighting poles; and permit fees to be paid directly to THESL. Shifting responsibilities for these attachments from the City of Toronto to THESL would have contributed additional costs for the Asset Attachment and Lease Department that are clearly not caused by wireline communications attachments.

59. The costs for the Asset Attachment and Lease Department have increased substantially in recent years. The costs were 8% higher in 2013 compared to 2012, a further 11% higher in 2014 and are estimated to increase again by 13% in 2015. These year-over-year increases are well above the rate of inflation and cannot be explained by increases in the number of companies with wireline attachments that are being charged the wireline attachment fee.[21] While the number of permits issued to wireline attachers may have increased, this would have resulted in an increase in revenues from permit fees levied from wireline communications attachers.[22]

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[20] THESL website, "Hydro Pole Attachments", download labeled "Permit Checklist," available at: http://www.torontohydro.com/sites/electricsystem/business/attachments/Documents/Temporary%20Attachment%20Permit%20Checklist.pdf

[21] THESL response to WR-Carriers-2 (a) listed companies with wireline communications attachments. THESL response to an interrogatory in the EB-2013-0234 proceeding, filed as Tab I, Schedule 5-18, 2014 Feb 28, response to Energy Probe Research Foundation interrogatory, listed companies paying the wireline pole attachment fee of $22.35. The list of companies with wireline communications attachments in the 2015 response likely includes those that had wireline communications attachments in prior years but are not charged the wireline pole attachment fee: THESL and Toronto Police Services. Hydro One is also listed in the 2015 response but it is not clear whether the wireline pole attachment fee applies to its attachments and thus represents a new attacher. There are two companies listed in the 2014 response that do not appear in the list of companies with wireline communications attachments in the 2015 response: Astral Media and Blink Communications. Astral Media was acquired by Bell Canada in 2013 and Blink Communications was acquired by Rogers in 2010. Rogers has confirmed that Blink continues to have attachments and is considered a separate entity by THESL. There is no evidence to suggest that Astral Media has ceased to have pole attachments. This leaves one additional company – Videotron – listed as having wireline communications attachments in the 2015 response that was not listed as paying the wireline pole attachment fee in 2013. As a Canadian carrier, Videotron would have been subject to the wireline pole attachment fee in 2013 if it had attachments.

[22] THESL's data on revenues from fees it charges for pole permit applications indicates an increasing trend over the period between 2012 and 2015, including 200% revenue growth estimated for 2015

60. The changes in the procedures for administering permit applications for temporary and decorative attachments first in 2011 and again in 2013, likely contributed to increased costs for the Asset Attachment and Lease Department. As well, the changes in 2013 indicate that the Department has taken on the responsibility for overseeing the processing of permits for attachments to the 39,340 street lighting poles. Street lighting poles were not included in the total count of poles used by THESL to determine the administration cost allocated to the wireline pole attachment rate, notwithstanding that these poles clearly generate overhead attachment administration requirements.

61. Thus the activities undertaken by the Asset Attachment and Lease Department appear to extend far beyond administering wireline communications pole attachments, to include the administration of permits and agreements for other types of attachments and attachments on other types of poles. Despite this, THESL proposes to recover more than three-quarters of the Department's total operating budget of $2.6 million through the wireline pole attachment rate.[23]

62. It does not appear to be reasonable to attribute any substantial part of the operating costs of the Asset Attachment and Lease Department to wireline communications attachers as part of the wireline pole attachment rate. All wireline communications attachers pay permit fees, as well as separate inspection and make-ready fees. Moreover, the support structure agreements for these attachers are well-developed and are generally long term agreements. Finally, in accordance with THESL's evidence, billing and collection costs for wireline communications attachers are not material.

(4) The costs of permit administration activities should not be recovered twice

63. THESL's allocation approach implies that the administration of permit applications is a key cost driver for this Department. THESL also provided a list

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relative to 2014. The growth in revenues from permit applications should be sufficient to cover higher costs for processing permit applications.

[23] THESL response to WR-Carriers-13, based on $1.975 million divided by 76% which is the percentage of these costs allocated to pole attachments.

of activities performed as part of the administration of attachments which further indicate that processing permit applications is a major component of the activities of the Department.[24]

64. THESL charges prospective attachers a permitting fee that allows for the recovery of the costs of processing these permits. The permit fee applies regardless of whether the attachment is granted. Approximately 30% of permit applications were denied over the 2012 to 2014 period.[25]

65. THESL has indicated that it expects to recover $0.2 million in revenues from permit application fees charged to communications attachers in 2015.[26] These revenues must be deducted from the administration costs that are, in fact, attributable to wireline communications attachers.

(5) Shared services allocation

66. THESL has also allocated to administration costs an amount for shared services, which were identified as legal, regulatory, finance, accounting, human resources and environmental health and safety. Bringing in shared service costs resulted in an additional $4 per attacher per pole (using THESL's figures for poles and attachers) – a 44% increase in the estimated administration costs for 2015.[27] The additional shared services costs represent a very substantial 79% mark-up over the costs actually incurred within the Asset Attachment and Lease Department assigned to wireline communications pole attachments. THESL provided no justification for adding such a large component for shared services costs. THESL should be required to provide further supporting evidence to justify what, if any, portion of the shared services costs is in fact attributable to the

[24] THESL response to WR-Carriers-20 (d).

[25] THESL response to WR-Carriers-20 (h).

[26] THESL responses to WR-Carriers-13 (a) and 20 (d). The large majority of these are likely attributed to wireline pole attachments, based on decreases in the number of wireless pole attachments indicated in the THESL response to EB-2013-0234, Tab A, Schedule 2-5 (Responses to Consumers Council of Canada interrogatories).

[27] THESL responses to WR-Carriers-13 and 15. The administration costs in WR-Carriers-13 sum to $1.97 million, while the administration costs in WR-Carriers-15 sum to $1.1 million. The $0.87 million difference represents a 44% increase.

administration of wireline communications attachments before any of these costs are included in the pole attachment rate.

(6) Comparisons of Administration Costs

67. THESL's $18.77 estimate of administration costs is significantly higher than the amount estimated by THESL in previous submissions. THESL provided two estimates of administration cost: first, $10.69 per pole, filed February 28, 2014; and second, $15.32 per pole, filed April 9, 2014, in submissions filed in EB-2013-0234 regarding wireless pole attachments.[28]

68. Information filed by THESL in this proceeding matches the $15.32 filed in EB-2013-0234 for 2013, as noted in Table **1** above.[29] However, as noted in Table **2**, that calculation is based on an arithmetic error and should be stated as $11.52, assuming the total number of poles indicated is accurate for 2013.[30]

69. The increase in administration costs from $10.69 to $15.32 was attributed to the inclusion of shared service costs. As discussed above, this results in a 44% increase in estimated administration costs for 2015 and no justification has been provided for allocating such a large component of shared services to wireline attachers that pay the pole attachment fee.

70. An estimate of THESL's administration costs was also filed in the proceeding RB-2003-0249, which resulted in the Board setting the wireline pole attachment rate of $22.35. According to the EDA, THESL had administration costs of $1.75 per attacher pole, based on 2003 information.[31] The per attacher per pole amount was derived from total costs of $386,387.25 for administration activities.

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[28] THESL, responses to Consumers Council of Canada Interrogatories, in EB-2013-0234, Tab J, Schedule 2-16.

[29] THESL response to WR-Carriers-13 (a).

[30] This does not include street lighting poles. A further correction is necessary to allocate the per pole costs to each wireline communications attacher.

[31] Electricity Distributors Association, Final Argument, Schedule B, in RP-2003-0249, November 29, 2004.

71. Table **3** presents the administration costs filed by THESL in the previous proceedings and restates each of these costs in current year values using a 2% annual inflation factor.

Table 3

Administration Costs per Pole

Previous Submissions – adjusted for Inflation

	Costs per Attacher, per Pole – as filed	Updated to 2015 using 2% annual inflation
Administration Costs - RP-2003-0249, filed November 29, 2004, 2003 estimate	$1.75	$2.22
Administration Costs - EB-2013-0234, filed February 28, 2014, 2013 estimate	$10.69	$11.12
Administration Costs - EB-2013-0234, filed April 9, 2014, 2013 estimate	$15.32	$15.94
Administration Costs - EB-2013-0234, filed April 9, 2014, 2013 estimate, corrected as per Table **2**	$11.52	$11.98

72. THESL's estimate of administration costs for 2015 on a per attacher per pole basis filed in the current proceeding is well in excess of each of the inflation-adjusted costs filed previously. This remains the case whether compared to the $18.77 estimate as filed by THESL, or the $14.53 value after the arithmetic corrections shown in Table **2**. THESL's estimate of administration costs for 2015 is five to seven times greater than the inflation-adjusted $2.22 estimate for 2003 and is at least 20% higher than 2013 costs, after making similar adjustments to both values, including the substantial mark-up for shared services costs.[32] No explanation was provided to justify such significant increases in excess of inflation.

[32] The percentage difference between the inflation-adjusted value for 2013, after corrections for arithmetic errors, and the corrected value for 2015 is 21%.

73. THESL's estimates of administration costs filed in this proceeding and last year in EB-2013-0234 are in stark contrast to the administration costs for wireline pole attachments observed from other regulatory proceedings. No regulatory authority has approved a wireline pole attachment fee that includes an administration cost in excess of $1 per pole per attacher. This is based on proceedings that have considered the administration costs of electrical utilities and telecommunications carriers that own poles used by third party attachers.[33]

74. It is reasonable to expect that the costs of administering wireline communications pole attachments would be comparable across different utilities and carriers, particularly where the costs associated with processing permit applications are recovered separately through permit fees rather than through the fee for rental of space on the pole for attachments.

(8) Conclusions on Administration Costs

75. At a minimum, in my view, the following adjustments should be made to THESL's administration costs attributed to the wireline communications pole attachment rate:[34]

(1) Administration costs must be distributed across all poles for which the Asset Attachment and Lease Department is responsible. This includes street lighting poles. Therefore, the proper denominator for these costs is not 135,986 poles but 175,416 poles.[35] This reduces the administration cost per pole to $11.26;

(2) The per pole administration cost must be allocated over all third party overhead attachers to a pole. This adjustment is necessary to ensure that the costs are properly allocation over all third party overhead attachers that cause these costs to be incurred. Using 2.51 third party attachers per pole, this adjustment reduces the administration cost to $4.48; and

[33] OEB RP-2003-0249, Telecom Decision CRTC 99-13, NSAURB-P-873 2002 NSAURB 1, Telecom Decision CRTC 2010-900.

[34] The arithmetic errors identified at the outset are corrected as a result of the recommended adjustments. If not adjustments were to be made by the Board, the arithmetic errors would still need to be addressed.

[35] THESL response to WR-Carriers-1 (a).

(3) Revenues from permit fees charged to communications attachers should be subtracted from administration costs to eliminate double-recovery of the costs of issuing permits to these attachers. To give effect to this adjustment, the $0.2 million in revenues for communications attachment permit fees estimated for 2015 are expressed on a per attacher basis using the number of billable communications attachers provided by THESL.[36] This equates to $2.21 per pole. Subtracting this from $4.48 results in administration cost per pole per communications attacher of $2.27; and

(4) The administration costs allocated to wireline communications attachers should also be reduced to remove at least some portion of the shared services costs that have been added to the costs of the Department of Asset Attachments and Leases. The magnitude of the adjustment should be based on further detailed evidence to be provided by THESL that identifies an appropriate allocation of these costs to wireline communications attachments.

76. Table **4** identifies the impact of the first three adjustments. As indicated, an additional adjustment is required to address shared services costs. If no further information is obtained on the allocation of these costs to wireline attachers, I believe the shared services costs should also be excluded from the pole rate calculation.

[36] THESL responses to WR-Carriers-18 (c) and 20 (d) indicate the number of billable attachments and revenue from communications attachment permits.

Table 4 – Adjustments to the Administration Costs per Pole per Communications Attacher

	THESL	Adjustment	Reasons
Total administration costs (aggregated for all poles)	$1.97 million	$1.97 million[37]	
Number of poles	135,986	175,416	Include street lighting poles
Total administration costs – per pole	$14.53 (corrected)	$11.26	
Total administration costs – per pole per attacher (all types)		$4.48	2.51 attachers per pole THESL omitted this step
Net out revenue from permit fees received from communications attachers		($2.21)	$0.2M / 93,460 billable attachers THESL omitted this step
Administration costs per pole per communications attacher		$2.27	

77. Even with these adjustments, the administration cost per communications attacher remains more than double the administration cost approved by any regulatory authority, including the amount approved by the Board in RP-2003-0249.[38] It is close to the inflation-adjusted administration costs filed by THESL in RP-2003-0249, but these costs were not tested through interrogatories or oral evidence.

78. If shared costs are removed from administration costs, these costs fall to $0.29.

(b) Loss of Productivity

[37] I do not believe that the 79% mark-up for shared services costs that have been added to the nearly $2 million costs of the Asset Attachment and Lease Department's costs assigned to "Overhead" attachments has been justified and, if no further evidence is provided, it should be excluded.

[38] The Board approved administration costs of $0.69 per pole per attacher in RP-2003-0249. This cost would be less than $1, adjusted for inflation over the 10 years since that decision was issued.

79. THESL claims loss of productivity costs of $5.72 for the "additional expenditures that [it] incurs in carrying out its regular activities, as a result of third party attachers' presence on its poles."[39]

80. THESL has itemized two components of these costs: (1) Pole Replacements; and (2) Pole Inspection Program - Third Party Portion.

(1) Pole Replacements

81. THESL claims that the presence of third party attachers on its poles results in additional costs for pole replacements because it must make an additional site visit to complete the pole replacement process where there are wireline communications attachments.[40] When a pole is replaced, there is a process to install the new pole, followed by the transfer of facilities from the old pole to the new pole, and then a subsequent visit to remove the old pole.

82. THESL states that the cost of a second visit to complete a pole replacement was estimated based on two hours for a typical crew complement. The cost of the second visit, including labour and vehicles, is stated to be $791.89.[41] THESL estimated that these costs would occur once per pole over a 50 year life-span, resulting in an annualized cost per pole of $15.84. It then allocated 51% of these costs to loss of productivity. The 51% is based on THESL's method for calculating the pole space allocation factor and estimated average number of number communications attachers per pole of 1.61. This produced a cost of $8.08 per pole, which was then divided among the 1.61 communications attachers per pole to yield the allocated cost of $5.02.

83. I note at the outset that the cost of replacing poles, including all crew visits, is included in the embedded costs of poles. This forms part of the net embedded costs used to calculate indirect costs recovered through the wireline pole attachment rate. THESL has provided no rationale for why it should be able to

[39] THESL Evidence, EB-2014-0116, Exhibit 8A, Tab 2, Schedule 1, Appendix B, page 3.
[40] THESL response to WR-Carriers-14.
[41] THESL response to 8-OEBStaff-100 (a).

include, as a direct cost, a cost that is also recovered from wireline communications attachers through the indirect costs included in the pole rate. In my view, this represents double-recovery, and these costs must either be excluded from the direct cost calculations or, to the extent they are included in direct costs, be excluded from the calculation of indirect costs. They cannot be included in both direct and indirect costs.

Causal connection between third party wireline attachers and second crew visit not substantiated

84. This cost claim is also only valid if there is no requirement for a second crew visit for poles without wireline communications attachments. Significantly, THESL was not able to provide information on the number of pole replacements that involved poles with wireline communications attachments (or, in fact, on the total number of pole replacements).[42]

85. In any event, it is my understanding, based on the evidence of Tim Brown and THESL, that a second crew visit is not required solely due to the presence of wireline attachments. In fact, in almost all cases, a separate crew is required due to the presence of THESL attachments, which must be moved by qualified linesmen.[43] THESL also acknowledged in response to WR-Carriers-14 (g) that there are circumstances when the same crew would not be used for the installation of a new pole and the removal of an old pole, absent the presence of wireline communications attachments. In addition, I presume that other non-wireline communications attachments must also be moved to a replacement pole before an old pole can be removed.

86. In the circumstances, I do not believe the inclusion of any costs related to pole replacements has been justified, either as a distinct activity attributable solely to wireline communications attachments or as a cost that is not already recovered elsewhere (in indirect costs). Should the Board disagree, however, I discuss

[42] THESL response to WR-Carriers-14 (b).

[43] Based on replacement of multiple poles on a line, which accords with THESL's description of its capital pole replacement program.

some additional adjustments to the cost data submitted by THESL below for this cost component.

THESL's costs of an additional site visit are over-stated

87. THESL's estimate of the costs of an additional site visit appear to be over-stated for a number of reasons. First, THESL assumes an additional crew visit is required for each individual pole, rather than a group of poles.[44] The two hour estimate includes the travel time in both directions between THESL's work centre and the worksite, as well as worksite set up and breakdown time. When a group of poles are being replaced, the travel time to and from the worksite would be arranged to deal with a group of poles along the same street, for example. The crew would not travel back and forth for each individual pole.

88. Second, THESL dictates the date and time when the third party attachers must transfer their facilities from the old to the new pole. THESL may charge third party attachers additional fees if they fail to meet the scheduled appointment. By dictating the schedule, THESL has the ability to closely coordinate the presence of its crew for the installation and removal of poles.

89. Third, THESL recovers the full costs of all pole replacements that are required in order to accommodate wireline pole attachments of third parties. The costs of pole replacement in such instances are recovered through make-ready charges. Make ready charges applied to communications attachers generated $360,000 in revenues in 2014.[45] THESL also receives payment for poles that are replaced at the request of customers. The costs recovered through these mechanisms should be excluded from the calculation of the costs of second crew visits for pole replacement recovered through the wireline pole attachment rate.

90. Fourth, although THESL filed information on labour costs under a claim of confidentiality so it is not possible for me to test the specific cost inputs for this component, the vehicle costs provided indicate a total cost of $152.52 over the

[44] THESL response to WR-Carriers-14 (h).
[45] THESL response to WR-Carriers-20 (g).

two hour visit.[46] The resulting labour cost is $639.37 for two hours, or nearly $320 per hour. THESL stated that there are four crew members assigned to each visit, resulting in an equivalent cost of $80 per hour per crew member. The crew members likely have different hourly wages, based on the titles of crew leader, journeyman lineman, apprentice and crane operator. Further investigation of the internal wage rates negotiated with members of CUPE Local One indicates that wages of $40 to $50 per hour are at the upper range of the pay scale.[47] While the pole replacement crew may be fulfilled by contractors rather than THESL's unionized employees, it is not reasonable to allocate substantially higher costs for labour to the pole attachment fee.

91. In sum, I do not believe any pole replacement productivity costs should be included in the wireline pole attachment rate, as THESL has not demonstrated that these costs are caused solely by wireline attachments and that these costs are not already being adequately recovered through the indirect costs allocated to the pole attachment rate. In the alternative, I believe the claimed costs are very significantly over-stated.

(2) Pole Inspection Program (Third Party Portion)

92. THESL states that it incurs additional expenses to conduct its Pole Inspection Program ("PIP") as a result of the presence of third party attachments.[48] The PIP was described as the program used by THESL to collect data "for the purposes of updating records, assessing the condition of overhead assets, and identifying deficiencies."[49]

93. The PIP was discussed only in Toronto Hydro's evidence on the wireline pole attachment fee, with some additional information in the responses to the Carriers' interrogatories. However, there is information relating to other inspection programs that raise questions about the PIP.

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[46] THESL response to WR-Carriers-14 (i).
[47] THESL response to 4A-SEC-42, Appendix B.
[48] *THESL, Evidence, Exhibit 8A, Tab 2, Schedule 1, Appendix B, page 3.*
[49] Ibid., page 5.

94. THESL described the activities and costs that might be expected to include the PIP in its evidence on "Overhead Line Patrols and Pole Inspections".[50] While this part of its evidence discussed the Wood Pole Inspection Program ("WPIP"), it did not specifically refer to the PIP. Interestingly, the discussion in that part of the evidence refers to additional costs for this segment forecast for 2015 to inspect street lighting poles, even though only 6% of these poles are made from wood.[51] The description of the WPIP does not appear to contemplate inspecting poles that are not made of wood.[52]

95. It seems more likely that inspections of street lighting poles would be conducted under the PIP. As noted in one interrogatory response, the PIP collects data on several characteristics of poles, including third party attachments.[53] Street lighting poles are just as likely to have third party attachments as other poles owned by THESL, although not wireline communications attachments.

96. I would also have expected that the Overhead Line Patrols and Pole Inspections segment included the PIP as well as the WPIP. However, this appears not to be the case based on a comparison of the costs for the segment overall and the costs for each of PIP and WPIP. The comparison is provided in Table **5**.

[50] THESL Evidence, Exhibit 4A, Tab 2, Schedule 1, pages 6-15. Cost information was provided for the aggregate of the Overhead Line Patrols and Pole Inspections programs.

[51] Ibid., page 14; THESL response to WR-Carriers-1 (c) indicated the proportion of street lighting poles that are wood.

[52] THESL response to WR-Carriers-12 (d).

[53] THESL response to WR-Carriers-4 (f).

Table 5 – Costs of Overhead Line Patrols and Pole Inspections compared to Pole Inspection and Wood Pole Inspection Programs

($ Millions)	2011	2012	2013	2014	2015 (estimate)
Overhead Line Patrols and Pole Inspections[54]	0.3	0.4	0.4	0.5	0.7
Pole Inspection Program (PIP)[55]	0.7	2.0	0.9	0.5	0.4
Wood Pole Inspection Program (WPIP)[56]	0.1	0.1	0.2	0.2	0.3
TOTAL of PIP and WPIP	0.9	2.2	1.1	0.7	0.7

Inability to assess costs against account-specific expenses

97. The costs for the PIP exceed the total segment costs for Overhead Line Patrols and Pole Inspections, as shown in Table **5.** Thus the PIP does not appear to be included in the Overhead Line Patrols and Pole Inspections and, therefore, must be recorded in a separate account from the WPIP. THESL did not identify the relevant account and nothing in its evidence on operational costs references the PIP. The lack of supporting evidence on the PIP does not permit the costs to be verified against specific account-level expenses reported by THESL.

Inappropriate cost assignment to wireline attachers

98. THESL assigned a proportion of the PIP costs to third party attachments derived by dividing the number of data inputs related to third party attachments by the total number of all data inputs captured by the PIP.[57] THESL stated that the PIP had captured 3.75 million data inputs in total, as of March 2014, of which 1.03

[54] THESL Evidence, Exhibit 4A, Tab 2, Schedule 1, page 14.
[55] THESL responses to WR-Carriers-12 (a) and 14 (a), as the sum of the hydro and third party portion.
[56] THESL response to WR-Carriers-12 (a).
[57] THESL response to WR-Carriers-14 (d).

million data inputs were related to third party attachers.[58] The ratio of 1.03 million to 3.75 million is 27.26% so THESL assigned that proportion of the total costs of the PIP to its calculation of the lost productivity costs to be recovered from wireline communications attachers.

99. In interrogatories by the Carriers, THESL was asked to provide three tables showing data inputs for each of the following: all types of communications attachments; wireline communications attachments; and wireless communications attachments.[59] THESL only provided the requested information for all types of communications attachments. When asked to provide a count of data inputs used to allocate the costs, THESL identified 1.03 million data inputs that are "specifically related to third party attachers, including wireline and wireless communications attachers."[60] (emphasis added) It did not state that this count included only wireline and wireless communications attachers, nor did it break out data inputs for wireline communications attachers. In addition, other interrogatory responses raise questions as to whether the data inputs for communications attachments relate only to third party attachments, as opposed to those of THESL or other City-owned entities that may have communications attachments on THESL's poles and do not pay the pole attachment rate.[61]

100. THESL was also asked to provide a list of the data inputs collected and to indicate which are "unique to communications attachments in total, and specifically wireline communications attachments and wireless communications attachments."[62]

101. THESL's response provided a list of all data inputs collected but failed to provide any details that identify those inputs that are unique to: (a) communications attachments; (b) wireline communications attachments; or (c) wireless

[58] Ibid.
[59] Ibid., part (e).
[60] Ibid., part (d).
[61] THESL responses to WR-Carriers-2 (a) and 3.
[62] WR-Carriers-14 (d).

communications attachments.[63] The list includes six items out of a total of 23 items that have the generic term "third party" in the label, equal to 26% of the items listed. The items labeled "third party" are reproduced here.[64]

- Third Party Attachments;
- Third Party Risers;
- Third Party Attachment Owner;
- Third Party Attachment Heights;
- Third Party Attachment Location on the Pole; and
- Third Party Non-Conformance.

102. THESL should have been able to use the data input indicating "Third Party Owner" and its list of companies with wireline communications attachments[65] to extract a count of data inputs that are related solely to third party wireline communications attachers. Instead, this critical information was not provided in THESL's interrogatory responses.

103. The 1.03 million data inputs that THESL associated with "third party attachments" therefore appear to include inputs that track non-communications attachments, as well as communications attachments that are owned by THESL or other City-owned entities and wireless attachments. None of the data inputs collected for these attachments should be included in calculating the allocation of total PIP costs which form part of the lost productivity costs recovered from wireline communications attachers.

104. For these reasons, I do not believe that THESL's allocation of 27.26% of the PIP costs to lost productivity costs to be recovered from wireline communications attachers is reasonable. In the absence of accurate information from THESL on

[63] THESL responses to WR-Carriers-14 (d) and 4 (f).
[64] THESL response to WR-Carriers-4 (f).
[65] THESL response to WR-Carriers-3 (a).

this issue but recognizing that some of the PIP costs are attributable to wireline communications attachments, I propose that the allocation be reduced to 20%.

105. The allocation of PIP costs to the pole attachment rate must also be adjusted to reflect the number of wireline communications attachers to a pole. As discussed in section D (iv) below, it is my view that the appropriate number of third party wireline communications attachers is 2.01.

106. Table **6** below sets outs the impact of these two revisions to the PIP (Third Party Portion) costs claimed by THESL. These calculations are based on the total PIP costs identified by THESL. As discussed above, it is not possible to verify the accuracy of these costs, based on the information filed by THESL. (I also understand, based on the evidence of Tim Brown, that attachment audit costs, which appear to be what is captured by the PIP are typically recovered separately from the pole attachment fee, following periodic audits by the pole owner.)

Table 6 – Adjustments to the Pole Inspection Program (PIP)

Third Party Portion

	THESL	Adjustment	Reasons
PIP – total costs ($000s)[66]	$460.5	$460.5[67]	
PIP - Third Party Portion allocation factor	27.26%	20%	Remove data inputs unrelated to wireline communications attachments
PIP – Third Party Portion costs	$125.5	$92.1	
Number of poles inspected	22,640	22,640	
Total PIP – Third Party Portion Cost per Pole	$5.55	$4.07	
Frequency of Inspections	5	5	
Annualized Total PIP – Third Party Portion Cost per Pole	$1.11	$0.81	
Average number of attachers per pole	1.61	**2.01**	See Section **D (iv)**
Annualized Total PIP – Third Party Portion Cost per Pole per Attacher	$0.69	$0.40	

(3) Summary of Adjustments to Administration Costs and Loss of Productivity Costs

107. Table **7** presents a summary of the adjustments I believe are required to the administration costs and loss of productivity costs included in the determination of the wireline communications pole attachment fee. As a result of the adjustments, I calculate total direct costs of $2.67 per pole per year. This amount is conservative, as no adjustment has been made for the shared services cost allocation by THESL to administration costs. Absent justification of an allocation of shared services costs to administration costs, I believe the direct costs should be reduced to $0.69.

[66] THESL responses to WR-Carriers-12 (a) and 14 (a), as the sum of the hydro and third party portion.

[67] I am unable to verify the total costs of the Pole Inspection Program for the reasons discussed in this section.

Table 7 – Summary of Adjustments to Direct Costs

	THESL	Adjustment
ADMINISTRATION COSTS		
Administration costs – per pole	$14.53[68]	
Administration costs – per pole per communications attacher		$2.27
LOSS OF PRODUCTIVITY		
Pole Replacement costs – cost per crew visit per pole per communications attacher	$5.02	N/A
Annualized Total PIP – Third Party Portion Cost per Pole per Attacher	$0.69	$0.40
TOTAL	$5.72	$0.40
TOTAL DIRECT COSTS		
Direct Costs – per pole per communications attacher	$20.25	$2.67

(ii) Indirect Costs incurred by THESL

108. Indirect Costs are derived from four key inputs: (a) net embedded costs, (b) depreciation expense; (c) pole maintenance expense; and (d) capital carrying cost. The sum of last three inputs represents the total indirect cost which is allocated among THESL and third party attachers. The first input is used to determine the capital carrying cost. This section discusses each of the four inputs. The allocation factor is discussed in Section **D iv**.

(a) Net Embedded Costs

109. Net embedded costs are equal to the total embedded costs less the accumulated depreciation expense for pole assets.

110. The embedded costs of pole and fixture assets are recorded in a specific account: “Poles, Towers & Fixtures”, Account 1830, as per the Board’s approved

[68] THESL proposed $18.77 in its evidence, which does not correspond to the inputs provided in its response to WR-Carriers-13 due to an apparent arithmetic error. This error has been corrected in the table.

Uniform System of Accounts. THESL stated that it calculated the net embedded costs per pole from the embedded costs and accumulated depreciation expense in Account 1830, offset by an amount from Account 1995 which tracks contributions and grants for all property, plant and equipment.[69]

Concerns with contributions and grants and street lighting adjustments to net embedded costs

111. THESL provided a brief, high-level description of how it arrived at the amount from Account 1995 attributed to the pole and fixture assets in Account 1830.[70] The information in OEB Appendix 2-BA, Fixed Asset Continuity Schedule provides total amounts for Account 1995 for all property, plant and equipment, as well as the total for all accounts for all property, plant and equipment. Comparing the total values in Account 1995 to the amounts applied against poles and fixtures asset values indicates that approximately 3% of the total net embedded cost of Account 1995 was allocated to pole and fixture assets in each of the years 2011 through 2014, rising to 3.6% forecast for 2015.[71] This is disproportionately low when compared to the fact that the net embedded value of Account 1830 represents 8% of the total net embedded value of all property, plant and equipment.[72]

112. THESL also adjusted the net embedded value of pole and fixture assets in Account 1830 to remove street lighting assets that it has proposed to transfer in to the Account in 2015.[73] The removal of these assets reduced the net embedded value of pole and fixture assets by $31.8 million. Two of the inputs to this calculation can be found in OEB Appendix 2-BA, Fixed Asset Continuity Schedule; specifically the adjustments to the opening balances of embedded

[69] THESL response to WR-Carriers-7.

[70] Ibid., part (b).

[71] THESL response to WR-Carriers-7, Appendix A, and THESL's Evidence, OEB Appendix 2-BA, Fixed Asset Continuity Schedule. The increased allocation of contributions and grants in 2015 may be attributed to the ICM in-service capital additions, as noted in the response to the interrogatory.

[72] The percentage of embedded costs allocated from Account 1995 to offset pole and fixture assets in Account 1830 is 3%, whereas Account 1830 represents 8% of all property, plant and equipment.

[73] THESL response WR-Carriers-8 (a) and (b).

costs and accumulated depreciation expense. However, it is not possible to verify the additional adjustments made by THESL to account for capital additions and additional depreciation expense for street lighting that were forecast for 2015 and the available evidence raises serious questions regarding the accuracy the adjustments for street lighting.

113. For example, the additional depreciation expense forecast for street lighting in 2015 was stated to be $1.1 million. This represents 12% of the additional depreciation expense for all pole and fixture assets in Account 1830. In contrast, the accumulated depreciation for street lighting represents less than 2% of all accumulated depreciation expense in Account 1830. The additional investment in street lighting of $0.3 million represents less than 1% of the additional investment in all pole and fixture assets forecast for 2015. The combined effect of the high additional depreciation and the low additional investment for street lighting assets produces a disproportionately low amount that is removed from Account 1830. This results in a potential overstatement of the net embedded cost for assets that are attributed to the calculation of the wireline communications pole attachment fee.

114. The reasonableness of the $31.8 million of net embedded cost for street lighting assets that THESL proposed to exclude from the poles and fixtures Account 1830 can also be evaluated based on the net embedded cost per pole. Dividing $31.8 million by the 39,430 street lighting poles equals $805.36 in net embedded cost per pole.[74] Based on this calculation, the net embedded cost of a street lighting pole is 42% of the $1,929.34 embedded cost per pole estimated for distribution poles.[75] While street lighting poles may have different characteristics than distribution poles, it does not seem plausible that the net embedded costs of the two types of poles would differ by such a large amount.[76]

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[74] THESL responses to WR-Carriers-1 (a) and 8 (b). In response to WR-Carriers-8 (a), THESL stated that the net embedded costs per pole for street lighting was $233.55, which is the product of dividing $31.8 million by the 135,986 poles that are not street lighting poles.

[75] THESL response to WR-Carriers-7 (c).

[76] THESL response to WR-Carriers-9 discussed the differences between street lighting and distribution poles. THESEL response to WR-Carriers-1 indicated that distribution poles are predominantly made of

Use of year-end rather than average values

115. There is another problem with THESL's calculations that is more readily quantifiable than the concerns noted above regarding adjustments for Account 1995 and street lighting poles. The values for embedded cost, accumulated depreciation expense and net embedded cost provided by THESL in its responses to the Carriers' interrogatories are based on the closing values as of year-end.[77] However, THESL calculates its rate base using the average of opening and closing balances. The rate base is a key input to establishing its revenue requirement and, ultimately, the rates that are approved by the Board. The same principle should be applied when determining the appropriate net embedded cost for pole assets that will be used for setting the wireline communications pole attachment rate.

116. The embedded and net embedded costs for the pole and fixture assets in Account 1830 is provided in Table **8** for each of the years 2011 to 2015, applying the average of opening and closing balances. The table also shows the adjustments THESL made for contributions and grants in Account 1995 that it attributed to pole assets and removal of street lighting embedded costs and accumulated depreciation.

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wood whereas street lighting are predominantly made of concrete. Concrete poles are more expensive. The same interrogatory response indicated that roughly the same percentage of wood and concrete poles are at end of life. This suggests the depreciation expense should be proportionate.

[77] THESL responses to WR-Carriers-6 and 7, Appendix A, compared to THESL's Evidence, OEB Appendix 2-BA, Fixed Asset Continuity Schedule.

Table 8 – Embedded and Net Embedded Costs Poles & Fixture Assets[78]

Average of Opening and Closing Balances

($000s)	2011 (USGAAP)	2012 (USGAAP)	2013 (USGAAP)	2014 (USGAAP)	2015 (MIFRS)
Embedded Cost Account 1830	$364,589.3	$385,856.1	$399,730.1	$410,598.2	$481,606.9
Less Contributions & Grants Account 1995	($8,189.2)	($9,743.7)	($11,183.3)	($11,282.7)	($12,424.9)
Less Street Lighting (including additions)					($36,278.1)
Total Embedded Cost for Poles & Fixtures	$356,400.2	$376,112.4	$388,546.8	$399,315.5	$432,904.0
Accumulated Depreciation Account 1830	($173,927.5)	($180,074.7)	($186,708.0)	($193,392.3)	($187,919.5)
Less Contributions & Grants Account 1995	$1,852.5	$2,047.6	$2,283.3	$2,539.7	$2,801.0
Less Street Lighting (including additions)					$4,108.1
Total Accumulated Depreciation for Poles & Fixtures	($172,075.0)	($178,027.1)	($184,424.7)	($190,852.6)	($181.010.4)
Net Embedded Cost for Poles & Fixtures	$184,325.1	$198,085.3	$204,122.1	$208,462.9	$251,893.6

[78] THESL Evidence, OEB Appendix 2-BA, Fixed Asset Continuity Schedule, updated 2015 Feb 6; THESL responses to WR-Carriers-6, 7 and 8. It is not possible to calculate the average of opening and closing balances for the amount of embedded cost and accumulated depreciation allocated from the Contributions & Grants Account 1995 because of the limited information provided by THESL in its responses to WR-Carriers-6 and 7.

ICM Adjustment

117. Table **8** includes the adjustment THESL applied to its 2015 estimate relating to assets transferred for the incremental capital module ("**ICM**"). The ICM Transfer increases the embedded cost for pole and fixture assets by 9%, while the accumulated depreciation expense increases by less than 0.5%. The combined effect is a 14% increase in the net embedded cost for pole and fixture assets in Account 1830. This equates to $312.68 per pole. The dollar value of the ICM adjustments has yet to be approved by the Board, and will not be approved until after the close of the proceeding to determine the wireline communications pole attachment fee. The final approval of the ICM adjustments should be reflected in the wireline communications pole attachment fee.

Impact of premature pole replacement

118. Table **8** indicates that the net embedded cost of pole and fixture assets increased each year between 2011 and 2015. However, the forecast for 2015 shows a remarkable 17% increase in the net embedded cost compared to 2014. It is all the more remarkable when one considers that THESL forecast the number of poles will remain unchanged from previous years.[79] This results in a substantially higher net embedded cost per pole for 2015 than prior years.

119. THESL stated that the reasons for the increase in the pole and fixture assets in Account 1830 were provided in its evidence at Exhibit 2A, Tab 1, Schedule 1, section 3.5.[80] That section of its evidence provides information for a broader class of assets ("Poles and Wires") which encompasses not only Account 1830 but also Account 1835 ("Overhead Conductors & Devices"), Account 1840 ("Underground Conduit") and Account 1845 ("Underground Conductors & Devices"). It does not specifically address the increases in Account 1830. Instead, it directs the reader to a list of four capital programs discussed in

[79] THESL responses to WR-Carriers-8 (c) and 13 (b).
[80] THESL response to WR-Carriers-7 (b).

THESL's evidence in Exhibit 2B, Sections E6.1, E6.4, E6.20 and E2.5. However, to the extent these sections discuss expenditures related to poles, it is in terms of pole replacements. This is confirmed by the response to WR-Carriers-11 (b) which lists pole replacements for two of the four capital programs listed in Sections E6.1 and E6.4 of THESL's evidence.

120. Nearly three-quarters of all pole replacements indicated in THESL's evidence are planned to occur as part of the "Overhead Circuit Renewal" capital program.[81] Under this program, 73% of the poles that will be replaced are not at end-of-life.[82] Based on these figures, at least 54% of the poles THESL plans to replace in 2015 will be replaced prematurely. The total number of poles to be replaced in 2015 represents almost 3% of the 135,986 distribution poles.

121. Replacing old poles that have not been fully depreciated drives up the net embedded cost per pole in two ways. First, the accumulated depreciation expense has not fully offset the installed cost of the old pole included in the embedded cost. Second, the installed cost of the new pole is higher than the old pole, which drives up the average embedded cost per pole.

122. THESL indicated that poles are replaced before they reach their end-of-life for a number of reasons, including replacing poles that are located in an area where the company is engaged in projects involving work on other assets.[83] Wireline communications attachers derive no material benefit when THESL replaces a pole prematurely as part of a project to upgrade other assets owned by THESL. Wireline communications attachers are however significantly penalized because this activity inflates the net embedded cost per pole.

123. THESL appears to have been replacing a significant number of its poles as part of previous capital programs. This is indicated by the magnitude of the dollars identified as ICM Transfer amounts for Account 1830, as noted above. Between

[81] THESL Evidence, Exhibit 2B, Section E6.4, and response to WR-Carriers-11 (b).
[82] THESL response to WR-Carriers-11 (e).
[83] THESL response to WR-Carriers-11 (e).

2012 and 2014, THESL replaced more than 4,200 poles, as part of its previous ICM programs.[84]

124. It is likely that a significant proportion of pole replacements in previous years were also done before end-of-life for the poles. This is also apparent from the downward trend in the average age of THESL's poles. The average age has declined from 32 years in 2011 to 29 years in 2014.[85]

125. I note also that THESL's net embedded pole costs are many times higher than the net embedded costs that have been tendered by other hydro utilities for inclusion in the pole attachment rate, and appear to bear no relationship to the costs incurred by telephone companies for poles.[86] While it may be that THESL faces some additional costs associated with constructing poles, I find it difficult to believe that any such additional costs can justify the discrepancy between the costs THESL claims and the costs claimed by other pole owners. In this regard, I note also that THESL's estimate of its net embedded costs of street lighting poles appears to be in line with expected net embedded pole costs.

126. Table 9 demonstrates the significantly lower amounts for net embedded costs approved for, or proposed by, other utilities that have regulated wireline pole attachment rates.

[84] THESL response re AMPCO Motion Settlement, EB-2014-0116, Filed January 21, 2014, pages 8 to 10.

[85] THESL response to WR-Carriers-10 (d).

[86] Even if the telco pole costs are grossed up in accordance with the joint use ownership shares, to reflect higher hydro pole costs, THESL's net embedded costs remain orders of magnitude higher than the net embedded costs that would be expected based on the costs by telephone companies.

Table 9
Net Embedded Costs of Poles in Regulatory Proceedings

Company	Net Embedded Cost per Pole	Regulatory Proceeding (Approved or Filed)
Ontario Licensed Electrical Distributors – 2003	$478	RP-2003-0249
Nova Scotia Power – 2002	$342	NSAURB-P-873 2002 NSAURB 1
New Brunswick Power - 2014	$889	NB EUB Matter No. 272
Bell Canada (2009)	$532	CRTC Telecom Decision 2010-900

127. THESL's estimate of net embedded costs per pole is also higher than information provided by the EDA in RP-2003-0249. In that proceeding, EDA stated that the net embedded cost per pole for THESL was $1,138 in 2003.[87] This equates to a current value of $1,443 after adjusting for 2% annual inflation, which is significantly less than the $1,929.34 THESL proposed in this proceeding.

128. For the reasons discussed above, I believe that the net embedded costs of the pole assets in Account 1830 are significantly overstated. At a minimum, THESL's responses to interrogatories indicated that capital expenditures on poles resulted in replacing poles – often prematurely - rather than an increase in the overall number of poles. As a result, each additional capital dollar spent has driven up the average net embedded cost per pole. The impact can be seen in the substantial increase in net embedded cost per pole forecast for 2015. Applying the inflated net embedded cost per pole to the calculation of the wireline communications pole attachment fee results in an unfair recovery of costs from wireline communications attachers.

129. In my view, the Board should take into consideration the inflationary impact of THESL's capital programs on the net embedded cost per pole and the huge discrepancy between the costs claimed by THESL and other pole owners when

[87] Electricity Distributors Association, Final Argument, Schedule A, in RP-2003-0249, November 29, 2004.

determining the wireline communications pole attachment fee. It is not possible to pinpoint a precise adjustment to THESL's net embedded costs that is appropriate without further evidence from THESL. Should no further evidence be submitted, I believe the Board should consider further significant reductions to the net embedded cost per pole for purposes of establishing the wireline pole attachment rate.

Removal of power-specific fixtures

130. The assets included in the asset Account 1830 include items that are not required to support wireline communications attachments, notably, the fixtures used to support overhead distribution conductors and service wires.

131. It is common practice to make an adjustment to remove the cost of hydro-specific fixtures from the asset Account 1830 to arrive at the net embedded cost of a bare pole. The EDA filed information in the proceeding leading to the Board's decision in RP-2003-0249 that proposed reducing the value of Account 1830 to 85% of that recorded in that account.

> "Based on analysis of a number of utility accounts, it is reasonable to deem the **cost or value of bare poles to be 85% of the cost or value of poles and fixtures** combined. This 85% figure is consistent with the APPA in the United States which has a similar FERC account and has determined that 85% of this account can be attributable to poles."[88] (emphasis in original)

132. THESL's responses to the Carriers' interrogatories indicate that it made no adjustment to remove the embedded costs or accumulated depreciation expense associated with the hydro-specific fixtures on its poles.[89] THESL was specifically

[88] Electricity Distributors Association, Evidence, Appendix 2, "Model Agreement", in RP-2003-0249, August, 2004, pages 6-7.

[89] THESL responses to WR-Carriers-6 (b) and 7 (c). The values given for Account 1830 correspond to those found in THESL's Evidence, OEB Appendix 2-BA, Fixed Asset Continuity Schedule.

asked to describe adjustments to remove power-specific costs such as fixtures, but its response made no reference to any such adjustments.

133. In the absence of further information from THESL on the costs of hydro-specific fixtures included in Account 1830, I propose that an 85% adjustment be applied to the net embedded cost estimated for 2015.

Conclusion on net embedded costs

134. Table **10** below addresses the two most readily quantifiable adjustments that I believe must be applied to the net embedded costs claimed by THESL, namely, the use of an average of opening and closing balances and the adjustment to remove the costs of power-specific fixtures.

Table 10 – Net Embedded Costs Bare Pole[90]

	THESL	**Adjustment**	**Reasons**
Total Embedded Cost for Poles & Fixtures	$443.8 million	$432.9 million	Average of opening and closing balances
Total Accumulated Depreciation for Poles & Fixtures	($181.5) million	($181.0) million	Average of opening and closing balances
Net Embedded Cost for Poles & Fixtures	$262.4 million	$251.9 million	Average of opening and closing balances
Net Embedded Cost for Bare Poles		$214.1 million	85% of net embedded cost for poles & fixtures
Poles	135,986	135,986**	
Net Embedded Cost – Per Pole	$1,929.34	$1,574.50	

***The total number of poles may be understated, for the reasons discussed in Section **D (iii)**.*

135. In addition to these adjustments, I believe that THESL's net embedded costs should be adjusted further to address the items listed below. It is not possible to quantify these adjustments based on the current record:

(1) the discrepancies in THESL's street lighting adjustments;

[90] Values for THESL from THESL response to WR-Carriers-7 (c); Values for Carriers' Adjustments from Table 8.

(2) the need for an adjustment in the offsetting amount from contributions and grants Account 1995;

(3) the premature replacement of poles which inflates the net embedded costs in Account 1830;

(4) any adjustment the Board makes to ICM transfer amounts; and

(5) the huge discrepancy between the net embedded costs claimed by THESL and the net embedded costs claimed by other pole owners. The equal sharing model presumes that the wireline third party attacher would incur similar costs if it were to construct its own poles. To my knowledge, no telephone company has claimed net embedded costs that are remotely close to those claimed by THESL.

(b) Depreciation Expense

136. THESL calculated the depreciation expense to be included as an indirect cost in the wireline pole communications attachment fee using account information and adjustments similar to those used for estimating the net embedded costs. First, it started with the total amount of depreciation expense that it forecast would be added to the pole and fixture assets in 2015, as recorded in Account 1830.[91] Second, it removed its estimate of the additional depreciation expense for street lighting poles included in Account 1830. Third, it netted out an amount associated with contributions and grants in Account 1995 that THESL determined would be associated with poles and fixtures in Account 1830. The net depreciation expense remaining was divided by THESL's total count of poles to arrive at $58.71 per pole.

Concerns with THESL street lighting and grants and contributions adjustments

137. The discussion in the previous section on THESL's estimate of net embedded costs raised several concerns regarding the adjustments for street lighting poles and contributions and grants from Account 1995. It was noted that the $1.1

[91] THESL response to 8-OEBStaff-100 (a), discussion of Item E, at pages 4 and 5.

million THESL estimated as the depreciation expense for street lighting poles in 2015 could not be corroborated by detailed accounting information provided by THESL and was relatively high compared to the amounts indicated for additional investment in street lighting poles and accumulated depreciation for those assets.

138. The adjustment to remove $255,846 for contributions and grants represents less than 3% of the total depreciation expense for 2015, which is disproportionately low compared to the proportion of total depreciation expense for all property, plant and equipment represented by either pole and fixture assets (more than 5%) or contributions and grants (6%).[92] The same disproportionately low adjustment for contributions and grants was noted in the case of net embedded costs.

139. The previous section also raised concerns that THESL's capital programs were causing a high number of pole replacements, of which more than one-half were premature pole replacements. This causes net embedded costs to be inflated. The same concerns apply in the case of depreciation expense. Replacing poles that are not at end-of-life with new poles drives up the depreciation expense because the amortization schedule is applied to newer, and typically more expensive, poles.

140. The impact can be seen in the rate of growth in the depreciation expense for the pole and fixture assets in Account 1830 during the period 2011 to 2015. The compound annual growth rate in depreciation expense for this Account is 9%, after removing the depreciation expense for street lighting poles for 2015.[93] This is well above the rate of inflation.

141. Absent additional information from THESL, is not possible to propose a precise adjustment to depreciation to address these concerns.

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[92] Ibid., and THESL's Evidence, OEB Appendix 2-BA, Fixed Asset Continuity Schedule.
[93] Ibid.

Inappropriate use of year-end forecast

142. I do not have access to sufficiently detailed financial information from THESL's submissions to propose specific revisions to the individual adjustments respecting street lighting poles or contributions and grants. However, there is a revision that could be employed to address the impact on depreciation expense for Account 1830 caused by capital programs requiring a high number of pole replacements.

143. THESL's approach to estimating depreciation expense relies on a single year's forecast of depreciation expense for the pole and fixture assets in Account 1830. However, the amount of depreciation expense can fluctuate from year to year depending on variations in capital programs. Under THESL's "Overhead Circuit Renewal" program, the number of poles that are forecast to be replaced in 2015 is 2,838, which is the highest number forecast for any single year over the 2015 to 2019 period.[94] This program has the highest volume of pole replacements among the capital programs identified by THESL, resulting in a relatively high proportion of the pole replacements occurring in 2015, relative to subsequent years.[95] Information provided for pole replacements in prior years under similar capital programs also indicate considerable variation in the number of pole replacements that occurred in any one year.[96]

144. The depreciation expense used as an input into the calculation of the wireline communications pole attachment fee should reflect the average depreciation expense for all poles in use. The depreciation expense recorded in a single year is not representative of the depreciation expense per pole that was incurred for each of the poles in the asset account. A more accurate estimate of the average depreciation expense per pole would require analysis of the depreciation expenses and pole count for all years for which poles were installed. Since that

[94] THESL's Evidence, Exhibit 2B, Section E6.4, Corrected 2015 Feb 6, page 13.

[95] THESL response to WR-Carriers-11 (b) and corresponding sections of THESL's Evidence, Exhibit 2B, tables showing the replacement of assets in subsequent years.

[96] THESL response re AMPCO Motion Settlement, EB-2014-0116, Filed January 21, 2014, pages 8 to 10.

information is not available, an alternative is to consider a shorter-term average of the depreciation expense recorded over the period 2011 to 2015. Relying on an average also moderates the impact of the rapid growth in depreciation expense that is forecast for 2015. The average depreciation expense for multiple years helps to establish a wireline communications pole attachment fee that more closely reflects the average depreciation expense per pole for all of the poles in use.

145. The average depreciation expense for the pole and fixture assets in Account 1830 for the period 2011 to 2015 is $7.0 million, after excluding the depreciation expenses associated with street lighting poles that was introduced in THESL's forecast for 2015.[97]

Removal of power-specific fixture costs

146. As I discussed in the previous section, THESL made no adjustment to the pole and fixture assets in Account 1830 to exclude the costs associated with power-specific fixtures. The same problem occurs with THESL's calculation of the depreciation expense. The adjustment is necessary to ensure the depreciation expense does not include the expense of amortizing the capital investment in power-specific fixtures.

147. Absent specific information on power-specific fixtures, net depreciation should be reduced by 15% to net out these costs. Applying this adjustment to the data provided by THESL reduces the depreciation expense from $58.71 to $49.90 per pole, using THESL's inputs for the depreciation expense as provided in response to interrogatories.[98]

[97] THESL's Evidence, OEB Appendix 2-BA, Fixed Asset Continuity Schedule; average of $5.8 million in 2011, $6.5 million in 2012, $6.9 million in 2013, $7.6 million in 2014, and $9.4 million less $1.1 million for street lighting poles in 2015.

[98] THESL response to 8-OEBStaff-100 (a), Item E, pages 4-5.

Conclusions on depreciation expense

148. Table **11** below shows the impact of adjusting THESL's depreciation expense to reflect its average expense for 2012-2015 and remove the costs associated with power-specific fixtures. As in the case of net embedded costs, I believe that further adjustments should be made to address the discrepancies in THESL's approach to street lighting and contributions and grants, but I do not have access to information that would permit me to quantify these adjustments.

Table 11 – Depreciation Expense[99]

	THESL	Adjustment	Reasons
Depreciation Expense for Poles & Fixtures (Account 1830) ($000s)	$9,383.3	$7,003.1	Average for 2011 to 2015, net of expense for streetlighting poles in 2015
Less: Streetlighting Depreciation Expense ($000s)	($1,142.7)		Adjustment included in five-year average
Less: Capital Contributions for Poles ($000s)	($255.9)	($235.8)	Average for 2012 to 2015[100]
Net Depreciation Expense for Poles & Fixtures ($000s)	$7,984.8	$6,767.4	
Net Depreciation Expense for Bare Poles ($000s)		$5,752.3	85% of net depreciation expense for poles & fixtures
Poles	135,986	135,986**	
Depreciation Expense – Per Pole	$58.71	$42.30	

***The total number of poles may be understated, for the reasons discussed in Section **D (iii)**.*

(c) Pole Maintenance Expense

[99] Values for THESL from THESL response to 8-OEBStaff-100 (a). Values for the depreciation expense for the years 2011 to 2014 are taken from THESL's Evidence, OEB Appendix 2-BA, Fixed Asset Continuity Schedule.

[100] THESL response to WR-Carriers-7, Appendix A; based on the difference in amounts shown for Account 1995 accumulated depreciation expense for each of the years 2011 to 2014. The amount indicated for each year is the closing value for that year and assumed to equal the opening value for the following year. No amounts for transfers were included for 2012 to 2014. The value for 2015 was obtained from THESL response to 8-OEBStaff-100.

149. THESL described the costs estimated for pole maintenance expense as the "costs of various activities undertaken by Toronto Hydro for purposes of maintaining the structural integrity of its distribution poles."[101] The costs for pole maintenance were initially stated to be $6.09 per pole, but were revised in THESL's response to an interrogatory to be $5.46 per pole.[102] THESL's explanation for the revision was simply that a "discrepancy" was identified in the amounts used in its calculations and the amounts budgeted for 2015 for one of its maintenance programs, which raises some concern about the reliability of the inputs used.

150. THESL has identified two components of its pole maintenance expense: (1) Wood Pole Inspection Program ("WPIP"); and (2) Pole Inspection Program ("PIP") – Hydro Portion. THESL estimates that these components account for $2.50 and $2.96 respectively of the pole maintenance expense per pole.[103]

Wood Pole Inspection Program ("WPIP")

151. According to THESL, WPIP consists of two activities – inspection of wood poles and treatment of wood poles. External contractors conduct both inspection and treatment activities, inspecting all poles over a ten year cycle and applying treatment where warranted.[104] Information provided by THESL in a prior proceeding before the Board indicates that the treatment of poles accounts for a much larger component of the costs.[105] The same document indicates that the treatment portion of the program began in 2007. Since this program operates on a ten-year cycle, the large majority of poles in use that required treatment should have been treated.

[101] THESL's Evidence, EB-2014-0116, Exhibit 8A, Tab 2, Schedule 1, Appendix B, page 4.
[102] Ibid., and THESL Response to WR-Carriers-12 (a).
[103] THESL Response to WR-Carriers-12 (a).
[104] Ibid., part (d).
[105] OEB Hearing Transcript, Volume 5, EB-2007-0680, December 10, 2007, page 173.

152. A pole that is treated is expected to "maintain their structural integrity for a longer period of time."[106] This should result in savings in pole replacement costs by reducing the number of poles that fail and require replacement.[107]

153. In addition, poles that are replaced with newer poles should be less likely to require treatment going forward. THESL's capital program has included a large number of pole replacements over the past three years.[108] This has contributed to a continuous decline in the average age of THESL's poles.[109] Additional pole replacements are planned in the 2015 to 2019 period, with a larger proportion planned for 2015.[110]

154. The pole replacements should lower the cost of the treatment component of the WPIP. In fact, THESL stated during a proceeding before the Board in 2007 that its capital program for pole replacements over a ten-year period was expected to result in a decrease in the WPIP costs beginning after 2010.[111]

155. The information on the costs of the WPIP filed in response to an interrogatory in this proceeding indicate that actual costs in 2011 were $149,000, considerably lower than the $224,000 estimated for 2010 at the time THESL filed its application in 2007.[112] It is not possible to ascertain if the costs actually incurred in 2010 were above or below the 2007 estimate of $224,000 because THESL

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[106] THESL's Evidence, EB-2014-0116, Exhibit 8A, Tab 2, Schedule 1, Appendix B, page 5.

[107] See also THESL's Evidence, EB-2007-0680, Exhibit C2, Tab 3, Schedule 3, page 4.

[108] THESL response re AMPCO Motion Settlement, EB-2014-0116, Filed January 21, 2014, pages 8 to 10.

[109] THESL response to WR-Carriers-10 (d).

[110] THESL response to WR-Carriers-11 (b) and corresponding sections of THESL's Evidence, Exhibit 2B, tables showing the replacement of assets in subsequent years.

[111] OEB Hearing Transcript, Volume 5, EB-2007-0680, December 10, 2007, page 174. Mr. Ivano Labricciosa stated in response to a question from Ms. Donna Campbell, Board Counsel, "Once we get into the capital replacement program, we can expect these costs to decline." When queried further as to when, Mr. Labricciosa stated that it would occur beyond the "three-year period", a reference to the test period 2008 to 2010.

[112] THESL response to WR-Carriers-12 (a); and THESL Evidence, EB-2007-0680, Exhibit C2, Tab 3, Schedule 3, page 7.

declined to provide information for 2010 as part of its responses to interrogatories filed in this proceeding.[113]

156. The costs of WPIP have trended upwards since 2013, both in terms of total costs and as a percentage of wood poles inspected. Table **12** provides the total costs of the WPIP, the number of poles inspected and the costs per pole inspected for the period 2011 to 2015, as well as the percentage increase for each of the years.

Table 12 – Wood Pole Inspection Program Trends in Costs and Inspected Poles[114]

	2011	2012	2013	2014	2015 estimate
WPIP Total Costs ($000s)	$149	$149	$166	$201	$263
Percentage change		0%	11%	21%	31%
WPIP Poles Inspected	6,504	9,734	8,426	11,140	10,500
Percentage change		50%	-13%	32%	-6%
WPIP Costs per Pole ($)	$22.83	$15.29	$19.70	$18.02	$25.00
Percentage change		-33%	29%	-8%	39%

157. This analysis raises two issues. First, THESL's estimates for 2015 contradict the ostensible benefit of the capital replacement program, namely to generate reductions in the costs of the WPIP. Second, the 2015 forecast of the WPIP cost for each pole inspected and, possibly treated, exceeds all prior years. THESL's estimate of WPIP costs for 2015 shows a significant 31% increase compared to 2014, even though the number of poles that it plans to inspect declines by 6%. One possible cause is that a larger percentage of poles inspected are expected to be treated. However, this is exactly the opposite of what would be expected

[113] THESL response to WR-Carriers-12 (a). THESL stated that "the year 2010 outside [sic] the scope of this proceeding, and declines to provide the requested information for this year."
[114] Ibid.

after multiple years of pursuing an intensive capital replacement program involving thousands of poles, and as suggested by THESL in testimony before the Board in 2007.

158. It is also apparent from the trends in the costs of the WPIP provided in Table **12** that the costs per pole inspected fluctuate from year to year, with the estimate for 2015 significantly exceeding the previous four years. This estimate appears to be inflated compared to that of previous years. It is also likely to be inflated relative to the longer term, taking into account the significant number of poles that THESL plans to replace during the 2015 to 2019 period, the decline in the average age of poles, and the reasonable expectation that newer poles do not require treatment as frequently as older poles.

159. It would be much more reasonable to use an average of the WPIP costs per pole as an input to determining the pole maintenance expense, rather than the inflated 2015 cost. A multi-year average provides a better indicator of the typical expenses that will be incurred, based on the recent experience and in consideration of ongoing pole replacements.

160. The average cost of the WPIP per inspected pole is $20.05 over the period 2011 to 2015. The annualized per pole cost is $2.00, based on the 10 year cycle of the WPIP. Table **13** summarizes this adjustment to the WPIP portion of the pole maintenance expense.

Table 13 – Wood Pole Inspection Program Costs[115]

	THESL	Adjustment	Reasons
Wood Pole Inspection & Treatment ($000s)	$263	$185.6	Average of costs 2011 to 2015
Wood Pole Inspection & Treatment – number of poles inspected	10,500	9,261	Average of number of poles 2011 to 2015
Total Wood Inspection & Treatment ($ Per Pole)	$25.00	$20.04	
Frequency of Inspections	10	10	
Annualized Total Wood Inspection & Treatment ($ Per Pole)	$2.50	$2.00	

Pole Inspection Program ("PIP") – Hydro Portion

161. THESL stated that it incurs additional expenses to conduct its Pole Inspection Program ("PIP"). THESL proposed to recover the Third Party Portion of the PIP cost as a direct cost, included in its estimate of the costs of loss of productivity, and the Hydro Portion as an indirect cost included in the pole maintenance expense.[116] The PIP was described as the program used by THESL to collect data "for the purposes of updating records, assessing the condition of overhead assets, and identifying deficiencies."[117]

162. THESL's costs for the PIP are discussed in Section **D (i) (b)** above in relation to loss of productivity costs. I raised concerns about the lack of information to corroborate THESL's estimate of the costs of the PIP. In addition, I questioned THESL's estimate of the apportionment of these costs between the Third Party Portion and the Hydro Portion. I believe that the 27.26% allocated to Third Party Portion is overstated and should be reduced to **20**%.

163. It follows from that analysis that the portion of the PIP costs to be allocated to the Hydro Portion should be revised upwards to 80%. These hydro portion data

[115] THESL response to WR-Carriers-12 (a).

[116] THESL, Evidence, Exhibit 8A, Tab 2, Schedule 1, Appendix B, pages 3 and 5.

[117] Ibid., page 5.

inputs include items that are only required for hydro-related fixtures (e.g., insulators, transformers, porcelain potheads). The costs associated with collecting these data inputs should not be included in the indirect costs. In the absence of any specific information on this issue from THESL and consistent with the approach taken to estimate to net embedded cost of a bare pole, it is reasonable to assume that the data inputs related to hydro-specific fixtures represent 15% of the PIP Hydro Portion data inputs. Table **14** identifies the necessary adjustments to this cost element.

Table 14 – Adjustments to the Pole Inspection Program (PIP)

Hydro Portion

	THESL	Adjustment	Reasons
PIP – total costs ($000s)[118]	$460.5	$460.5[119]	
PIP - Hydro Portion allocation factor	72.74%	**68%**	80% for all Hydro Portion, (see Section D (i) (b) (2) discussing the reduction in the allocation to the Third Party Portion) adjusted for inputs related to bare poles (see Section D (ii) (a))
PIP – Hydro Portion costs ($000s)	$335	$313.2	
Number of poles inspected	22,640	22,640	
Total PIP – Hydro Portion Cost per Pole	$14.82	$13.83	
Frequency of Inspections	5	5	
Annualized Total PIP – Hydro Portion Cost per Pole	$2.96	$2.77	

164. Table **15** summarizes the adjustments to both components of the pole maintenance expense – WPIP and PIP – Hydro Portion.

[118] THESL responses to WR-Carriers-12 (a) and 14 (a), as the sum of the hydro and third party portion.

[119] I am unable to verify the total costs of the Pole Inspection Program for the reasons discussed in section D (i) (b) (2).

Table 15 – Adjustments to the Pole Maintenance Expense

	THESL	Adjustment	Reasons
Annualized Total Wood Inspection & Treatment ($ Per Pole)	$2.50	$2.00	See Table 13
Annualized Total PIP – Hydro Portion Cost per Pole	$2.96	$2.77	See Table 14
Pole Maintenance Expense – per pole	$5.46	$4.77	

(d) Capital Carrying Cost

165. THESL estimated the capital carrying cost included in the indirect costs by applying the weighted average cost of capital ("WACC") to the net embedded cost per pole. Initially, THESL proposed to apply a WACC of 6.94%, as approved by the Board in 2011.[120]

166. THESL stated in response to an interrogatory that it has proposed to lower the WACC to 6.19%, and consistent with that proposal, revised its estimate of the capital carrying cost.[121] As a result of this revision, the estimated capital carrying cost per pole decreased from $133.90 to $119.43.

167. THESL's estimate of the capital carrying cost depends on both the WACC and the net embedded cost per pole. THESL estimated the net embedded cost per pole at $1,929.34, after adjustments to remove the costs of street lighting poles as well as netting out customer contributions. Section **D (ii) (a)** above provides detailed analysis of THESL's estimate for the net embedded cost per pole, including adjustments that I have proposed.

168. Table **16** provides a summary of the revisions to THESL's capital carrying cost based on its revised WACC and a net embedded cost of $1,574.50. The calculations continue to over-state THESL's capital carrying costs, as further

[120] THESL's Evidence, Exhibit 8A, Tab 2, Schedule 1, Appendix B, page 5.
[121] THESL response to WR-Carriers-16.

reductions to THESL's net embedded cost are required but cannot be quantified based on the current record.

Table 16 – Adjustments to the Capital Carrying Cost

	THESL	Adjustment	Reasons
Net Embedded Cost per Pole	$1929.34	$1,574.50	See Table **10**
New WACC Rate	6.19%	6.19%	
Capital Carrying Cost	$119.43	$97.46	

(e) Total Indirect Costs

169. Table **17** summarizes each of the adjustments to the inputs to the calculation of indirect costs per pole that I have been able to quantify based on the evidence submitted by THESL. As discussed above, I believe that further reductions are required to the depreciation expense and capital carrying cost. Accordingly, the amounts shown below represent caps on each of the indirect cost data elements.

Table 17 – Summary of Adjustments to Indirect Costs

	THESL	Adjustment	Reasons
Net Embedded Cost	$1,929.34	$1,574.50	Table 10
Depreciation Expense	$58.71	$42.30	Table 11
Pole Maintenance Expense	$5.46	$4.77	Tables 13 and 14
Capital Carrying Cost	$119.43	$97.46	Table 16
Total Indirect Cost	$183.60	$144.53	

(iii) Pole Counts

170. THESL stated that it has 175,416 poles in total, according to information recorded by its Pole Inspection Program.[122] The Pole Inspection Program was initiated in 2011 and, as of March 2014, had captured information for 80% of all

[122] THESL responses to WR-Carriers-1 (a), 2 (a).

poles.[123] The 175,416 poles include 135,986 poles that are available for wireline communications attachments, while the remaining 39,430 poles are street lighting poles that are unavailable for wireline communications attachments.[124]

171. The Pole Inspection Program inspects poles on a five-year cycle.[125] As a result, information with respect to many poles can be outdated by up to five years. This affects the reliability of data on the total number of poles, as well as the number of attachers on poles and types of attachers or attachments.

172. The potential for variation in data on pole counts is further demonstrated by the range of values given for the total number of poles in THESL's responses to the interrogatories posed by the Carriers. The total number of poles estimated for 2015 was reported alternately as 135,411[126], 134,871[127], and 135,986.[128]

173. In some responses to interrogatories, THESL indicated that 135,986 poles was the appropriate total for each of the years 2012 through 2014, even though other values were provided for those years in a separate interrogatory response.[129] Moreover, the "steady-state" pole count is not supported by information available from other sources.

174. All of these counts are also lower than the number of poles indicated in a recent public presentation. THESL stated in May 2014 that it had 140,600 utility poles.[130] This is 4,614 more poles than the count of poles for 2014 provided in the current proceeding. It is not evident why this count should be so much higher than the numbers presented by THESL in its submissions in this proceeding.

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[123] THESL response to WR-Carriers-4 (a).

[124] THESL response to WR-Carriers-1; THESL February 27, 2015 letter, "Wireline Pole Attachments Update".

[125] THESL response to WR-Carriers-12.

[126] THESL response to WR-Carriers-3 (c).

[127] THESL response to WR-Carriers-5 (c).

[128] THESL response to WR-Carriers-1.

[129] THESL responses to WR-Carriers-8 and 13 reported the same value for all years, while THESL response to WR-Carriers-3 reported different totals.

[130] Anthony Haines, CEO, THESL, presentation at CAMPUT, May 5, 2014, slide 22.

175. In the absence of information to reconcile these numbers, for purposes of my calculations, I have used a pole count of 135,986. For the reasons discussed above, this number may be under-stated, resulting in an over-statement of per pole costs.

176. In addition to the variation in the number of total poles, THESL provided responses to interrogatories that indicate very different numbers for poles with communications attachers. The different counts are shown in Table **18**.

Table 18 – Poles with Communications Attachers
Estimates for 2015 (except where indicated)

	Number of Poles
Poles with attachments, all types (March 2014)	46,405[131]
Poles with wireline communications attachers - THESL and 3rd parties	47,279[132]
Poles with communications attachers – THESL and 3rd parties	55,734[133]
Poles with billable wireline communications attachers	58,050[134]
Poles with communications attachers – THESL and 3rd parties	86,694[135]

177. Some of the variation in pole numbers in Table **18** may be due to differences in the types of attachers (e.g., THESL, third party, wireline, wireless), and the types

[131] THESL response to WR-Carriers-4 (a), as of March 2014; input used to derive average number of third party attachers per pole.

[132] THESL response to WR-Carriers-5 (c), poles by height.

[133] THESL responses to WR-Carriers-4 (g), based on information filed in response to WR-Carriers-3 (c). The number of poles indicated corresponds to the number of poles with one communications attachment in the table filed in 3 (c).

[134] THESL response to WR-Carriers-18 (c), based on poles with billable wireline attachments at the proposed rate of $80.38, assuming 1.61 attachers per pole.

[135] THESL response to WR-Carriers-3 (c); includes poles with wireline and wireless communications attachments, both third party and THESL (or its affiliates). THESL did not provide a response to WR-Carriers-3 (d) that requested poles with wireless communications attachments.

of attachments (e.g, communications, other). However, it is difficult to conceive of any explanation for how the number of poles with just billable wireline communications attachers could exceed the number of poles with a broader range of attachers.

(iv) Number of Attachers

178. As discussed in section C (iii) above, the number of attachers on a pole is a key input to determining the appropriate allocation of indirect costs to the wireline pole attachment rate. The number of attachers in the communications space is the relevant input when using the proportionate allocation method.[136] The total number of attachers on the pole, including THESL and third parties, should be used if the equal allocation method is adopted, as proposed by THESL.

179. THESL has estimated that the poles used by wireline communications attachers have an average of 1.61 third party attachers per pole and accordingly, that the total number of attachers including THESL is 2.61.

180. THESL provided the data inputs for its estimate of 1.61 third party attachers in its response to WR-Carriers-4 ("Carriers-4"). It stated that there are 74,638 third party attachments on 46,405 poles, and that this is based on counting all third party attachments to poles – wireline and wireless communications, as well as other third party attachments. Dividing 74,638 by 46,405 produces the 1.61 estimate of third party attachers per pole.

181. THESL based this calculation on data gathered through its the Pole Inspection Program. As noted previously, the PIP was initiated in 2011 and inspects all poles over the course of a five-year cycle. The PIP had collected information on approximately 80% of poles by March 2014. Accordingly, THESL's approach assumes that there was no growth in the number of attachments in poles surveyed in the years prior to 2014 and that the 80% of poles surveyed is a reasonable proxy for the 20% of poles that were not considered by the survey.

[136] See the discussion of allocation methodologies in C (iii) above, as well as the evidence of Dr. Ware and of Tim Brown.

182. Given the 5-year survey cycle employed by the PIP, it is possible that the PIP results could be out of date by as much as five years. This is also a period during which THESL has actively been seeking increased third party attachment use of its poles, and sees this as a revenue growth area.

183. THESL's estimate of 1.61 third party attachers per pole and the data inputs provided in Carriers-4 are also inconsistent with data on the number of attachments, poles with attachments and attachments per pole provided in the responses to the Carriers' other interrogatories. For example, THESL provided the number of pole attachments associated with third party wireline communications attachments in response to WR-Carriers-18 ("Carriers-18"). THESL stated that there were 87,799 third party wireline communications attachments in 2014, and estimated this would increase to 93,461 in 2015. These numbers were calculated by dividing wireline attachment revenues by the current wireline attachment rate. THESL then divided this number by its estimated number of third party attachers of 1.61 to conclude that it has 58,050 poles with wireline communications attachments.

184. Significantly, this estimate of 58,050 poles that have third party wireline communications attachments is much more than the 46,405 poles that THESL stated have third party attachments of all types provided in in Carriers-4. It is also more than the 47,279 poles that THESL stated have both wireline and wireless communications attachments owned by both third parties and THESL provided in response to WR-Carriers-5 ("Carriers-5"). Clearly, two or more of these estimates of poles with attachments must be wrong.

185. THESL's estimate of 58,050 poles with wireline attachment relies on the following mathematical relationship:

$$\text{Attachers per pole} = \frac{\text{Total number of attachments}}{\text{Poles with attachments}}$$

186. Unfortunately, however, THESL has misapplied the formula, by combining information on the total number of billable wireline attachments, with an estimate of the number of all types of third party attachers, not just wireline attachers.

187. THESL's estimate of 1.61 third party attachers per pole cannot represent the number of wireline third party attachers per pole without contradicting other information provided in THESL's interrogatoy responses.[137] Moreover, reconciling the differences in THESL's figures requires either a higher number of poles with third party wireline communications attachments or a higher number of wireline communications attachers per pole.

188. Increasing the number of poles with third party wireline communications attachments to greater than 58,050 is problematic. The number of poles with wireline communications attachments cannot be greater than the number of poles with all types of attachments, which was given as 46,405 in Carriers-4.

189. In my view, therefore, THESL appears to have understated the number of poles with wireline and other third party attachers - due to its use of dated information and the inconsistencies in the results it has obtained from these sources. However, analysis of the information from THESL's responses to the Carriers' interrogatories provides the basis for determining the number of wireline communications attachers per pole, and from there, the number of all types of attachers per pole.

190. The response to Carriers-18 provides the number of third party attachments that are wireline communications attachments, estimated at 93,461 for 2015. The number of poles with any type of third party attachment was stated to be 46,405, which represents the maximum number of poles that could have third party wireline communications attachments, although there may be fewer poles with such attachments. Dividing 93,461 third party wireline communications attachments by 46,405 poles with third party attachments results in 2.01 third party wireline communications attachers per pole. However, the number of

[137] See the responses to WR-Carriers-4 and 5.

wireline communications attachers per pole may be higher, particularly if the attachments owned by THESL or its affiliates are considered in the analysis.

191. Since the minimum number of third party wireline communications attachers per pole is 2.01, the number of all types of third party attachers per pole must be greater than 2.01.

192. An estimate of the total number of all types of third party attachments must be more than 93,461. The above analysis indicates that there are at least 2.01 third party wireline communications attachers on average across the 46,405 poles with third party attachments. THESL provided a list of 11 types of third party attachments including wireless and wireline communications attachments. It is common for poles to have multiple types of attachments, which contributes to a higher average number of attachers per pole. Based on these considerations, it is estimated that at least one-half of the 46,405 poles with third party wireline attachments have at least one third party attachment that is non-wireline. This would result in an estimate of 23, 202 third party non-wireline communications attachments (one half of 46,405).

193. Based on this very conservative approach, the total number of third party attachments is estimated to be 116,663. This represents 2.51 third party attachers per pole, based on 46,405 poles with third party attachments. Adding in THESL as an attacher with power attachments brings the total number of attachers per pole to 3.51.

194. Table **19** provides a summary of the adjustments to THESL's attachers per pole.

Table 19 – Summary of Adjustments to Attachers per Pole

	THESL	Adjustment	Reasons
Number of third party wireline communications attachments	93,461	93,461	
Number of poles with third party wireline communications attachments	58,505	46,405	Poles with third party wireline communications attachments set equal to poles with all types of third party attachments
Third party wireline communications attachers per pole	1.61	2.01	
Number of third party attachments (all types)	74,638	116,664	Third party wireline communications attachments plus 50% of poles with third party attachments
Number of poles with third party attachments (all types)	46,405	46,405	
Third party attachers per pole	1.61	2.51	
Attachers per pole including THESL	2.61	3.51	Third party attachers per pole plus one

195. In my view, these adjustments are very conservative, and it would be more appropriate to use 2.5 wireline communications attachers per pole, as the Board did in RP-2003-0249, as well as 0.5 other third party attachers to the poles, in light of the increasing use of poles by both wireless attachers, and other types of attachments placed by THESL and related parties and other third parties, all of whom should bear a fair share of the indirect costs of a pole. Specifically, 2.51 third party attachers per pole is very conservative as:

(1) THESL provided information that indicates it places communications attachments on poles, and that such attachments may be located in the space on the pole for power, separation, communications and clearance. These attachments should be counted separately from THESL's power-specific attachments and contribute to the recovery of indirect costs. This is consistent

with submissions in the proceeding leading to RP-2003-0249 that all users of the communications space should pay the same charge. Thus the number of communications attachers should include THESL's own communications attachments for purposes of allocating the indirect costs and determining the communications pole attachment fee;

(2) The Board also concluded in RP-2003-0249 that it would be reasonable at that time to establish the number of communications attachers at 2.5 per pole, and that this number could increase in the future. The Board's determination was informed by several considerations, including: "as many as seven different parties [are] seeking attachment" to poles; "an increasing number of telecommunications providers are entering the market;" and more electricity distributors were competing in that market. THESL's evidence in this proceeding is that more than 10 different parties have communications attachments on its poles, including its own communications attachments;

(3) THESL has indicated publicly that it is pursuing a strategy of increasing the number of attachers to its poles. This strategy will drive an increase in the number of third party attachments on THESL's poles. The pole space allocation factor should take into consideration the likelihood that the number of attachers per pole will increase, as was the case in RP-2003-0249. Relatedly, THESL's reliance on dated estimates of the number of pole attachments seriously understates the number of attachers.

(v) Allocation of Indirect Costs to Wireline Communications Attachment Rate

196. THESL proposed an allocation of 30.4% of indirect costs to each wireline attacher and a total of 49% to all wireline attachers, based on 1.61 wireline attachers, 1 hydro attacher and application of the equal allocation approach as adopted in RP-2003-0249. THESL described its allocation of the pole space as "proportional use". However, the Board described it as the "equal sharing methodology" in RP-2003-0249.

197. In my view, an appropriate application factor in this case is the proportional allocation methodology, as described in section C (iii) above and the evidence of Dr. Ware. This methodology also recognizes the extent to which a broad range of third party attachments are found on THESL's poles, as well as THESL's strategy of pursuing increased utilization of the space available on poles, including the clearance and separation space.

198. The proportional methodology and 2.01 third party wireline communications attachers per pole results in an allocation of 31.3% of indirect costs to wireline communications attachers in total, and of 15.6% of these costs to each such attacher. This is a very significant cost allocation, given the numerous other non-wireline third party attachers to the poles and the hydro, communications and other attachments placed by THESL and its related entities on poles.

199. However, should the Board determine that the equal sharing methodology is more appropriate, the total allocation to third party wireline communications attachers is 52.4% and to each such attacher is 20.8% when, as I have proposed, the separation space is considered to be common space. If this adjustment is not made, the total allocation to third party wireline communications attachers is 54.7% and to each such attacher is 21.8%. As indicated at the outset, these allocations to communications attachers are well in excess of any of the negotiated ownership shares of telephone companies for joint use poles with hydro companies.

200. Table 20 provides the results of applying the three methodologies: the proportional allocation, the RP-2003-0249 equal sharing allocation and the equal sharing allocation. The Table also provides the amount of indirect costs to be recovered from the wireline communications pole attachment fee under each of the allocation factors, based on the indirect costs provided in Table **20**.

Table 20 – Allocation of Indirect Costs

	Proportional Allocation	RP-2003-0249 Equal Sharing	Equal Sharing
(A) Buried	0.93	1.71	1.71
(B) Clearance	2.68	4.91	4.91
(C) Communications	1.00	0.80	0.80
(D) Separation	1.61	1.29	0.93
(E) Power	0	0	0
(F) Total	6.22	8.70	8.37
Attachers per pole	2.01 communications attachers	3.51 total attachers	3.51 total attachers
Allocation Factor	15.6%	21.8%	20.8%
Total Indirect Costs per pole	$144.53	$144.53	$144.53
Allocated Indirect Costs per pole per attacher	$22.49	$31.45	$30.12

E. CONCLUSIONS REGARDING THESL'S WIRELINE POLE ATTACHMENT RATE

201. In my view, based on the evidence filed by THESL to date, THESL's wireline pole attachment rate should not exceed $25.17. The costing inputs and adjustments I have made are summarized in Appendix B. Appendices E and F provide the rate calculations using an RP-2003-0249 equal allocation approach and an equal allocation approach that includes the separation space as common space, respectively.

202. As discussed above, there are numerous adjustments to the cost inputs that I have not been able to make based on the record to date. These adjustments include potentially very significant reductions in the direct costs (through a reduced allocation of shared services costs to administration costs) and indirect costs (through reductions in the net embedded costs, depreciation expenses and capital carrying charges). The calculated rate is also based on what appears to be a very conservative estimate of the number of wireline and other third party attachers. Even a modest increase in these inputs would have result in a significant downward adjustment in the rate. Accordingly, the $25.17 rate is in my view a maximum rate, based on the available evidence.

APPENDIX A

CURRICULUM VITAE OF SUZANNE BLACKWELL

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blackwell@giganomics.ca

WORK EXPERIENCE

- Expertise in telecommunications, broadband and broadcasting distribution policy and regulations.
- Proven leadership in the areas of strategic planning and research.
- Over 20 years experience in the communications industry in Canada.
- Experience in the public sector with the CRTC and in the private sector for several leading communications firms.
- Masters degree in economics.

GIGANOMICS CONSULTING INC.

President
March 2006 to present

Giganomics Consulting Inc. is a corporation I operate for the provision of consulting services to various clients in telecommunications, broadband and broadcasting distribution industries. I provide strategic advice on policy and regulatory issues in the Canadian communications industry. I conduct comprehensive quantitative and qualitative research and analyses of competitive market trends and developments. I prepare submissions and expert reports on regulatory economics and policy issues in the telecommunications and broadcasting industry, and provide expert testimony for proceedings before the Canadian Radio-television and Telecommunications Commission (CRTC), other regulatory authorities and judicial panels. A list of some of my expert reports is provided at the end my C.V.

CANADIAN CABLE TELECOMMUNICATIONS ASSOCIATION

Vice-President, Telecommunications and Economics
November 1999 to February 2006

The Canadian Cable Telecommunications Association (CCTA) represented the cable television distribution industry in Canada with respect to regulatory and government-related issues. My role at the CCTA encompassed a broad range of responsibilities, most recently as the head of telecommunications regulatory and policy matters. I established industry positions on key policy regulatory matters that support the entry of cable companies in the voice telephony market. I provided leadership and built consensus among CCTA member companies on a number of significant regulatory and policy issues, including the forbearance of incumbents' local voice services and regulation of voice over internet protocol (VoIP) services.

I was a key contributor to strategic planning respecting critical regulatory and policy matters for the Association. I prepared competitive and economic analysis of issues for the CCTA members and the Board, including written and oral presentations. I conducted economic research on the competitive market conditions and financial trends of cable companies and their competitors in telecommunications and broadcasting services.

My role included providing economic analysis on matters such as carriage obligations of cable operators, access to cable facilities by competitors, access to support structures, rates for programming services, and copyright. I represented the CCTA at cross-industry forums and appeared as an expert witness at public hearings on both telecommunications and broadcasting matters. I developed expertise in the cable industry's advanced service offerings such as broadband internet, VoIP, high definition television, and video over internet protocol (IPTV). I was also responsible for managing the research budget and economic consulting work conducted on behalf of the CCTA.

Independent Consultant in Telecommunications Regulation

October 1998 to October 1999

I prepared several submissions for proceedings before the CRTC for a number of clients from the competitive entrant sector of the telecommunications industry. Policy documents and analysis were also prepared for Industry Canada, the CRTC and the Public Interest Advocacy Centre. These documents addressed a number of issues, including: the provision of affordable local telephone service in high-cost service areas; the level of contribution rates and subsidy support to local services; extended area service and the impact on competition in the local and long distance markets; recovery of costs of local competition; and new media and the scope for regulation under existing legislation.

As a consultant, I also advised clients on key issues and assisted them to develop appropriate and effective arguments to support their positions; conducted research and

analysis of positions of other stakeholders, and prepared comments and related submissions to further the clients' positions.

AT&T CANADA LONG DISTANCE SERVICES COMPANY

Senior Manager, Regulatory Policy
February 1996 to September 1998

As a senior member of the Regulatory Matters division, I provided leadership on the development of the company's position on regulatory and policy issues. This work involved the formulation of new approaches to key regulatory issues such as the impact of local competition on cross-subsidization of telecom services and contribution, forbearance and effective competitive safeguards, and the implementation of local competition and price cap regulation.

I prepared formal written submissions presenting the company's views on regulatory issues raised at CRTC proceedings. This work involved extensive qualitative and quantitative analysis of the positions of other parties and factors that affected the company and its competitors. I represented the company as an expert witness at public hearings before the CRTC, testifying on issues such as price cap regulation, affordable local service pricing and appropriate regulations for telecom carriers entering broadcasting markets.

CANADIAN RADIO-TELEVISION AND TELECOMMUNICATIONS COMMISSION (CRTC)

Chief, Regulatory Policy
July 1990 to February 1996

I provided analysis and recommendations on several policy issues associated with implementing a new regulatory framework for the incumbent telephone companies, including an assessment of broadband investment, cost allocation, rate rebalancing, price caps and contribution. Prior to this, I was extensively involved in the analysis and development of recommendations leading to the opening of the public switched long distance market to competition and I remained active in analysis and recommendations overseeing the implementation of competitive access.

In addition to my involvement in competition issues, I provided recommendations on social policy issues with respect to new service offerings, rate proceedings and other regulatory filings. I worked on topics including consumer safeguards,

telecommunications privacy, terms of service, extended area service, and access to service for the handicapped.

My duties included the analysis of a broad range of issues associated with telecom regulation in an increasingly competitive marketplace. I worked directly with executive management on several matters as well as in multi-disciplinary teams. I was also responsible for supervising four analysts. I prepared and presented numerous recommendations to the Chairman and Commissioners of the CRTC. I gained comprehensive knowledge regarding all aspects of regulatory proceedings and procedures in the Canadian telecommunications market.

Project Officer and Development Officer
January 1988 to July 1990

I was responsible for providing key analytical results in the proceeding leading up to the 1990 decision to liberalize resale and sharing in the telecommunications market. I constructed a market analysis model used by senior management in their decision-making. I participated on a related file concerning the resale and sharing of international telecommunications services. I was also involved in the econometric analysis of the price elasticity of demand. I prepared interrogatories to telephone companies and issue papers for rate cases.

CANADA EAST-WEST CENTRE LTD.

Consultant
September 1985 to December 1987

As a consultant, I conducted independent research on a broad range of topics, assimilated findings, performed quantitative analysis, and wrote reports for clients. I was responsible for the preparation and delivery of a project for Employment and Immigration Canada, including client relations and budget control. I also provided input on various aspects of the consulting firm activities, including responses to requests for proposals. Reports that I worked on addressed issues such as: native rights; Canada – U.S. free trade negotiations; and an evaluation of the national employment service for the department of Employment and Immigration Canada.

EDUCATION BACKGROUND

Masters in Economics – Dalhousie University, Halifax Nova Scotia – 1985

Bachelor of Arts (Honours) – University of King’s College – 1984
(Economics with math minor)

Appendix B

Maximum Wireline Pole Attachment Rate

Price Component - Per Pole	***$***	***Explanation for Adjustments Made***	***Adjustments that should be made pending further evidence***
DIRECT COST			
A. Administration Costs	$2.27	Estimate adjusted arithmetic errors and allocated to all poles administered and 2.5 overhead attachers, net of revenues from wireline attachment permit fees	Shared services costs included as 79% mark-up to administration costs to be adjusted
B. Loss in Productivity	$0.40	Estimate adjusted to exclude pole replacement costs; and reduced allocation of pole inspection program ("PIP") costs to third parties, allocated across 2.01 wireline attachers	Allocation of PIP to third parties based on percentage of data inputs specific to wireline attachers to be adjusted (i.e., revise 20% factor)
C. Total Direct Costs	$2.67	A + B	
INDIRECT COSTS			
D. Net Embedded Cost per pole	$1,574.50	Estimate adjusted using average of opening and closing balances, and excluding power-specific fixture costs	Street lighting, contributions and grants, premature pole replacement, ICM transfer, benchmarking to other utilities; number of poles to be adjusted
E. Depreciation Expense	$42.30	Estimate adjusted using 5-year average of annual depreciation expense, and excluding power-specific fixture costs	Street lighting and contributions and grants; number of poles to be adjusted (similar to D)
F. Pole Maintenance Expense	$4.77	Estimate adjusted using 5-year average of wood pole inspection program costs and poles; PIP allocation (see B), further adjusted to exclude power-specific fixtures inputs	Allocation of PIP to hydro (see B)
G. Capital Carrying Cost	$97.46	D * weighted average cost of capital of 6.19%	As per adjustments to net embedded cost (see D)
H. Total Indirect Costs per pole	$144.53	E + F + G	
I. Allocation Factor	15.6%	Proportional use allocation formula with 2.01 third party wireline attachers	Number of wireline attachers on poles with wireline attachments to be adjusted
Indirect Costs Allocated	$22.49	H * I	
Annual Pole Rental Charge	$25.17	C + J	

APPENDIX C

COST INPUT		REQUIRED INFORMATION
Direct Costs		
	Administration	• Identification of expenses for Asset Attachment and Lease Department in total, for the 2011-2015 period • Data to remove permit and other administration costs recovered through permit and other separate fees • Data to eliminate administration costs attributable to third party and related party overhead attachments other than wireline third party attachments, including the number of permits for overhead attachments, separate for distribution and street lighting poles, and further disaggregated by wireline and non-wireline; and the number of wireline permits issued for attachments subject to the pole attachment rate, with all data provided for the 2011-2015 period • Data to verify what, if any, allocation of shared services costs to wireline third party attachments is appropriate, including data on the total expenses for each component of the shared services costs (finance, legal, human resources) • Explanation of discrepancy between THESL administration costs and the administration costs of other pole owners
	Productivity Loss	• Identification of specific account level expenses that cover the pole inspection program (PIP) to verify these costs for the 2011-2015 period • Identification of PIP data inputs that relate to third party wireline communications attachments (exclusive of other third party attachments), both in terms of the nature of the data inputs recorded and the total number of data inputs
Indirect Costs		
	Net Embedded Costs of a Bare Pole	• Explanation why THESL's adjustments for contributions and grants are disproportionate to account total • Explanation why THESL's adjustments for the removal of street lighting assets are disproportionate to account total • Quantification of the impact of premature pole replacement by THESL

COST INPUT		REQUIRED INFORMATION
Direct Costs		
		• Quantification of the costs of power-specific fixtures • Explanation of discrepancy between THESL net embedded costs and the net embedded costs of other pole owners
	Depreciation	• Explanation why THESL's adjustments for contributions and grants are disproportionate to account total • Explanation why THESL's adjustments for the removal of street lighting assets are disproportionate to account total • Quantification of the depreciation costs of power-specific fixtures • Data on annual depreciation expense for poles recorded over life of poles
	Maintenance	• Identification of specific account level expenses that cover the pole inspection program (PIP) • Explanation of disconnect between trends in PIP costs and ostensible benefit of pole replacement program • Apportionment of PIP - Hydro Portion costs that relate to power-specific fixtures
	Capital Carrying Costs	• See required information listed for net embedded costs.
Pole Counts		• Explanation of variations in reported count of total poles which currently range from 135,411-135,986 (on the record) and up to 140,600 as of May 2014 in other documentation • Explanation of variations in reports of the count of poles with wireline communications and other third party attachers
Attachers		
	Wireline	• Explanation of the methodology used to account for growth in wireline attachments since the attachment information was collected • Explanation of the methodology applied to estimate wireline attachments for poles that have not been surveyed • Identification of number of third party wireline attachers separate from other third party attachments collected through pole inspections, and explanation of discrepancies with attachments based on billing records • Identification of poles with third party wireline attachers, based on pole inspections, and

COST INPUT		REQUIRED INFORMATION
Direct Costs		
		explanation of discrepancies with attachments based on billing records
	Other Third Party	• Explanation of the methodology used to address growth in other third party attachments since the attachment information was collected • Explanation of the methodology applied to estimate other third party attachments for poles that have not been surveyed • Identification of the number of third party non-wireline attachers, further disaggregated by those that pay for pole rental space, and explanation of discrepancies with attachments based on billing records
	THESL and Related Party (non hydro)	• Explanation of how THESL and related party non-hydro wireline and other non-hydro attachments have been captured

Appendix D

[Separate File]

Appendix E

Equal Sharing[138] and 2.51 Third Party Attachers

Price Component - Per Pole	***$***	***Explanation***
DIRECT COST		
A. Administration Costs	$2.27	See Table B1
B. Loss in Productivity	$0.40	See Table B1
C. Total Direct Costs	$2.67	A + B
INDIRECT COSTS		
D. Net Embedded Cost per pole	$1,574.50	See Table B1
E. Depreciation Expense	$42.30	See Table B1
F. Pole Maintenance Expense	$4.77	See Table B1
G. Capital Carrying Cost	$97.46	D * weighted average cost of capital of 6.19%
H. Total Indirect Costs per pole	$144.53	E + F + G
I. Allocation Factor	20.8%	Equal sharing allocation formula (separation space allocated to all attachers); 2.51 third party attachers
Indirect Costs Allocated	$30.12	H * I
Annual Pole Rental Charge	$32.80	C + J

[138] Separation space included as common space.

Appendix F

Equal Sharing (RP-2003-0249) and 2.51 Third Party Attachers

Price Component - Per Pole	***$***	***Explanation***
DIRECT COST		
A. Administration Costs	$2.27	See Table B1
B. Loss in Productivity	$0.40	See Table B1
C. Total Direct Costs	$2.67	A + B
INDIRECT COSTS		
D. Net Embedded Cost per pole	$1,574.50	See Table B1
E. Depreciation Expense	$42.30	See Table B1
F. Pole Maintenance Expense	$4.77	See Table B1
G. Capital Carrying Cost	$97.46	D * weighted average cost of capital of 6.19%
H. Total Indirect Costs per pole	$144.53	E + F + G
I. Allocation Factor	21.8%	Equal sharing allocation formula (separation space allocated to wireline communications attachers); 2.51 third party attachers
Indirect Costs Allocated	$31.45	H * I
Annual Pole Rental Charge	$34.12	C + J