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August 28, 2015

BY EMAIL AND COURIER

Kirsten Walli
Board Secretary
Ontario Energy Board
P.O. Box 2319
2300 Yonge Street, 27th Floor
Toronto ON M4P 1E4

Dear Ms. Walli:

Re: File Number EB-2015-0004, Hydro Ottawa Limited - Application for 2016-2020 Distribution Rates (the "Application"), Undertakings

Further to the technical conference in this matter on August 25, 2015, please find attached responses to undertakings JTC3.4, JTC3.5 and JTC3.6.

Sincerely,

Leslie J. Milton
cc Applicant and other interested parties

270052.00021/91569439.1

Undertaking JTC3.4

To provide the corrected numbers that are set out in Mr. McKeown's affidavit on page 24.

Response provided by Mr. McKeown:

A revised copy of my evidence, including amended pages 20, 24 and 25, is attached as Attachment "A".

EB-2015-0004

Ontario Energy Board

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

AND IN THE MATTER OF an application by Hydro Ottawa Limited ("**Hydro Ottawa**") for an order approving just and reasonable rates and other charges for electricity distribution to be effective January 1, 2016 and for each following year effective January 1 through to December 31, 2020;

AND IN THE MATTER OF Procedural Order No. 1 issued by the Ontario Energy Board on June 12, 2015 granting intervenor status to Rogers Communications Partnership, Quebecor Media and TELUS Communications Company (collectively, the "**Carriers**");

AND IN THE MATTER OF Procedural Order No. 2 issued by the Ontario Energy Board on June 29, 2015 setting dates for, *inter alia*, interrogatories of the parties and the intervenors.

Expert Evidence of
David McKeown,
View Communications Inc.

August 21, 2015

1.0 INTRODUCTION

1. The purpose of this report is to review and provide comments on the pole attachment cost study prepared by Hydro Ottawa Limited ("**Hydro Ottawa**") in the context of the April 29, 2015 Application for 2016-2020 Electricity Distribution Rates and Charges, Board File Number EB-2015-004, revised on June 29, 2015. The report is prepared on behalf of Rogers Communications Partnership, Quebecor Media and TELUS Communications Company by David McKeown, View Communications Inc.

2. A copy of my *curriculum vitae* is attached. I have 35 years' experience in telecommunications regulation, costing and interconnection. My experience in telecommunications costing includes rate base rate of return, fully allocated costing, long run incremental costing, and issues related to the recovery of fixed common costs. I have participated in CRTC proceedings regarding essential services, wholesale services, competition and rate design. Recent work includes negotiations with incumbent carriers for services on behalf of competitors for essential services such as access to support structure and related services.

3. Determining the costs of communications companies' attachments to poles has been the subject of attention in many jurisdictions over many years. For the most part, a standard costing methodology has been adopted by many utility boards but there are a range of applications of the methodology, which has led to variations in cost estimates. This report examines aspects of Hydro Ottawa's costing study and methodology and recommends certain modifications.

4. In its 1995 decision regarding access to telephone poles[1], the CRTC determined that it was in the public interest to minimize the number of poles through joint use, regardless of their ownership, and that maximizing the number of companies using poles would help facilitate interconnection and interoperability between carriers.[2] Twenty years later, the CRTC reaffirmed optimizing the use of poles as an important reason for mandating and regulating access to poles.

5. The current rate for communications pole attachments for hydro poles in Ontario was set by the Ontario Energy Board (the "**Board**" or "**OEB**") in its 2005 Decision and Order, RP-2003-0249.[3] In that decision, the Board recognized that, for the purpose of communications attachments, power poles were "essential facilities" and, in these circumstances, non-discriminatory access should be provided at just and reasonable rates:

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1 CRTC, Telecom Regulatory Policy CRTC 2015-326, Review of wholesale wireline services and associated policies, paragraph 16.

2 Telecom Decision CRTC 95-13, Access to Telephone Company Support Structures, June 22, 1995.

3 Ontario Energy Board, Decision and Order, RP-2003-0249, March 7, 2005, page 3. It is also noteworthy that in the accompanying Press Release, the Board highlighted the fact that it "considers utility poles as essential facilities and, as such, feels its ruling is in the public interest" (News Release, "OEB establishes uniform charge for utility pole use", March 8, 2005).

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 granted 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.

6. The need for attachments is expected to grow as carriers build out their fibre to neighbourhoods or nodes (FTTN) and homes (FTTH) networks. In the last few years alone, carriers have announced fibre expansion plans in urban areas including:

- June 25, 2015: Bell announces a $1.144 billion investment in Toronto. The investment includes "over 9,000 kilometres of new fibre, both underground via more than 10,000 manholes and on approximately 80,000 Bell and Toronto Hydro poles around the city. Approximately 70% of the network will be aerial and 30% underground."[4]

- June 25, 2015: The $1.144 billion investment in Toronto announcement also says "Part of Bell's plan to invest $20 billion in its broadband fibre and wireless networks across Canada by the end of 2020, Gigabit Fibe will ultimately be available to 1.1 million homes and businesses across the city. Bell will launch Gigabit Fibe in other cities in Ontario, Québec and the Atlantic provinces as soon as this summer in some locations."[5]

- February 7, 2013: During an investor conference Bell explained the importance of poles for its fibre build: "from a business perspective, we're building fibre to many more buildings this year; and anywhere we had aerial plant that does not have Fibre-to-the-Node, we are putting it in, using fibre, because aerial plant with fibre is—quite frankly, at this point, it's economical for us, or very close, versus doing Fibre-to-the-Node.6

7. FTTH networks allow Internet services of 1000 Mbps which are not possible over existing networks, far in excess of Internet speeds available over today's technologies, but fibre expansion requires access to infrastructures such as poles and conduits.

8. These trends are not unique to Bell or to Canada. Companies such as TELUS are also building out their respective fibre networks, with the ultimate objective of building fibre all the way to the home or office. TELUS, for example, announced in June that it would invest $1 billion in Edmonton to "connect more than 90 per cent of homes and businesses

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4 http://www.newswire.ca/news-releases/bell-gigabit-fibe-bringing-the-fastest-internet-to-toronto-residents-with-a-billion-dollar-network-investment-creation-of-2400-direct-jobs-517980581.html. A copy of the news release is attached as Attachment 2.

5 Ibid.

6 BCE Investor Conference 2013 – Q4'12 Results & 2013 Guidance, page 9.

directly to the company's state-of-the-art fibre optic network over the next six years."[7] The trend is also likely to escalate as carriers expand their fibre networks to gain a competitive advantage, remain competitive and retain customers.[8]

9. Google has been in the news about building fibre networks in US cities. Since 2013 Google has built FTTH networks in Austin, Kansas City and Provo Utah and is currently constructing fibre to the home networks in Atlanta, Charlotte, Nashville, Raleigh-Durham, Salt Lake City and San Antonio.[9] In response, incumbent companies like AT&T and Comcast have renewed efforts to build FTTH networks.[10]

10. Just last month, the Ontario Ministry of Economic Development, Employment and Infrastructure submitted its views to the CRTC on the need for improvement in broadband capability in Ontario. Among other things, it stated:

> 3. The Commission's current target speeds, 5 megabits per second download and 1 megabit per second upload, were relevant at the time of introduction in May 2011. Today, online services and applications that deliver high quality streaming audio and video rely on faster connections. Several comparable jurisdictions have recently adjusted their target speeds. The Commission should consider similar target speed adjustments. The Commission should also consider setting a quantifiable target level for monthly download allowance to guide service providers' overage usage charges.
>
> 4. Broadband Internet access at the Commission's target speeds should be considered a basic telecommunications service. This could be accomplished by adapting various components of the existing CRTC regulatory framework used for wireline phone service, and the recent decisions and directions the Commission has made in regional cases to the entire country.[11]

11. In order for the Province of Ontario to achieve higher Internet speeds to Ontarians in rural areas, and ultimately providing the 1000 Mbps speeds now offered in some urban areas, will require expansion of fibre networks. This in turn requires access to poles at just and reasonable rates - rates that do not result in cross-subsidization by electrical rate-

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7 TELUS Media Release, New TELUS fibre optic network will help spur the next wave of social and economic opportunity for Edmonton, June 16, 2015. http://about.telus.com/community/english/news_centre/news_releases/blog/2015/06/19/test

8 C. Pellegrini, "For telco stocks, it's all about fibre, all the way to the home" *The National Post* (19 August 2015); http://business.financialpost.com/investing/trading-desk/for-telco-stocks-its-all-about-fibre-all-the-way-to-the-home.

9 https://fiber.google.com/newcities/#

10 https://www.att.com/shop/u-verse/gigapower.html; http://corporate.comcast.com/news-information/news-feed/comcast-begins-rollout-of-residential-2-gig-service-in-atlanta-metro-area

11 Ontario Ministry of Economic Development, Employment and Infrastructure, Submission to Telecom Notice of Consultation Canadian Radio-television and Telecommunications Commission 2015-134 (Broadband Internet Services), July 14, 2015, paragraphs 3 and 4.

payers but also do not unnecessarily impede the use of poles or encourage uneconomic investments.

12. Satisfying the competing objectives of minimizing pole duplication, safeguarding against cross subsidies, without discouraging fibre expansion and higher capacity services, while ensuring pole attachment rates are just and reasonable, makes the careful consideration of the pole attachment costing methodology critically important.

2.0 COST CAUSATION

13. Cost causation is an important concept in the development of cost studies. It requires that only those costs that are *caused* by the introduction and offering of the service be included in an assessment of the costs. In this way, only those who use the service contribute to the costs associated with the service. Conversely, costs that are not incurred for the provision of a service are not causal costs and, therefore, should not be included.

14. Defining causal costs is somewhat easier than identifying causal costs. However, for a cost to be included, there must be a relationship between incurring the cost, on the one hand, and the provision of the service, on the other hand.

15. The Board has consistently relied upon the principle of cost causation in the setting of rates. A 2002 Board decision set out the importance of the principle of cost causation:

> The Board considers that an appropriate cost allocation study respects generally accepted principles of cost causation. In view of the principle that each rate class should generally be responsible for costs it has caused to be incurred, the Board believes that revenue to cost ratios provide information that is useful in the consideration of the justness and reasonableness of proposed rates.[12]

16. Since 2002, the Board has identified the cost causation principle as an important principle for rate setting in a number of decisions.[13]

17. Recognition of the cost causality principle results in recovery of costs from customers or classes of customers who cause the costs to be incurred. By implication, this means that costs are recovered once. When considering specific pole attachment costs, it is important not to lose sight of the cost causality principle.

3.0 POLE ATTACHMENT COSTS

18. Pole cost studies typically categorize costs as direct or indirect. Each of these categories is further divided into sub-categories, explained below.

3.1 Direct Costs

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12 Ontario Energy Board, RP-2002-0130, EB-2002-0363, May 8, 2003, paragraph 409.

13 See, for example, Ontario Energy Board, RP-2003-0063, EB-2003-087, EB-2003-0097, March 18, 2004, paragraph 1111; RP-2005-0020, EB-2005-0378 paragraph 3.6.1; and EB-2010-0219, page 18; EB-2012-0383, page 7.

19. Direct costs are costs incurred by the pole owner as a result of the presence of third party attachments. There is a direct causal relationship in the sense that, if there were no attachments, the costs would not be incurred. Direct costs per-pole are determined and are allocated based on the total number of third party attachers that cause these costs.

20. In pole cost studies, direct costs are typically comprised of what are referred to as "Administration" costs and "Loss in Productivity" costs.

21. Administration costs normally comprise the costs of billing and processing pole attachment applications. The cost of processing pole attachment applications should not be included in cases where there are separate charges for applications. In the case of Hydro Ottawa, there are no specific charges for pole attachments applications.

22. Loss in Productivity costs are the additional costs incurred by the pole owner to maintain the pole and its facilities on the pole that are directly attributable to the existence of third party attachments.

3.2 Indirect Costs

23. Indirect costs are pole costs that do not vary with the number of attachers. They are considered common costs because all of the users of the pole derive some benefit and the costs would be incurred whether there is one or there are many attachers. In other words, the indirect costs do not change with the introduction of a new attacher.[14]

24. The Board has treated three related costs as indirect costs: 1) pole depreciation expense, 2) pole maintenance expense, and 3) pole capital carrying cost.[15]

    (a) ***Pole depreciation expense:*** The Board regulates the depreciation practices and depreciation rates for Hydro Ottawa's poles. Pole depreciation expense used by the Board for rate application purposes should form the basis for determining pole depreciation expense in pole attachment cost studies.

    (b) ***Pole maintenance expense:*** The maintenance of poles includes such costs as addition and replacement of guy wires and pole straightening. Pole maintenance expenses related to power equipment and which are not relevant or of benefit to third party pole attachers should not be included as pole maintenance expense.

    (c) ***Pole capital carrying cost:*** The capital carrying cost per pole is calculated using the net embedded cost per pole times the utility's weighted average cost of capital.

25. Ideally, indirect costs would be determined for the specific poles used by attachers; however, determining costs for specific poles is not feasible. Instead, indirect costs are

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14 Strictly speaking, indirect pole costs are fixed costs, not causal costs, because they would be incurred by Hydro Ottawa whether or not there were pole attachers. The CRTC has characterized them as fixed costs and permitted the costs to be included in the pole attachment studies as a means to calculate a contribution by attachers to the fixed costs of the pole.

15 OEB, Decision and Order, RP-2003-0249, March 7, 2005, page 9.

determined by dividing total costs for each of the three indirect cost types by the total number of poles to determine an average expense per pole.

3.3 Allocation of Indirect Costs

26. Indirect costs do not vary with the number of pole attachers on a pole. For pole costing purposes, indirect costs are allocated among the number of attachers, including the pole owner. This, in turn, requires a determination of the number of attachers and the application of an appropriate methodology to allocate the costs among all of the pole users.

27. Even though pole attachers do not cause Hydro Ottawa to incur additional indirect costs, all attachers obtain benefit from the use of the poles. The portion of the pole attachment rate that recovers indirect costs is applied in recognition of the fact that, although the attachers do not cause the indirect costs to be incurred, they benefit from the use of the pole and therefore make a contribution towards the recovery of fixed pole costs.

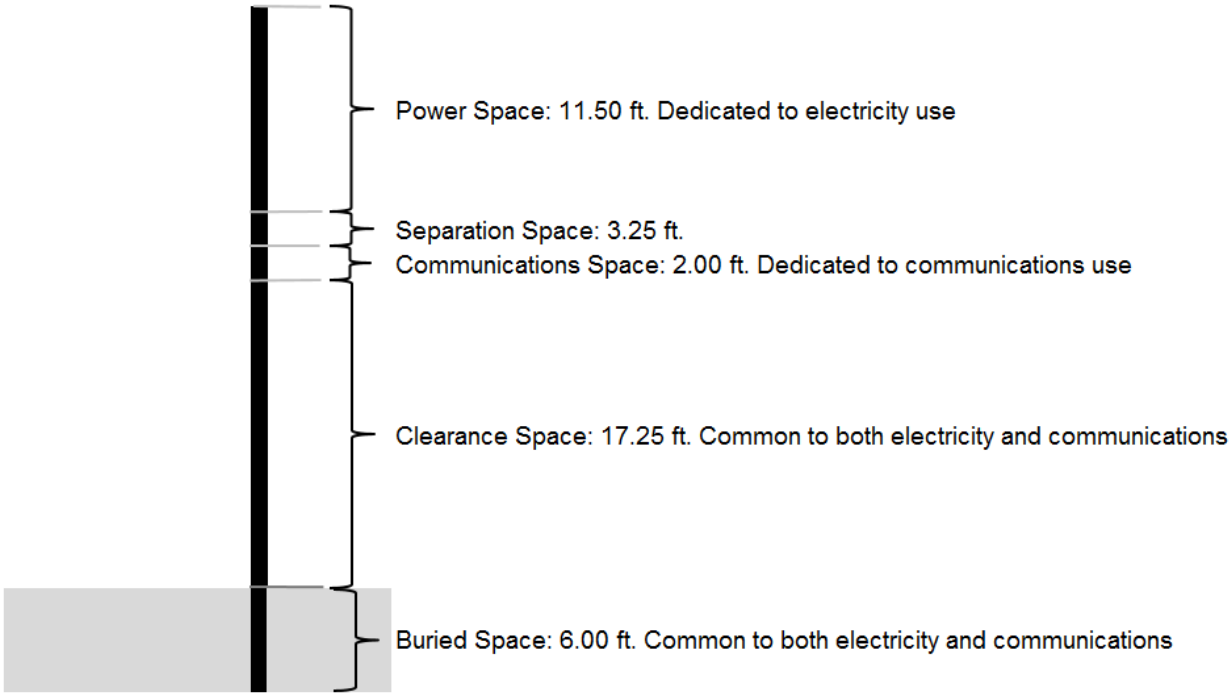
28. A consistent application of this allocation approach entails identifying all attachers, including organizations that attach telecom wirelines, wireless antennas, electrical wirelines and equipment, banners, street lights and other types of attachments.

29. Two methodologies have been developed for the allocation of indirect costs among the various attachers - Equal Sharing and Proportional Use.

30. The Equal Sharing methodology allocates indirect costs associated with the common space on the pole solely on the basis of the number of attachers, including the pole owner. If there is one communications attacher, then it and the power utility would each be responsible for 50% of the indirect costs associated with the common space on the pole. If there are two communications attachers, then they would assume 67% of the indirect costs associated with the common space on the pole and the power utility would assume only 33% of these costs. With the addition of each communications attacher, the power utility's portion of pole costs is reduced.

31. The Proportional Use methodology is based on proportional use of the pole and reflects the concept that those who use most of the pole are likely to obtain the most benefit. Power and communications each have space on poles that is dedicated for their respective exclusive use. Under the Proportional Use methodology, a ratio is determined for dedicated third party attacher space relative to the total dedicated space available for use by the pole owner and third party attachers. This ratio is then used to calculate an allocation of common pole space to each third party attacher.

32. The Equal Sharing and Proportional Use methodologies each allocate indirect costs to the users or occupants of the pole based on use of space on the following typical 40 foot pole shown below.



33. The two methodologies are similar in that each type of attacher is solely responsible for space on the pole that has been dedicated to it. Therefore, the communications attachers are responsible for the 2.0 feet of Communications Space and the power utility is responsible for the 11.5 feet of Power Space.

34. Further, under each methodology, the various attachers all share in what is considered "common" or "shared" space on the pole. This includes the Buried Space and the Clearance Space and, depending on which methodology used, the Separation Space.

3.4 Comparison of Proportional Use and Equal Sharing Allocation Methodologies

Proportional Use

35. The Proportional Use methodology uses an allocation factor that takes into account the fact that communications attachers require less space for their attachments relative to the power utility. This means that the allocation of costs to communications attachers will be lower than to the power utility.

36. Under the Proportional Use methodology, communications attachers are responsible for costs associated with:

- 100% of their dedicated space; plus
- their proportionate share of the common space.

37. Applying the Proportional Use methodology, the CRTC allocated the Separation Space to communications users, as incremental users of the pole.[16]

38. On this basis, the communications attachers' relative usage of the dedicated spaces on the pole is 5.25 / (5.25 + 11.5) or 31.3%.

39. This means that the communications attachers would be responsible for:

Dedicated space	5.25 feet
Proportional share of common space	31.3% of 23.25 feet = 7.28 feet
Total	12.53 feet or 31.3% of the pole costs.

40. Since 31.3% of the indirect costs are allocated to all communications attachers on a pole, the costs must be divided by the number of communications attachers to calculate a pole attachment rate. If there are two communications attachers, the pole rate will include 15.7% of the indirect costs (31.3% divided by 2); if there are 2.5 communications attachers, the pole rate will include 12.5% of the indirect costs (31.3% divided by 2.5).

41. To the extent that relative use of the pole space reflects the benefit derived from pole use, the proportional use methodology is preferred.

Equal Sharing

42. Under the Equal Sharing methodology, third party attachers are responsible for all costs associated with space dedicated to them. However, 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. Therefore, the more attachers there are on the pole, the less the power utility contributes to indirect costs.

43. If this methodology is to be adopted, the common space should comprise:

- 6.0 feet of Buried Space;
- 17.25 feet of Clearance Space; and
- 3.25 feet of Separation Space,

for a total of 26.5 feet.

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[16] I note that the Separation Space is also used for street lighting fixtures and legacy Hydro One installations. (OEB, Transcript, Technical Conference, August 13, 2015, pages 13 and 35.) In other words, the Separation Space has three uses, only one of which is to create a Separation Space between power and communications lines. In fact, 13,265 of Hydro Ottawa's poles have street lighting attachments located within or just above or below the Separation Space, and are subject to the pole attachment charge. (Response to interrogatory IR:H-7-1(Carriers #1)ORG, page 7 and OEB, Transcript, Technical Conference, August 13, 2015, page 13.)

44. The Separation Space should be treated as common space as the Equal Sharing approach presumes all users are equal and, without this space, a pole cannot be jointly used.

45. Applying the Equal Sharing approach using two third party attachers, third party attachers would be responsible for:

100% of Dedicated Space 2.0 feet	2.0 feet
66.7% of common space 26.5 feet	17.67 feet
Total	19.67 feet or 49% of the pole costs.

46. The allocation to each third party attacher is determined by dividing the percent allocation by the number of such attachers on a pole. Using the example of two third party attachers above, each attacher will pay 24.6% of the indirect costs of the pole. (If there are 2.5 third party attachers, they are allocated 71.4% of the common space and 52% of all pole costs and each third party attacher bears 20.9% of these costs.)

47. When the Board adopted an equal sharing approach in RP-2003-0249, it included the Separation Space as part of the dedicated space for the communications attachers instead of part of the common space. This is somewhat inconsistent with the underlying principle of the Equal Sharing methodology that all users should share equally in the costs of those portions of the pole that they all benefit from.

48. Further, when the Board chose to adopt the Equal Sharing methodology, it provided the following reason:

> 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. [17]

49. Although many of the joint use agreements between telecommunications companies and power companies are not public, it is generally understood that such agreements provide for a 60/40 sharing arrangement, with power companies responsible for 60% of the costs.[18] The Equal Allocation method does not approximate these ratios. The tables in Appendix 1 illustrate that the allocation of pole space to communications ranges from 49% with two attachers to 55% with 3.0 attachers.

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17 Ontario Energy Board, Decision and Order, RP-2003-0249, March 7, 2005, page 6.

18 See, for example, Ontario Energy Board, Decision and Order, EB-2010-0149; OEB, Transcript, Volume 3, RP-2003-0249, October 28, 2004, lines 335-370.

50. Contrary to the assumption that negotiated joint use agreements support the concept of equal sharing of costs, the methodology allocates 9% to 15% more of the indirect costs to attachers than telecommunications companies pay under joint use agreements.

51. Without more information about the terms and conditions in the joint use agreements, it is also difficult to conclude that the 60/40 sharing arrangement is applicable for third party pole attachments. There are a range of important negotiating points that must be considered before parties commit to such agreements. The sharing arrangements for revenues from joint use poles must be an important influencing factor for pole cost sharing. Without access to the agreements, it is not possible to know how the 60/40 pole cost arrangement fits within the spectrum of factors that must be considered.

Comparison of results from two methodologies

52. The table below provides a comparison of the space allocation for each attacher, including power, for the two methodologies, assuming 2.0, 2.5 and 3.0 attachers.

	Number of attachers		
	2.0	**2.5**	**3.0**
Proportional Use	15.7%	12.5%	10.4%
Equal Sharing	24.6%	20.9%	18.2%

53. The tables attached in Appendix 1 illustrate the allocation of pole costs under Proportional Use approach and the Equal Sharing approach. The difference in the two methods of allocating indirect costs can have a large impact on per pole attachment rates. Assuming two pole attachers (in addition to the pole owner and no other changes to the costs filed by Hydro Ottawa), the annual pole rate would be approximately $39.04 under the Proportional Use methodology, compared to Hydro Ottawa's proposed rate of $56.26 under the Equal Sharing methodology.

4.0 OTTAWA HYDRO POLE ATTACHMENT COSTS

54. This section applies the costing methodologies described above to Hydro Ottawa's pole attachment costs.

4.1 Direct Costs

55. As noted, direct costs are incurred by pole owners directly as a result of pole attachments. Unlike indirect costs, there is a clear causal relationship between providing the pole attachment service and incremental costs that are incurred. For the purpose of pole attachment cost studies, direct costs are separated into Administration costs and Loss in Productivity cost categories.

56. Hydro Ottawa identifies the following direct costs in Attachment H-7(A).

	2013 Costs	Cost per Pole
Admin	$141,291	$3.96
Loss in Productivity:		
Pole Replacement	$270,398	
Field Verification	$40,020	
Total Loss in Productivity	$310,419	$8.70
TOTAL	$451,710	$12.66~~7~~

57. It is important to note the mathematical errors in the table above. Hydro Ottawa separately calculates the total costs associated with Administration, pole replacement, field verification for wires down, and field verification for tree on wires. Each of these total annual costs is divided by the number of poles with third party attachers, which provides an average cost per pole. To this stage, the calculations are correct and produce the following results.

Total Admin per Pole with attachments per year	$3.96
Total LIP per Pole with attachments per year	$8.70

58. These average costs are then added to indirect costs per pole to yield Hydro Ottawa's total cost per pole of $56.26. The error occurs because Hydro Ottawa does not divide the direct costs by the number of attachers. The corrected direct costs assuming 2.0, 2.5 and 3.0 attachers is provided below.

		Number of attachers		
		2	2.5	3.0
Total Admin per Pole with attachments per year	$3.96	$1.98	$1.58	$1.32
Total LIP per Pole with attachments per year	$8.70	$4.35	$3.48	$2.90

59. Without this step, each pole attacher pays the full per-pole cost of administration and Loss in Productivity. With 2.5 attachers per pole, Hydro Ottawa would receive 2.5 times the revenue needed to recover the relevant costs. For this reason the cost per pole must be divided by the number of attachers. The appropriate number of attachers is discussed in another section.

60. Hydro Ottawa also has confirmed that the costs of replacing poles, including all crew visits, are included in Account 1830 and therefore are already being recovered through the indirect costs included in the pole attachment rate.[19] Accordingly, the recovery of these costs again as a direct Loss in Productivity cost results in double-recovery. On this basis, these costs should be excluded from the Loss in Productivity costs included in the pole attachment rate.

[19] EB-2015-0004 Technical Conference Transcript, page 72, line 25 - page 73, line 2.

4.2 Book v Net Book Value

61. Capitalized costs for assets such as poles should be expressed as net book value, i.e., book value of the asset less accumulated depreciation. Gross carrying amount (Account 1830 before deduction of accumulated depreciation) is not typically used for costing purposes because depreciation expense is identified as a separate cost. Determining costs based on gross carrying amount without adjusting for accumulated depreciation results in a form of double counting and rates based on gross carrying amount would result in an over-recovery of costs. Use of the gross carrying amount for Account 1830 also causes capital carrying costs to be overstated, resulting in an inflated pole attachment rate.

62. The previous table *implies* that Hydro Ottawa used a "Net Embedded Cost per Pole" of $1,678.00. Other than the information provided in response to IR:H-7-1(Carriers#7), there are no details about how Hydro Ottawa derived the net embedded cost per pole value of $1678. It should be noted, however, that Hydro Ottawa reported a 2013 gross carrying amount of $80,588,905 for Account 1830 (Poles, Towers and Fixtures).[20] Dividing this gross book value of poles by 47,978, the number of poles identified by Hydro Ottawa in response to IR:H-7-1(Carriers#7), yields an average cost per pole of $1,679.71. It appears, therefore, that Hydro used gross carrying amount, not a net book value, in the pole cost study.

63. In response to IR:H-7-1(Carriers#7), Hydro Ottawa provided the following information:

		Original $	**Revised $**	**Comment $**
A	Direct Cost	12.68	12.68	No change
B	Net Book Value ($M)	80.5	75.3	Appendix 2-BA
C	In-service Poles	47,978	47,978	No change
D	Net Embedded Cost, per Pole	1,678	1,569	B / C
E	Capital Carrying Cost 6.7%	112.42	105.11	D x 6.7%
F	Depreciation	43.29	41.26	Appendix 2-BA
G	Pole Maintenance	12.61	12.61	No change
H	Indirect Costs	168.31	158.98	E + F + G
I	Indirect Costs Allocated	43.59	41.18	H x 25.9%
J	Pole Rental Cost	56.27	53.86	A + I
K	2016 Proposed Rate	**57.00**	**57.00**	Includes 2.1% Inflation factor

64. The table indicates that a net book value of $80.5 million was used in the derivation of the net embedded cost per pole of $1,678. The column headed "Revised $" indicates that the 2013 net book value is revised to $75.3 million. These values are consistent with the numbers provided by Hydro Ottawa to the Board elsewhere in its application. In its updated application, Hydro Ottawa provides the gross carrying amount and net book value for Account 1830:

20 Hydro Ottawa, Rate Application, EB-2015-004, Exhibit B, Tab 2, Schedule 1, page 2 of 9, Updated June 29, 2015.

2013, Account 1830	
Closing Balance	$80,588,905
Accumulated Depreciation	$(5,320,624)
Net Book Value*	$75,268,282

Numbers may not balance due to rounding

65. In part a. of the interrogatory, Hydro Ottawa was asked to confirm that the net embedded cost per pole of $1,678 is based on the net book value of the "Poles, Towers & Fixtures" (account # 1830) provided in Exhibit B, Tab 2, Schedule 1, Appendix 2-BA, page 2 of 9, and if it wasn't, to identify the source and derivation of the net embedded cost." The response provided stated: "The net embedded cost per pole of $1,678 was not based on the average net book value of the "Poles, Towers & Fixtures" (account # 1830) provided in Exhibit B-2-1, Appendix 2-BA, page 2 of 9, as it was based on Hydro Ottawa's 2013 financial records for external reporting purposes."

66. The answer does not explain why Hydro Ottawa used gross carrying amount instead of net book value for Account 1830; nor is it clear that Hydro Ottawa concedes that net book value should be used. For the purposes of the determining pole attachment costs, net book value should be used for capital carrying costs.

4.3 Average v Year-end costs

67. In its filings with the Board, Hydro Ottawa indicates that it uses average asset costs for determining the rate base.[21] This is consistent with following Board directive for calculating the rate base:

> Average of the opening and closing fiscal year balances must be used for items in rate base".[22]
>
> For rate base, the applicant must include the opening and closing balances, and the average of the opening and closing balances for gross assets and accumulated depreciation.[23]

68. However, Hydro Ottawa did not apply this treatment in its pole attachment cost study and should be corrected as follows:

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21 See, for example, Hydro Ottawa Application, EB-2015-004, Exhibit B, Tab 1 Schedule 1, Updated June 29, 2015 and Exhibit F, Tab 1, Schedule 1, Attachment F-1(A), Original.

22 Ontario Energy Board, Chapter 2 of the Filing Requirements for Transmission and Distribution Applications, June 22, 2011, page 8.

23 Ontario Energy Board, Chapter 2 of the Filing Requirements for Transmission and Distribution Applications, June 22, 2011, page 17.

	Year end 2012[24]	Year end 2013[25]	Average
Account 1830	$71,187,843	$80,588,905	$75,888,374
Accumulated depreciation	$(3,352,403)	$(5,320,624)	$(4,336,514)
Net book value	$67,835,441	$75,268,282	**$71,551,862**

Numbers may not balance due to rounding

4.4 Power-specific costs

69. The Board's Uniform System of Accounts identifies the following cost elements to be included in *Account 1830, Poles, Towers & Fixtures*:

> This account shall include the cost installed of poles, towers, and appurtenant fixtures used for supporting overhead distribution conductors and service wires.
>
> Example items:
>
> 1. Anchors, head arm, and other guys, including guy guards, guy clamps, strain insulators, pole plates, etc.
> 2 . Brackets
> 3 . Crossarms and braces
> 4 . Excavation and backfill, including disposal of excess excavated material
> 5 . Extension arms
> 6 . Foundations
> 7 . Guards
> 8 . Insulator pins and suspension bolts
> 9 . Paving
> 10. Permits for construction
> 11. Pole steps and ladders
> 12. Poles, wood, steel, concrete, or other material
> 13. Racks complete with insulators
> 14. Railings
> 15. Reinforcing and stubbing
> 16. Settings
> 17. Shaving, painting, gaining, roofing, stenciling, and tagging
> 18. Towers
> 19. Transformer racks and platforms

70. Many of these components are not needed for telecommunications cable attachments. Some of the more obvious elements that do not benefit carriers are insulator pins, racks

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24 Hydro Ottawa Application, EB-2015-004, Exhibit B, Tab 2, Schedule 1, page 1 of 9, Updated June 29, 2015.

25 Hydro Ottawa Application, EB-2015-004, Exhibit B, Tab 2, Schedule 1, page 2 of 9, Updated June 29, 2015.

complete with insulators, and transformer racks and platforms. The cost causation principle requires that costs not related to the provision of pole attachments by telecommunications service providers should be excluded from the cost study.

71. The Board first set pole attachment rates in 2005 and based the net embedded cost on a study prepared by Milton Hydro.[26] In its cost study, Milton Hydro estimated the cost of a "bare pole"; i.e., one without power fixtures.

72. In its 1999 Decision the CRTC noted the Municipal Electrical Association submitted that "cross arms should be excluded from the capital costs of power utility poles and added that it had removed such costs from the figures it proposed."[27]

73. In a 2008 report to the New Brunswick Energy and Utilities Board, NB Power proposed to remove "15% from the total installed pole cost to remove costs associated with power specific items." Parties to the proceeding agreed to use this factor as an estimate of "power specific components" that should be excluded from the cost study.[28]

74. After considering the same question, the Nova Scotia Utility and Review Board determined that 72% of pole costs should be used for the purpose of setting pole attachment rates. [29]

75. It should also be noted that the Federal Communications Commission (FCC) uses a "bare pole factor" of 85% as an adjustment to "a utility's net pole investment to eliminate the investment in crossarms and other non-pole related items".[30]

76. Assuming that 15% is a reasonable proxy for Hydro Ottawa's power-only fixtures that are of no benefit to carriers, Hydro Ottawa's net book value should be reduced as shown in the table below:

2013 Account 1830 Ave. Net book value	$71,551,862
Power-specific fixtures factor 15%	$10,732,779
2013 Account 1830 Ave. Net book value less power-specific fixtures	**$60,819,083**

Numbers may not balance due to rounding

26 Ontario Energy Board, RP-2003-0249, March 7, 2005, Appendix ~~1~~2.

27 Telecom Decision CRTC 99-13, Part VII Application - Access to Supporting Structures of Municipal Power Utilities - CCTA vs MEA et al - Final Decision, paragraph 199. (Attachment 3)

28 NB Power, Pole Attachments, Report to the Board, September 30, 2008, before the New Brunswick Energy and Utilities Board, Board Reference: 2007-005, page 1. A copy of the report is attached as Attachment 4.

29 Nova Scotia Utility and Review Board, Decision NSUARB - P-873, In the Matter of an Application by Nova Scotia Power Incorporated for Approval of an increase in its Pole Attachment Charge, Section 1.3. A copy of the Decision is attached as Attachment 5.

30 Federal Communications Commission, Report and Order, CS Docket No. 97-98, Released April 3, 2000, paragraph 31. (Attachment 6)

77. Since depreciation expense is based on book value, 2013 depreciation on Account 1830 will include power fixtures and these should also be removed from depreciation expense. Using the same power-specific fixtures factor above, this adjustment is provided in the table below.

2013 Account 1830 Depreciation expense[31]	$1,979,636
Power-specific fixtures factor 15%	$296,945
2013 Account 1830 Depreciation expense less power-specific fixtures	**$1,682,691**

Numbers may not balance due to rounding

78. Make-ready costs are related to activities that Hydro Ottawa performs to condition the poles for use by third party attachers. Third parties compensate Hydro for the make-ready work on a time and materials basis.

79. Make-ready costs are capitalized and included in Account 1830. This has the effect of increasing the net book value of the account used to determine capital carrying costs and depreciation expense.

80. Unless there is an offset for the capitalized make-ready costs, Hydro Ottawa will realize a double recovery; once from the make-ready payments by the pole attacher and again in the form of pole attachment rates that recover the carrying cost of capital and depreciation expense. There is insufficient information on the record of this proceeding to determine the treatment of make-ready revenues and costs or to calculate an appropriate adjustment, if needed.

4.5 Pole Count

81. The remaining piece of information needed to calculate the Net Book Value per pole is the number of poles. Hydro Ottawa has proposed the use of a 2013 test year for the purpose of calculating pole attachment costs.[32]

82. Obtaining an accurate, verifiable count of poles is important for the calculation of the pole attachment rate. Since the permissible costs are divided by the number of poles to determine a rate per pole, the rate will be overstated if the number of poles used in the calculation is less than the actual number of poles.

83. In its updated, June 29, 2015 filing, Hydro Ottawa provided the following pole count description:

> HOL owns 47,815 wood poles and 537 non-wood poles and operates on an additional 11,635 wood and 126 non-wood poles which are owned by third parties.[33]

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31 Exhibit B, Tab 2, Schedule 1, page 2 of 9.

32 Response to interrogatory IR:H-7-1(Carriers #1)ORG, page 5.

33 Exhibit B, Tab 1, Schedule 2, page 94 of 319, Updated June 29, 2015.

84. The filing also indicates that the count is current as of the end of 2013.[34] Therefore, as of year-end 2013, Hydro Ottawa owned 48,352 poles. A comparable pole count for year-end 2012 is not available. However, given that the number of poles appears to have decreased and that the change from 2012 to 2013 was not significant, use of year-end 2013 provides a conservative pole count for the purpose of the pole attachment costs.[35]

4.6 Per Pole Net Book Value, Capital Carrying Costs and Depreciation

85. Corrections to the 2013 net book value of poles results in changes to the per pole net book value and depreciation expense. These changes are provided in the table below.

2013 Account 1830 Average Net book value less power-specific fixtures	$60,819,083
2013 poles	48,352
Revised Net book value per pole	**$1,257.84**
2013 Account 1830 Depreciation expense less power-specific fixtures	$1,682,691
2013 poles	48,352
Revised Depreciation expense per pole	**$34.80**

Numbers may not balance due to rounding

86. The change also requires a correction to the capital carrying cost.

87. In its pole attachment cost study, Hydro Ottawa used 6.7% as the appropriate cost of capital. Use of this same cost of capital produces the revised capital carrying cost included in the table below. However the cost of capital used by Hydro Ottawa in the pole attachment cost study is higher than the cost of capital used in support of other proposed rates. It is important to recognize that use of a 6.7% return will generate excessive returns. However, for the purpose of this report and in recognition of the use of a 2013 test year, a rate of 6.7% is employed.

Per Pole	Revised
Average net book value	$1,257.84
Capital Carrying Cost at 6.7%	**$84.28**

Numbers may not balance due to rounding

4.7 Pole Maintenance expense

88. Information filed by Hydro Ottawa demonstrates that pole maintenance expenses have been volatile over the last five years. In addition, Hydro Ottawa is forecasting increases in pole maintenance until 2020. In response to IR:H-7-1(Carriers #11), total pole maintenance expense, the number of poles and maintenance per pole for the period 2010 to 2015 was provided. In the updated June 29, 2015 filings, Hydro Ottawa provided

34 Ibid., page 89 of 319.

35 Response to interrogatory IR:H-7-1(Carriers #11)ORG, page 3.

Maintenance of Poles, Towers and Fixtures expenses for each of the years 2016 to 2020 inclusive.[36]

89. In response to IR:H-7-1(Carriers #11), Hydro Ottawa estimated the number of year-end 2015 poles by deducting 175 poles from the previous year. This estimate in the reduction of poles was based on the average decline during the period 2009 to 2014. For the purpose of the table below, this decline in the number of poles has been extended to 2020.

Year	Total pole maintenance expenses	Number of poles	Total pole maintenance expenses per pole ($/pole)	Total pole maintenance expenses % change	Pole maintenance per pole % change
2010	$361,834	48,574	$7.45		
2011	$449,361	48,377	$9.29	24.2%	24.7%
2012	$656,170	48,298	$13.59	46.0%	46.3%
2013	$605,081	47,978	$12.61	-7.8%	-7.2%
2014	$506,153	47,825	$10.58	-16.3%	-16.1%
2015	$515,720	47,650	$10.82	1.9%	2.3%
2016	$579,188	47,475	$12.20	12.3%	12.8%
2017	$597,983	47,300	$12.64	3.2%	3.6%
2018	$617,387	47,125	$13.10	3.2%	3.6%
2019	$637,421	46,950	$13.58	3.2%	3.6%
2020	$658,106	46,775	$14.07	3.2%	3.6%

90. Variability in maintenance can be explained, in part, by severe weather and is to be expected. However, Hydro Ottawa also plans to undertake an aggressive pole replacement program beginning in 2016. In its Material Investments Plan, the following information is provided:

> Hydro Ottawa recommends a replacement rate on average of 1,250 poles a year in 2016-2020, which represents 10% of the entire population of distribution poles. Increase in the amount of poles replaced during the rate filing period to 1,250 units from 600 poles in 2015 which reduces the risk of having poles in a critical or poor condition.[37]

91. Replacement of poles at a rate of 10% per year, should have a beneficial impact on maintenance costs. The combination of new poles and reduction in pole numbers should lead to a noticeable decrease in pole maintenance costs. However, as noted in the table, total pole maintenance is forecast to increase at a rate of 3.2% per year until 2020 when almost 50% of the entire pole population will be replaced.

92. Account 5120 is the Maintenance of Poles, Towers and Fixtures account. The following table provides the account balance at year-end 2013 and calculates maintenance per pole.

36 G-1_B_2016_Cost_Allocation_Model

37 Hydro Ottawa Distribution System Plan 2016, Material Investments", page 43.

2013 Account 5120 Pole maintenance	$605,081~~579,188~~
2013 poles	48,352
Revised pole maintenance	**$12.51~~11.98~~**

Numbers may not balance due to rounding

93. In the Board's Account Procedures Handbook, Account 5120 is described as follows:

> This account shall include the cost of labour, materials used and expenses incurred in the maintenance of overhead distribution line facilities, the book cost of which is included in Account 1830, Poles, Towers and Fixtures.
>
> Example items:
>
> 1. Work of the following character on poles, towers, and fixtures:
> 2. Installing additional clamps or removing clamps or strain insulators on guys in place.
> 3. Moving line or guy pole in relocation of pole or section of line.
> 4. Painting poles, towers, crossarms, or pole extensions.
> 5. Readjusting and changing position of guys or braces.
> 6. Realigning and straightening poles, crossarms, braces, pins, racks, brackets, and other pole fixtures.
> 7. Reconditioning reclaimed pole fixtures.
> 8. Relocating crossarms, racks, brackets, and other fixtures on poles.
> 9. Repairing pole supported platform.
> 10. Repairs by others to jointly owned poles.
> 11. Shaving, cutting rot, or treating poles or crossarms in use or salvaged for reuse.
> 12. Stubbing poles already in service.
> 13. Supporting conductors, transformers, and other fixtures and transferring them to new poles during pole replacements.
> 14. Maintaining pole signs, stencils, tags, etc.
>
> The accounts shall be subdivided to show costs for subtransmission feeders and distribution lines and feeders separately.[38]

94. Certain of the activities listed, particularly items 7) "reconditioning reclaimed pole fixtures", 8) "relocating crossarms, racks, brackets, and other fixtures on poles appear to power related", and 13) "supporting conductors, transformers, and other fixtures and transferring them to new poles during pole replacements" seem related to power. This is to be expected since the account is for the maintenance poles and related fixtures included in Account 1830, which includes assets exclusively related to power.

95. Without a detailed breakdown of maintenance activities, it is not possible to make an independent estimate of maintenance expenses related solely to pole assets used by all

38 Ontario Energy Board, Accounting Procedures Handbook For Electricity Distributors, Effective January 1, 2012, pages 166-167.

pole attachers. In the absence of such information, it would be reasonable to apply the power-specific fixtures factor of 15% as an estimate of maintenance expense associated with power equipment.

2013 Account 5120 Per Pole Maintenance expense	$12.51~~11.98~~
Power-specific fixtures factor 15%	$1.88~~9~~
2013 Account 5120 Maintenance~~Depreciation~~ expense less power-specific fixtures	**$10.64~~18~~**

Numbers may not balance due to rounding

96. Depreciation expense, pole maintenance expense and the capital carrying cost are indirect costs which are allocated to pole attachers. The methodology was described in a previous section and the following section addresses the application of the methodology to Hydro Ottawa's indirect costs.

5.0 ALLOCATION

97. As indirect costs, the following items are allocated to pole attachers:

2013, Per pole	
Capital carrying cost	$84.28~~76.25~~
Depreciation expense	$34.80
Maintenance expense	$10.64~~18~~

98. The allocation of indirect costs is influenced by two factors; 1) the number of attachers, and 2) whether the equal or proportional methodology is used. Each of these factors is examined in more detail below.

5.1 Number of Attachers

99. It is worth noting the observations made by the OEB at the time it rendered its Decision and Order on the matter of calculating pole attachment rates.[39]

> There is evidence that in one municipality there are as many as seven different parties seeking attachment. There is also evidence that poles are used by municipalities for the purpose of street lighting and traffic lights.
>
> In addition, an increasing number of telecommunication providers are entering the market to compete with incumbent telephone company providing voice and data services. A number intervened in this proceeding and by virtue of the settlement agreement will have access to the poles in question. Finally, in a number of major markets the Ontario electricity distributors have established their own affiliates to offer telecommunication services. The LDCs have agreed that these affiliates should pay the same rates as the other parties attaching to the power poles. There is also

39 RP-2003-0249, March 7, 2005.

> evidence that Hydro One which accounts for a third of the poles in the province has more than two attachers.
>
> The Board considers 2.5 attachers to be reasonable. Things have changed since the days of the CRTC decision. If anything, there will be more than 2.5 attachers in the future. (Page 7)

100. For the most part, the predictions occurred as described by the OEB. Although most of the electricity distributors and municipalities have sold their telecommunications affiliates, the Ottawa market has more parties seeking attachment than the municipality referenced above which had "as many as seven different parties", which prompted the Board to use 2.5 attachers for pole attachment costing.

101. Hydro Ottawa already has the following 12 pole attachment customers:[40]

- Allstream
- Bell Canada
- BH Telecom
- Canada Post
- Canadian P2P Fibre Systems
- City of Ottawa
- Eastlink
- Rogers Communications
- Royal Canadian Mounted Police
- TELUS
- Videotron
- Village of Casselman

102. The 12 existing pole attachment customers nearly double the number of potential pole attachers in one municipality highlighted by the Board in its Decision and Order.

103. The potential for additional pole attachers is also significant. The CRTC maintains a registry of 'non-dominant carriers"[41], which are companies that qualify as carriers because they own transmission facilities and offer services to the public. Not all of them may own fibre transmission facilities or request the attachment of fibre cable to Hydro Ottawa poles but there is a significant potential for one of more of them to do so. All of the following organizations have Ottawa or vicinity contact addresses:

- LightSquared Corp.
- Skyterra (Canada) Inc.
- Distributel Communications Limited
- 4141903 Canada Inc. (Storm Internet Services)

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40 Affidavit of April Barrie of the City of Ottawa, June 5, 2015

41 Non-dominant Carriers, https://services.crtc.gc.ca/pub/TelecomList/ListeTelecomlist.aspx?PurposeTypeCD=29&_ga=1.172091431.566361693.1437496152

- OmniTEC Wireless Inc.
- Ottawa River Energy Solutions Inc.

104. In its response to IR:H-7-1(Carriers #16), Hydro Ottawa identified 55,082 attachments in 2013, an increase of 4.3% in two years. Although the number of attachments dip in 2014, Hydro Ottawa projects growth in 2015 and 2016. In another filing with the Board, Hydro Ottawa forecasted growth in the number of "weather normalized" streetlighting attachments that illustrates slow but steady growth.

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Lighting Attachments	54,395	54,679	55,674	55,757	56,608	55,516	55,516	55,516	55,516	55,516	55,516

105. The projections for 2016 and beyond seem overly conservative.

106. I have identified at the outset of this evidence fibre expansion plans by Bell and other carriers, which will cause further increases in demand for attachments to Hydro Ottawa poles.

107. The Board has also indicated that it intends to commence a proceeding to consider the de-regulation of rates charged for wireless attachments to poles. Hydro Ottawa supports this amendment and has confirmed that, if approved, wireless attachments will be subject to a separate market rate, regardless of whether or not the attacher also has wireline or other attachments on a pole.[42] This will also increase the number of unique rate-paying attachers, attachments and revenues from third parties. Failure to account for this and other expected growth in attachers and attachments by using a low number of attachers will result in over-recovery of pole costs from rate-paying third party attachers and a subsidy from these attachers to Hydro Ottawa and its customers and/or other attachers to the pole.

108. Hydro Ottawa has assumed only two third party attachers for the purpose of calculating pole attachment rates. By underestimating the number of pole attachers, Hydro Ottawa has artificially overstated the cost of pole attachments. Hydro Ottawa's estimate of two third party attachers does not properly take into account recent and future trends and should be at least 2.5 attachers.

5.2 Equal Sharing v Proportional Use Allocation of Indirect Costs

109. Section 4 of this evidence identifies two methods of allocating indirect costs to attachers. The first method (Equal Sharing) allocates the indirect costs associated with the common space on a pole equally to each attacher regardless of whether the attacher attaches telecommunications, electrical or other facilities and of whether the attacher is an owner or a tenant. As a methodology its main advantage is simplicity but little more can be said for it.

42 Transcript from technical conference, page 22, line 21 - page 23, line 28.

110. The Proportional Use approach calculates the relative use of pole space by power and by communications. The proportionate usage approach roughly reflects the benefit from the pole use on the basis of relative space each category of attacher uses on the pole. Although there is no causal cost relationship, it is intuitive in the sense that attachers who use more of the space get assigned more of the indirect costs.

111. It is not simply a matter of which of the two methodologies is the easiest. The Equal Sharing methodology penalizes communications attachers by allocating almost twice the indirect costs than those assigned under the Proportional Use methodology.

112. An aspect of pole attachment rate setting that is overlooked are the advantages of pole ownership. The significance of ownership and the implications for allocating indirect costs was noted by the CRTC in Decision 99-13:

> The Commission is of the view that in determining the appropriate costs to be recovered from the cable companies, it is important to consider that they do not have the rights of ownership of the pole. Accordingly, the Commission considers that the fully distributed costing approach proposed by the MEA is not appropriate and that an allocation factor based on the percentage of usable space consumed is more reflective of a user's actual use and therefore is a more appropriate means of allocating costs.[43]

113. Pole owners have ready access to information about the poles including locations, any work needed to support additional loads or other make ready work, the number of attachers and type of attachments. They determine pole routes, the timing of pole replacements and pole capacity. Conversely, third parties incur costs to prepare and submit applications for attachment, confront delay while applications are processed or re-filed due to lack of capacity, and face uncertainty over the future cost and use of poles. Alternatives to poles are limited. Third parties are restricted from installing poles, buried cable is expensive and requires approvals, and access to conduit is limited and has its own delays.[44]

114. For the purpose of allocating indirect pole costs, the Proportional Use approach is recommended. The calculation of the indirect cost allocation factor with 2.5 attachers is provided in a previous table.

5.3 Application of the Recommended Methodology

115. The table below is based on Hydro Ottawa's Attachment H-7(A) and includes a column showing the revisions recommended in this submission.

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43 Telecom Decision CRTC 99-13, Part VII Application - Access to Supporting Structures of Municipal Power Utilities - CCTA vs MEA et al - Final Decision, paragraph 222.

44 The Evidence of Kevin Richard, filed on behalf Rogers Communications Partnership, Quebecor Media and TELUS Communications Company in the current proceeding provides more detailed comments regarding the advantages of being a pole owner over a pole tenant.

		Hydro Ottawa	Revised
DIRECT COSTS			
Admin	Total	141,291	141,291
	Poles with attachments 35,663		
	Admin per pole	3.96	1.58
LIP-Pole replacement	Field Verification		
	Cost of Field verification	81,410.21	0.00
	Returning Crew		
	Cost of Returning Crew	188,987.99	0.00
	Total LIP-Pole replacement	270,398.21	0.00
LIP-Field Verification	Wires Down	14,720.00	14,720.00
	Tree on Wires	25,300.80	25,300.80
	Total Cost due to Loss In Productivity	310,419.01	40,020.80
	Poles with attachments 35,663		
	LIP per pole	8.70	0.45
INDIRECT COSTS			
Net Book Value per pole		1,678.00	1,257.841,263.43
Depreciation Expense per Pole		43.29	34.80
Pole Maintenance Expense per Pole		12.61	10.6410.18
Capital Carrying Costs per Pole		112.43	84.2876.25
	Total Indirect Costs per pole	168.33	129.71121.23
Allocation Factor	Hydro Ottawa: 25.9% Proposal 12.5%		
		43.60	16.2115.15
Total Cost per Pole with attachments per year		56.26	18.2417.18

Numbers may not balance due to rounding

6.0 CONCLUSION

116. The information on the record does not permit as detailed a review and assessment as would be liked. However, there is evidence that Hydro Ottawa erred in the pole attachment cost study in a number of respects.

1. Direct costs should be divided by the number of attachers.

2. Net book value should be used for pole assets.

3. Average, not year-end, costs should be used.

4. Pole net book value should exclude power-specific costs.

5. Pole depreciation expense should exclude power-specific costs.

6. Current, not historic, cost of capital should be used.

7. Pole maintenance expense should exclude power-specific costs.

8. The number of attachers should be adjusted to reflect recent experience and near-term expectations.

9. Proportional usage should be used as the methodology to allocate indirect costs.

10. Hydro Ottawa's proposed pole attachment rates will produce revenues far in excess of costs.

117. With the revisions discussed in this report, it is recommended that the Board set Hydro Ottawa pole attachment rates at $18.24~~17.18~~.

APPENDIX 1

Proportional Allocation

Communications Attachers: 2.0

	Total Space	Power	Communications
Buried depth	6.00	4.12	1.88
Clearance	17.25	11.84	5.41
Communications space	2.00	0.00	2.00
Separation space	3.25	0.00	3.25
Power space	11.50	11.50	0.00
Total Allocated Space	40.00	27.46	12.54
Relative space		69%	31%
Communications Allocation factor			**15.7%**

Equal Allocation

Communications Attachers: 2.0

	Total Space	Power	Communications
Buried depth	6.00	2.00	4.00
Clearance	17.25	5.75	11.50
Communications space	2.00	0.00	2.00
Separation space	3.25	1.08	2.17
Power space	11.50	11.50	0.00
Total Allocated Space	40.00	20.33	19.67
Relative space		50.8%	49.2%
Communications Allocation factor			**24.6%**

Proportional Allocation

Communications Attachers: 2.5

	Total Space	Power	Communications
Buried depth	6.00	4.12	1.88
Clearance	17.25	11.84	5.41
Communications space	2.00	0.00	2.00
Separation space	3.25	0.00	3.25
Power space	11.50	11.50	0.00
Total Allocated Space	40.00	27.46	12.54
Relative space		69%	31%
Communications Allocation factor			**12.5%**

Equal Allocation

Communications Attachers: 2.5

	Total Space	Power	Communications
Buried depth	6.00	1.71	4.29
Clearance	17.25	4.93	12.32
Communications space	2.00	0.00	2.00
Separation space	3.25	0.93	2.32
Power space	11.50	11.50	0.00
Total Allocated Space	40.00	19.07	20.93
Relative space		47.7%	52.3%
Communications Allocation factor			**20.9%**

Proportional Allocation

Communications Attachers: 3.0

	Total Space	Power	Communications
Buried depth	6.00	4.12	1.88
Clearance	17.25	11.84	5.41
Communications space	2.00	0.00	2.00
Separation space	3.25	0.00	3.25
Power space	11.50	11.50	0.00
Total Allocated Space	40.00	27.46	12.54
Relative space		69%	31%
Communications Allocation factor			**10.4%**

Equal Allocation

Communications Attachers: 3.0

	Total Space	Power	Communications
Buried depth	6.00	1.50	4.50
Clearance	17.25	4.31	12.94
Communications space	2.00	0.00	2.00
Separation space	3.25	0.81	2.44
Power space	11.50	11.50	0.00
Total Allocated Space	40.00	18.13	21.88
Relative space		45.3%	54.7%
Communications Allocation factor			**18.2%**

Undertaking JTC3.5

To determine if the number reported on paragraph 92 in the table at the top of page 19 for the 2013 account 5120, pole maintenance cost of $579,188 is accurate and, if it is, to flow that number through and, specifically, to explain the discrepancy between the number noted in paragraph 89 for 2013 total pole maintenance expenses, $605,081, and the number reflected at the top of page 19

Response provided by Mr. McKeown:

I have amended pages 19, 20 and 24 of my evidence, using 2013 total pole maintenance expenses of $605,081. Please see Attachment A to my response to undertaking JTC3.5.

Undertaking JTC3.6

To respond to Mr. Harper's suggestion for calculating pole replacement loss in productivity

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Response provided by Mr. McKeown:

Mr. Harper's question is understood as follows: Paragraph 60 of the evidence says that Field Verification and Returning Crew costs associated with pole replacements should not be included as direct costs because these costs are capitalized in Account 1830, which earns a return and is the basis for determining depreciation expense. Since the carrying cost of capital and depreciation expense are already included in the Pole Attachment costs, paragraph 60 says that the costs should not also be included as direct costs. However, 31% of the indirect costs are allocated to carriers (assuming 2.5 attachers, using the Proportional Allocation methodology), meaning that only 31% of pole replacement costs will be recovered from the pole attachment rate and the remaining 69% of the pole replacement costs will be borne by Ottawa Hydro. If this is correct, would it be appropriate to include 69% of the Field Verification and Returning Crew costs associated with pole replacements as direct costs?

Field Verification and Returning Crew costs associated with pole replacements were removed as direct costs because "the replacement of a pole always requires the deployment of at least two different crews at separate times, regardless of whether the pole has Wireline Attachments or not" (paragraph 10 of the Evidence of Kevin Richard). In other words, the field verification and returning crews must visit the pole sites for reasons unrelated to pole attachments. Therefore, the Field Verification and Returning Crew costs associated with pole replacements are not caused by third party pole attachers and should not be recovered solely from third party pole attachers.

Treating pole replacement costs as a category of costs that should be recovered exclusively from pole attachers is also incorrect because the new installed poles are common costs that should be recovered from all pole users. Poles are not typically replaced because of pole attachers. In fact, Hydro Ottawa's evidence makes clear that pole replacement is caused by reasons unrelated to pole attachers:

> As per Canadian Electrical Code - CSA 22.3, poles should be replaced once they fall below 60% of the required strength. HOL adopts this recommendation as key criteria for wood pole replacement decision. However, while remaining strength is a primary driver for evaluating pole condition there are other factors that are considered for replacement criteria. These factors include: shell condition, pole top condition, and woodpecker damage.
>
> • Shell Condition – Weathering and external rot on the pole surface may not significantly impact the strength of the pole. However, it does impact the aesthetics and may present a safety hazard or impede HOL work if it is in a location where climbing the pole is required.

• Pole Top – Weathering and rot at the pole top will not significantly impact the strength of the pole. It will however increase the risk of pole hardware coming loose (due to bolts pulling through the wood). It is also unsightly and may present a perceived issue/concern to the public.

• Woodpecker Damage – Smaller holes are repairable and present predominantly aesthetic issues. Large woodpecker holes, depending on their location along the length of the pole, can significantly impact the strength of a pole. Woodpecker holes left un-repaired can potentially reduce the life of a pole, as the untreated pole heart-wood is exposed to elements which can lead to decay and insect attack. (Material Investments, Attachment B-1(A), page 44 of 385)

None of these reasons for pole replacement are related to pole attachments. Since direct costs are costs that are incurred directly as a result of pole attachments and there is no causal relationship between pole attachments and incurring pole replacement costs, it is not appropriate to exclusively recover pole replacement costs through rates paid by pole attachers. This is not to say that third party pole attachers should not be responsible for some of the cost but only that they should not be responsible for the recovery of the entire cost.

The question raises the possibility of treating some pole replacement costs as direct costs. Whether pole replacement related costs should be treated as direct or indirect costs depends on the nature of the costs. Under the pole attachment costing methodology, direct costs are costs that are caused by pole attachers. For the reasons described above, pole replacement costs are not causal to third party pole attachers.

The question also suggests that pole replacement costs should not be capitalized. Whether pole replacement costs should be capitalized or expensed also depends on the nature of the costs. Pole replacement costs are capitalized costs because pole replacement has a value that exceeds more than 12 months. Capitalizing the pole replacement costs and recognizing depreciation expense over the life of the poles allows a matching of revenues and costs. Hydro Ottawa has included the total annual costs of pole replacement that it attributes to carriers as a direct cost. This has the effect of recovering the capitalized costs from pole attachers in the year the costs are incurred, instead of over the life of the poles. This treatment is inconsistent with the accounting principles and the pole attachment costing methodology.

For these reasons, the pole replacement costs identified by Hydro Ottawa in its cost study should be included as indirect costs and excluded as direct costs.