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**BY EMAIL**

February 9, 2018

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

Attention: Ms. Kirsten Walli, Board Secretary

Dear Ms. Walli:

**Re: OEB Staff Submission on InnPower Corporation Pole Attachment Charge Settlement Proposal  
InnPower Corporation Application for Approval of electricity distribution rates and other charges  
OEB File Number: EB-2016-0085**

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Pursuant to the Decision and Procedural Order No. 7 issued on November 10, 2017, please find attached OEB staff's submission on the settlement proposal filed in the above referenced proceeding.

Yours truly,

*Original Signed By*

Michael Lesychyn  
Project Advisor, Supply and Infrastructure

cc: Parties to EB-2016-0085



# **ONTARIO ENERGY BOARD**

## **STAFF SUBMISSION ON SETTLEMENT PROPOSAL**

**INNPOWER CORPORATION  
APPLICATION FOR ELECTRICITY DISTRIBUTION RATES AND OTHER  
CHARGES BEGINNING JULY 1, 2017  
POLE ATTACHMENT CHARGES  
EB-2016-0085**

**February 9, 2018**

## Background

InnPower Corporation (InnPower) filed an amended cost of service application with the Ontario Energy Board (OEB) on May 11, 2017 under section 78 of the *Ontario Energy Board Act, 1998*, seeking approval for changes to the rates that InnPower charges for electricity distribution, to be effective July 1, 2017.

The OEB issued a Notice of Application on February 22, 2017, inviting parties to apply for intervenor status. Parties that were granted intervenor status in this proceeding are Rogers Communications Canada Inc. (Rogers), School Energy Coalition (SEC), and Vulnerable Energy Consumers Coalition (VECC).

InnPower's application included proposed changes to its pole attachment and microFIT charges. The OEB issued Procedural Order No. 1 on May 16, 2017, which provided for the filing of interrogatories and responses. Procedural Order No. 2 was issued on May 26, 2017 to provide further notice of this application for specific customer groups and allow for additional related interrogatories and responses.

On August 23, 2017, the OEB received a letter from InnPower's counsel advising that InnPower was withdrawing its request to increase charges for two of the customer groups (pole attachment and microFIT customers) and that it had no customers in the third group (net metering customers).

On August 24, 2017, the OEB received a letter from SEC stating that the evidence filed by InnPower shows that the pole attachment charge should be increased, and as a result of proper cost allocation, the rates to all other customers would be decreased. SEC therefore submitted that the appropriate pole attachment charge remains a relevant issue in this proceeding.

By way of letter dated August 28, 2017, InnPower's counsel challenged SEC's position and requested that the OEB allow it to withdraw its proposal to change the pole attachment charge.

Procedural Order No. 3 was issued on September 1, 2017 in which the OEB determined that it would proceed by way of an oral hearing for all issues except the pole attachment and microFIT charges and directed InnPower to give notice of the application to customer groups that could be affected by these two charges. The OEB stated that further procedural direction with respect to the pole attachment and microFIT charges

would take place in a subsequent procedural order, separate from all of the issues included in the original application.

As referenced in InnPower's letter of August 23, 2017, the OEB has initiated a generic policy review of pole attachment charges. This review is considering the methodology to be used for determining pole attachment charges. At the time the OEB issued Procedural Order No. 6 on October 6, 2017, the expected issuance date of a new policy on pole attachment charges was unknown. In Procedural Order No. 7, issued on November 10, 2017, the OEB stated that, until any new methodology is determined, the OEB is guided by the methodology set out in its 2005 Decision.<sup>1</sup>

Procedural Order No. 7 stated that a change to the microFIT charge of \$5.40 would not be considered but the OEB would consider a change to the current pole attachment charge of \$22.35. In that same order, the OEB also indicated that the evidence on the record was insufficient to enable parties to assess, and the OEB to determine, the appropriate pole attachment charge for InnPower. As a result, the OEB directed InnPower to file updated evidence with a proposed new pole attachment charge based on evidence it would be able to support and which should be based on the current methodology set out in the 2005 Decision. Procedural Order No. 7 also indicated that consistent with the Hydro Ottawa decision<sup>2</sup> on pole attachments, the evidence was to include InnPower's number of attachers per pole, and distinguish between direct and indirect costs. Procedural Order No. 7 also provided for the filing of interrogatories and responses, as well as a settlement conference, related to the pole attachment charge issue.

InnPower filed new evidence on November 27, 2017. A Draft Report of the Board on the Framework for Determining Wireline Pole Attachment Charges was issued on December 18, 2017<sup>3</sup> (draft methodology). The OEB is currently reviewing industry comments on the draft methodology (consultation) and anticipates a final Report of the OEB to be issued in the spring of 2018.

InnPower also filed updated evidence on December 18, 2017, after further interrogatories were received from parties on December 4, 2017.

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<sup>1</sup> RP-2003-0249, Decision and Order, pursuant to section 74 of the *Ontario Energy Board Act, 1998* by the Canadian Cable Television Association for an Order or Orders to amend the licenses of electricity distributors (2005 Decision)

<sup>2</sup> Decision and Rate Order on Pole Attachment Charge for Hydro Ottawa, dated February 25, 2016 file number EB-2015-0004 (Hydro Ottawa)

<sup>3</sup> EB-2015-0304

The OEB issued a letter on January 2, 2018 responding to Rogers' request for the OEB to provide for supplemental interrogatories. The OEB stated that if any intervenor or OEB staff required clarification of the evidence in order to participate in the settlement conference, that party was to direct its clarification questions to InnPower. However, the clarification questions were not to be filed on the record with the Board Secretary at that time, as they were considered part of the settlement conference. During the settlement conference, parties were to discuss whether information arising from any clarification questions posed and associated answers should be filed on the record.

On January 8 and 9, 2018 a settlement conference was convened at the OEB offices. InnPower, Rogers, SEC and VECC (the parties) participated in the settlement conference on the sole issue of InnPower's pole attachment charge and subsequently, on February 2, 2018, the parties filed a settlement proposal.

### **Summary of OEB Staff's Position**

OEB staff assessed the settlement proposal against the outcomes arising from a potential approval. In doing so, OEB staff's focus was whether these outcomes would adequately reflect the public interest and would result in just and reasonable rates for customers. OEB staff notes that incremental forecast revenue generated from wireless pole attachments lowers the base revenue requirement (and therefore the base rates charged to customers) from the level it would have been otherwise.

OEB staff notes that the OEB requested parties to use the 2005 Decision methodology. Having reviewed the settlement proposal, OEB staff submits that the proposed pole attachment charge does not adequately support the public interest. This is because the proposed charge of \$38.82 per pole is not supported by the evidence and, in some instances, is based on incorrect data inputs. OEB staff does not have sufficient confidence in the data and therefore submits that the OEB should not approve a change in InnPower's pole attachment charge at this time.

OEB staff submits that if the OEB Panel agrees with OEB staff that the data is not as reliable as it should be to support an updated charge, and given that the OEB has commenced a consultation on a new draft methodology, a reasonable course of action would be to await the outcome of the OEB's consultation and the final report of the OEB. InnPower will then have an opportunity to apply for a utility-specific charge and to provide better supporting evidence for the various inputs. InnPower's other option will be to adopt the final generic charge which the OEB may establish at the conclusion of the consultation and approval of the final report. OEB staff notes that the OEB's draft methodology leads to a generic charge of \$52.00.

Given that InnPower's rates are interim as of January 1, 2017, the implementation of a final charge subsequent to the conclusion of the OEB's consultation is possible. Should the OEB accept OEB staff's position that the settlement proposal not be approved, OEB staff recommends the establishment of a variance account to track the differences in revenue for the subject stub period between the current charge of \$22.35 and the final charge approved for InnPower subsequent to the conclusion of the consultation.

### **Settlement Proposal**

In the settlement proposal, the parties have agreed to a pole attachment charge of \$38.82 based on the Hydro Ottawa methodology which is also based on the 2005 Decision. The settlement proposal charge is based on the inputs as shown in Table 1 below, which also shows the values for the same inputs used in the draft methodology.

The purpose of this section of OEB staff's submission is to demonstrate the unreliability of certain data that underpins the settlement proposal. As noted in the table below, OEB staff is of the view that the OEB should not rely on the data for the following three inputs: attachers per pole, administration costs, and maintenance costs. The table below also indicates differences in other inputs to provide better context for the proposed settlement proposal and how the values / inputs may differ from the OEB's recent draft methodology.

One important difference between the 2005 Decision and draft methodology is in the allocation of common (indirect) pole costs. The 2005 Decision allocates common costs of each pole equally according to the total number of attachers including both telecommunication and power, thus resulting in an equal allocation between all attachers. The draft methodology uses the "hybrid equal sharing" approach which allocates common pole costs in two stages. First, there is an allocation between power and all telecommunication attachers on a 50/50 basis. Second, the assigned amount to the telecommunication attachers is allocated to each attacher based on the total number of telecommunication attachers on the pole. Thus, telecommunication attachers' share of common pole structure costs for each pole is capped at 50% of the total. OEB staff notes that the draft methodology for this item, directionally, works in favour of the telecommunication providers.

In addition, the draft methodology and 2005 Decision differ in the allocation factors used in accounts USoA 1830 (capital cost of poles), and maintenance accounts 5120 and 5135. They also differ in the allocation of common costs attributed to telecommunication carriers as described above.

**Table 1 – Comparison of Settlement Proposal Inputs Versus Draft Methodology**

<b>Input</b>	<b>Settlement Proposal February 2, 2018</b>	<b>Draft Methodology</b>	<b>OEB Staff comment</b>
Attachers per pole	1.38	1.30	<ul style="list-style-type: none"> <li>• The settlement proposal input is based on the mid point between a lower bound (1.149) and upper bound (1.592).</li> <li>• Given the data submitted, it is not possible to accurately calculate the number of attachers per pole.</li> <li>• A more appropriate number would be 1.13 attachers/pole, which would be consistent with the draft methodology.</li> <li>• OEB staff's calculations are provided in Appendix A.</li> <li>• Using the lower attacher number per pole raises the overall charge.</li> </ul>
Administration Costs	\$0.92	\$2.85	<ul style="list-style-type: none"> <li>• The number of attachers has a direct impact on the calculation of Administration Costs.</li> <li>• If one assumes 1.13 attachers per pole, the Administration Cost would equal \$0.84.</li> <li>• OEB staff notes that the Administration Costs are only 30% of the number in the draft methodology and only 40% of the number submitted by Hydro Ottawa in its approved application.</li> <li>• OEB staff notes that the \$0.92 is in the range submitted by Hydro One in its approved application<sup>4</sup>.</li> </ul>

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<sup>4</sup> EB-2015-0141

			<ul style="list-style-type: none"> <li>• OEB staff submits that based on the evidence on the record of InnPower’s cost of service application, there are a number of new poles (joint use poles) that have been installed because of the recent growth in the area.</li> <li>• Therefore, for InnPower, the Administration Costs should be higher, e.g. closer to the draft methodology number and there is no satisfactory explanation from the company as to why this should not be the case.</li> <li>• A higher Administration Cost raises the overall charge.</li> </ul>
Loss of Productivity (LOP)	\$9.53	\$3.30	<ul style="list-style-type: none"> <li>• OEB staff notes that \$51,877 was added to InnPower’s LOP costs for trouble calls. This information was removed from indirect costs.</li> <li>• This LOP cost is significantly higher than costs included in the draft methodology, which did not include troubled calls in the LOP Costs. InnPower does not provide the impact of this reallocation on the indirect costs, i.e. whether they were a dollar for dollar reallocation.</li> <li>• OEB staff notes InnPower’s December 18, 2017 submission included a LOP cost of \$4.00 per pole.</li> <li>• A higher LOP cost raises the overall charge.</li> </ul>
Adjusted Net Book Value (NBV) per pole	\$839.50 (5% power reduction)	\$916.24 (15% power reduction)	<ul style="list-style-type: none"> <li>• OEB staff notes that the settlement proposal incorporates a power deduction of 5%, which is consistent with the Hydro Ottawa decision.</li> <li>• The draft methodology adjusts 2016 submitted data to 2017 forecast with a 15% deduction. Local Distribution Companies (LDCs) applying</li> </ul>

			<p>for a utility-specific charge should use the most recent data to ensure the projected charge is reflective of the most up to date costs. The draft methodology utilizes a six-year average of the participating LDCs to smooth out any yearly anomalies to derive provincial average.</p> <ul style="list-style-type: none"> <li>• In InnPower’s case, this averaging is likely to under estimate the NBV because of the significant recent growth in its pole population.<sup>5</sup> But in any event, the parties have not agreed to use an averaging technique and instead are using the 2016 number.</li> <li>• OEB staff notes that the 2017 forecast numbers are in the same range as the draft methodology. The significant increase in poles since 2012 supports the use of InnPower’s 2017 forecast number of \$1087.55.</li> <li>• In OEB staff’s view, it is not appropriate to use either of the 2016 numbers given the rate of growth as evidenced in their application. It also does not make practical sense that InnPower is updating its charge for the first time in 15 years yet the most recent data is not used.</li> <li>• A higher net book value raises the overall charge through a higher depreciation expense and a higher weighted average cost of capital (WACC).</li> </ul>
Depreciation Expense per pole	\$23.66	\$26.40 (1.91% per year)	<ul style="list-style-type: none"> <li>• InnPower’s depreciation number is less than the draft methodology primarily because of the lower NBV.</li> </ul>

<sup>5</sup> InnPower Pole Attachment Settlement File excel file dated 20170108 tab – average NBV for account 1830.

			<ul style="list-style-type: none"> <li>• However, OEB staff notes that the depreciation rate used by InnPower is higher than the draft methodology. Using a depreciation rate comparable to the draft methodology would reduce this cost further but may not be representative of InnPower’s circumstances.</li> <li>• A higher depreciation expense would raise the overall charge.</li> </ul>
Carrying Charge per pole	\$56.92	\$75.57	<ul style="list-style-type: none"> <li>• InnPower’s carrying charge is significantly less than the draft methodology because of two factors: a lower NBV and lower WACC.</li> <li>• InnPower uses 6.78% for its WACC whereas the draft methodology uses 8.25%. InnPower’s WACC is driven by its current financial structure whereas the draft methodology is based on the average WACC over six years for the participating LDCs.</li> <li>• A higher WACC would raise the overall charge.</li> </ul>
Pole Maintenance USoA 5120 per pole	\$0.56	\$6.77	<ul style="list-style-type: none"> <li>• InnPower’s submitted cost of \$6,064 for this account is extremely low for maintaining 10,210 poles. Even if a large portion of the pole population is new, the maintenance costs on the older assets should be comparable to the draft methodology which is based on approximately 90% of the pole population in the province.</li> <li>• OEB staff submits that InnPower’s evidence underpinning the settlement proposal does not accurately reflect the true cost of maintaining its poles. In the 2005 Decision this cost was \$7.61, in the Hydro One decision it was \$ 4.69 and in the Hydro Ottawa decision it was \$11.89.</li> </ul>

			<ul style="list-style-type: none"> <li>• In OEB staff's view, this item alone raises sufficient doubt as to the veracity of the data provided by InnPower.</li> <li>• A higher maintenance cost raises the overall charge.</li> </ul>
Pole Testing per pole	\$2.59	\$0	<ul style="list-style-type: none"> <li>• This cost has not been included in the draft methodology as a separate maintenance cost but could be considered to fall under USoA 5120 even though not specifically defined in the OEB's Accounting Procedures Handbook.</li> <li>• If one considers this cost to be part of 5120 then a total charge for pole maintenance of \$3.03 (\$2.59+\$0.56) is still significantly lower than that approved in the previous decisions and the draft methodology.</li> <li>• A higher pole testing cost raises the overall charge.</li> </ul>
Line Maintenance Right of Way per Pole UsoA 5135	\$0	\$25.56	<ul style="list-style-type: none"> <li>• Consistent with the Hydro Ottawa and Hydro One decisions,<sup>6</sup> InnPower has not submitted a cost for vegetation management (VM) and submits that it will negotiate a charge with Rogers and other Carriers within their respective Joint Use agreements.</li> <li>• In addition, the settlement proposal requests the OEB approve a deferral account for the revenues collected for VM, which will be rebated back to ratepayers. Even though Rogers and InnPower have indicated they intend to negotiate in good faith, OEB staff submits that there is no</li> </ul>

<sup>6</sup> Motion to Review and Vary Decision EB-2015-0141/EB-2014-0247 Approving Distribution Rates and Charges for Hydro One Networks Inc. for 2015-2017.

			<p>guarantee that this cost will be successfully negotiated into their joint use agreement in a timely manner. During this negotiation period, ratepayers would continue to subsidize this cost as they have been doing historically.</p> <ul style="list-style-type: none"><li>• Not including VM in the charge would continue the inconsistency of how VM is costed between utilities across the province. The draft methodology includes VM in the charge to ensure consistency across the province on how VM is charged back to wireline attachers.</li><li>• As InnPower has not provided a cost for VM in the settlement proposal, it is not possible for staff to identify an InnPower-specific cost. OEB staff has estimated a cost of \$25.56, which is 33% of account 5135 (Right of Way) maintenance that is used in the draft methodology.</li><li>• Including VM costs would increase the overall charge.</li></ul>
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## **InnPower-specific charge using the draft methodology**

As detailed above, OEB staff is concerned with the reliability of three data sets underpinning the settlement proposal for InnPower's pole attachment charge, namely with the number of attachers per pole, administration costs and maintenance costs. The information supporting the amounts that underpin the proposed charge are not supported by sufficient evidence.

While OEB staff recommends that the OEB not change InnPower's pole attachment charge until the draft methodology is finalized, OEB staff has calculated a charge based on the draft methodology for context. OEB staff has used what it considers are the appropriate inputs from InnPower's evidence in order to demonstrate the disparity between the pole attachment charge in the settlement proposal and that generated by the draft methodology. Because of the lack of quality data and information in certain areas, OEB staff has had to supplement certain data with that used in the draft methodology, which is based on data from about 90% of the pole population in the province.

### *Number of attachers*

The data used to generate the number of attachers per pole is subject to interpretation and results in a range within which parties adopted the mid point for purposes of the settlement proposal. OEB staff submits that this approach is not representative of InnPower's situation. OEB staff submits that a more appropriate number would be 1.13 attachers per pole as calculated in Appendix A of this submission based on InnPower data.

### *Direct costs*

Although InnPower's total direct costs per pole per attacher are higher than proposed in the draft methodology (after the data is adjusted for costs from account 5120), OEB staff believes that the draft methodology numbers are more representative of these costs. InnPower's administrative costs are low and not supported with adequate evidence. In order to calculate a charge for InnPower using the draft methodology, OEB staff has used data submitted by InnPower corrected for the number of attachers.

### *Indirect costs*

InnPower's NBV, depreciation expenses and carrying costs are comparable to the draft methodology numbers and have been used in OEB staff's projected charge calculation.

The draft methodology proposes a six year weighted average to generate the province wide rate of the NBV data submitted by the participating LDCs for a population that increases by only 3% over the six year time frame; thus representative of a relatively stable population. Meanwhile, InnPower’s pole population has nearly doubled such that using an average over this period would significantly underestimate the 2017 NBV of the pole population.

OEB staff submits that the settlement proposal’s maintenance costs do not stand up to scrutiny as they are significantly less than the draft methodology values and the costs that one would expect to incur for maintaining a pole population of over 10,000 poles. OEB staff have included the draft methodology maintenance cost of \$32.33.

As can be seen on the table below, correcting for the number of attachers and the pole maintenance costs (which include VM costs) would result in an InnPower specific charge of \$52.64. The draft methodology results in a generic charge of \$52.00.

**Table 2 – A Comparison of Settlement Proposal Charge Rate Versus Draft Methodology**

Charge Inputs	InnPower Submission February 02, 2018 (2005 Methodology)	OEB Policy Consultation Draft Methodology Input Values & Rate	OEB Projected InnPower Rate Using draft methodology workform Settlement Proposal Data – Adjusted as per Table 1
No. Attachers Pole	1.38	1.3	1.13 – adjusted
Administration Costs	\$0.92	\$2.85	\$0.84 – adjusted
LOP Costs	\$9.53	\$3.30	\$8.67 – adjusted
Total Direct Costs	\$10.45	\$6.15	\$9.51 – adjusted
NBV Per Pole	\$839.50	\$916.24	\$839.50
Depreciation Expense	\$23.66	\$26.40	\$23.66
Carrying Cost	\$56.92	\$75.57	\$56.92
Pole Maintenance (5120, 5135)	\$3.03	\$32.33	\$32.33 – adjusted
Total Indirect Costs	\$83.61	\$134.40	\$112.81
Allocation Common Space	33.93%	32.45%	37.33%
Total Allocated Indirect Costs	\$28.37	\$43.58	\$42.15
Pole Attachment Charge	\$38.82	\$49.73	\$51.66*
Pole Attachment Charge – Adjusted for IPI	\$39.56	\$52.00	\$52.64

\*Note: \$38.82 is based on the settlement proposal for the number of attachers of 1.38. The new methodology yields the number of attachers per pole to 1.13 including street lighting. Substituting 1.13 in the OEB Workform, utilizing InnPower data except for maintenance, adjusting maintenance in accounts 5120 and 5135 as per consultation results in a rate of \$51.66 per pole per year. Adjusting for inflation from 2016 to 2017 (assuming 1.9% escalation) results in a rate of \$52.64.

## Conclusion

Given the issues with the data inputs, especially for the maintenance costs being used by InnPower, OEB staff submits that the settlement proposal should not be approved and a decision on InnPower's pole attachment charge should be delayed until the OEB's consultation on the draft methodology is concluded.

To be clear, OEB staff is not recommending adopting the outcome of its own calculations arising from the draft methodology (\$52.64) except perhaps as a placeholder if the panel was inclined to establish an interim rate higher than the current \$22.35. The purpose of staff's analysis and comparison with the draft methodology is to demonstrate the differences between the settlement proposal and what may be the outcome of the draft methodology if the OEB was to adopt it in the form it was issued. OEB staff also acknowledges that its calculations and assumptions that underpin the \$52.64 would require further testing by the parties if the OEB was inclined to explore an InnPower specific rate based on the draft methodology as a starting point, as opposed to the 2005 Decision. That said, it is OEB staff's view that the calculation based on the draft methodology is sufficiently illustrative to provide context and perhaps a directional indicator as to the potential outcome of the final methodology.

Not approving an InnPower-specific pole attachment charge at this time would allow InnPower to collect specific data inputs in accordance with the final report. This could include the use of sub accounts within USoA accounts to track all costs attributable to attachers within an account and the tracking of both attacher and attachment data. In OEB staff's estimation, given the relatively small size of the utility's service area, it should take a few months (certainly less than a year) to collect the appropriate data. This is not an unreasonable timeframe to collect data to set a charge that will remain in place for several years leading up to the next cost of service application, if not longer.

Alternatively, the OEB could set an interim charge until the consultation is concluded. OEB staff submits that an interim charge of \$52.64 would be appropriate.

If the OEB sets an interim charge that is different from the current charge of \$22.35, then the variance account that OEB staff has recommended be established in the event the OEB does not accept the settlement proposal, can capture the difference between the revenue based on the \$22.35 versus the new interim charge and the account could also then track the variance between the interim charge and the final charge for the appropriate period.

*All of which is respectfully submitted*

## **APPENDIX A – OEB STAFF ANALYSIS OF INNPOWER SUBMITTED DATA**

As part of the Settlement Proposal InnPower has submitted an excel file entitled “LIVE EXCEL MODEL” which contains the details of the methodology and calculations that it used to derive the proposed Pole Attachment charge of \$38.82 per pole per year.

### **1. Attachers Per Pole**

The number of attachers per pole is one of the key inputs used in determining a pole attachment charge, thus it is critical that an accurate representative number is used. Section A of Appendix B of the Settlement Proposal indicates the number of attachers per pole was calculated using two different methodologies (discussed further below) from a field survey of only 20% of InnPower’s pole population. In using this survey, InnPower assumes that this sample is representative of its pole population, which according to its evidence has experienced some of the highest growth in the number of customers in the province and pole population. InnPower provides no statistical confidence intervals for the data.

The number of attachers was determined by taking the average between the numbers derived by the two methodologies of 1.592 and 1.149 to arrive at 1.38 attachers per pole. Both methodologies take into account streetlights and Hydro One attachments.

OEB staff notes the following issues in the “Attachers per Pole Calculation” tab.

**Method 1** – assumes the number of attachers equals 1,876 in the sample, which according to the “Field Verification” column H is entitled attachments. Using this number in OEB staff’s opinion over estimates the number of attachers in the sample and thus reduces the projected rate. Extrapolating 1,876 to InnPower’s total pole population yields  $1,876 * 5 = 9,380$  a number that is representative of the total number of attachments in the population, not attachers. An alternative to calculating the number of attachers per pole would be to utilize the number of invoices issued to communication attachers i.e. 6,558 and extrapolating to the sample, one arrives at the number of invoices within the sample of 1,312 which can be used to calculate the number of attachers per pole to be 1.113 as illustrated in the red cells in the “Attachers per Pole Calculation” tab.

**Method 2** – assumes the number of attachers in the pole population is equal to number of invoices issued to communications attachers of 6,558 divided by the number of joint use poles in the population, which has been extrapolated, from the sample ( $1,276 * 5 = 6,380$ ) to arrive at a ratio 1.149 attachers per pole.

An average of the numbers from Method 1 and 2 would result in the number of attachers per pole to be 1.13.