

Ontario Energy Board (OEB)

Pole Attachment Rate Model

November 24, 2016

Delivered to

PAWG

Prepared by

Nordicity

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Key Issues Submitted

Part I: Data Collection

Status Update

Since July 20th PAWG Meeting # 2

1) Data request # 2 was issued on Sept. 13th, 2016

- Complete response was requested by Sept. 30th 2016

2) Information requested include:

- Table 1: Capital Cost of Poles Infrastructure
- Table 2&3: Maintenance Cost of Poles Infrastructure
- Table 4: Installation cost of a pole (growth and/or replacement)

3) Conference Call was held on September 20th to provide clarifications

- As follow up additional data request was issued on Oct. 18th 2016,
- To capture costs associated with poles infrastructure and but not included Tables 1 to 3, above
- Capital and associated maintenance cost of “Overhead Conductors and Devices”
 - *With the exception of Hydro One no response was received*

Table 1: Poles Capital Cost

1830 Poles, Towers, and 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.

Note A: Sub-accounts should be used for sub-transmission Poles, Towers and Fixtures

Table 2: Poles Maintenance Cost

5120 Maintenance of Poles, Towers and Fixtures

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 sub-transmission feeders and distribution lines and feeders separately.

Table 3: Poles Repair & Right of Way Cost

5135 Overhead Distribution Lines and Feeders - Right of Way

These accounts shall include labour with payroll burden, material, trucking, and other expenses incurred in connection with tree trimming, etc. and other costs incurred in maintaining right of way subsequent to construction of a line.

These accounts may be further subdivided as follows:

- 1 Labour and Payroll Burden
- 2 Material
- 3 Truck Expense
- 4 Other Expense

Table 4: Cost of Installing a new Pole

Poles Installed Cost (Growth / Replacement / Renewal)

The purpose is to understand main cost items associated with the installation of new poles. Installation of new poles may be due to different reasons e.g. replacing a damaged pole, replacing to address new requirements, replacing due to expiry of useful life, to support growth, and so forth.

Typical cost items include:

- 1 Purchase price
- 2 Installation labour
- 3 Installation Material
- 4 Any other cost associated with installation of a pole

Table 5: Overhead Conductors and Devices

1835 Overhead Conductors and Devices

This account shall include the cost installed of overhead conductors and devices used for distribution purposes

Example items:

- 1 Circuit breakers.
- 2 Conductors, including insulated and bare wires and cables.
- 3 Ground wires, clamps, etc.
- 4 Insulators, including pin, suspension, and other types, and tie wire or clamps.
- 5 Lightning arresters.
- 6 Railroad and highway crossing guards.
- 7 Splices.
- 8 Switches.
- 9 Initial cost of tree trimming, including the cost of permits.
- 10 Other line device

Note: The cost of conductors used solely for street lighting or signal systems shall not be included in this account but in account 1875, Street Lighting and Signal Systems.

Data Collection - Status Update

Year	Table 1: Distribution Of Capital Cost - Act 1830																				Table 2: Distribution Of Maintenance Cost - Act 5120																											
	Poles						Towers						Power Fixtures						Power Fixtures						Poles						Towers						Power Fixtures						Power Fixtures					
	H1	HN	LH	TH	HO	CHEC	H1	HN	LH	TH	HO	CHEC	H1	HN	LH	TH	HO	CHEC	H1	HN	LH	TH	HO	CHEC	H1	HN	LH	TH	HO	CHEC	H1	HN	LH	TH	HO	CHEC	H1	HN	LH	TH	HO	CHEC	H1	HN	LH	TH	HO	CHEC
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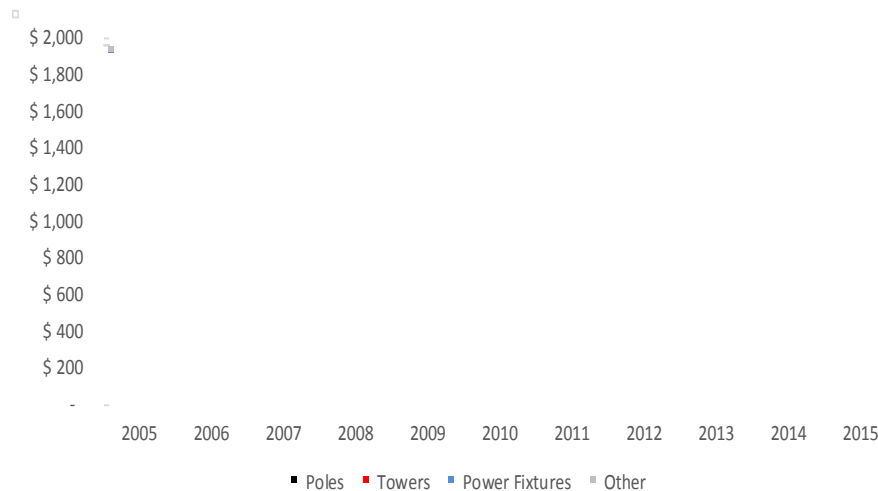
Year	Table 3: Distribution Of Maintenance Cost - Act 5135																				Table 4: Poles Installed Cost (Growth / Replacement / Renewal)																											
	Labour						Material						Truck						Other						Purchase Price						Installation Labour						Installation Material						Other					
	H1	HN	LH	TH	HO	CHEC	H1	HN	LH	TH	HO	CHEC	H1	HN	LH	TH	HO	CHEC	H1	HN	LH	TH	HO	CHEC	H1	HN	LH	TH	HO	CHEC	H1	HN	LH	TH	HO	CHEC	H1	HN	LH	TH	HO	CHEC	H1	HN	LH	TH	HO	CHEC
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■ Complete
 ■ Based on average of available years
 ■ Not applicable
 ■ Proxied based on other LDC ratio
 ■ Requested information not submitted

Historical Capital Cost Per Pole

Year	Installed Poles	Total General Submission		Distribution Of Capital Cost - Act 1830							
				Poles		Towers		Power Fixtures		Other	
2005	1,682,644	\$ 1,182.70	100.0%	\$ 971	82.1%	-	0.0%	\$ 191.98	16.2%	\$ 19.48	1.6%
2006	1,728,781	\$ 1,211.74	100.0%	\$ 996	82.2%	-	0.0%	\$ 196.24	16.2%	\$ 19.69	1.6%
2007	1,736,323	\$ 1,271.95	100.0%	\$ 1,045	82.2%	-	0.0%	\$ 205.95	16.2%	\$ 20.75	1.6%
2008	1,759,177	\$ 1,356.02	100.0%	\$ 1,107	81.7%	-	0.0%	\$ 223.57	16.5%	\$ 25.03	1.8%
2009	1,769,658	\$ 1,425.86	100.0%	\$ 1,162	81.5%	-	0.0%	\$ 237.30	16.6%	\$ 26.95	1.9%
2010	1,781,330	\$ 1,481.52	100.0%	\$ 1,207	81.5%	-	0.0%	\$ 246.52	16.6%	\$ 27.91	1.9%
2011	1,793,909	\$ 1,568.97	100.0%	\$ 1,277	81.4%	-	0.0%	\$ 261.71	16.7%	\$ 30.13	1.9%
2012	1,800,004	\$ 1,592.92	100.0%	\$ 1,296	81.4%	-	0.0%	\$ 267.95	16.8%	\$ 28.66	1.8%
2013	1,810,903	\$ 1,715.97	100.0%	\$ 1,399	81.5%	-	0.0%	\$ 287.16	16.7%	\$ 29.85	1.7%
2014	1,822,431	\$ 1,814.17	100.0%	\$ 1,482	81.7%	-	0.0%	\$ 301.74	16.6%	\$ 30.47	1.7%
2015	1,835,514	\$ 1,890.97	100.0%	\$ 1,559	82.5%	-	0.0%	\$ 306.35	16.2%	\$ 25.47	1.3%
Average	1,774,607	\$ 1,501.16		\$ 1,227.45	81.8%	-	0.0%	\$ 247.86	16.5%	\$ 25.85	1.7%

Installed poles represent ~97% of the province

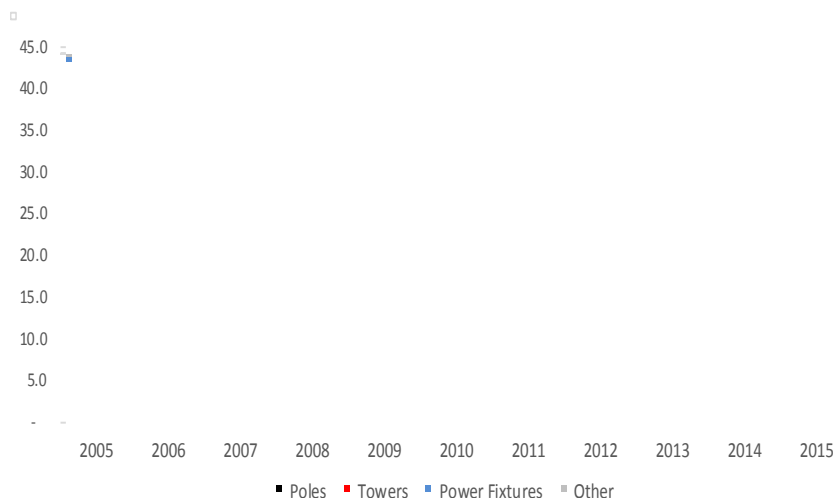


- Overall cost **increased** by 4.8% annually
- Two LDCs submitted complete table
- Poles cost represent most of the cost in this account
- Ratio of poles ranges from 63% to 85% of total cost

Annual Maintenance Cost Per Pole

Year	Installed Poles	Total General Submission		Distribution Of Maintenance Cost - Act 5120							
				Poles		Towers		Power Fixtures		Other	
2005	1,682,644	\$ 35.11	100.0%	\$ 1.79	5.1%	-	0.0%	\$ 33.32	94.9%	\$ 0.00	0.0%
2006	1,728,781	\$ 42.75	100.0%	\$ 2.16	5.1%	-	0.0%	\$ 40.58	94.9%	\$ 0.00	0.0%
2007	1,736,323	\$ 11.58	100.0%	\$ 0.63	5.5%	-	0.0%	\$ 10.94	94.5%	\$ 0.00	0.0%
2008	1,759,177	\$ 13.02	100.0%	\$ 0.87	6.7%	-	0.0%	\$ 12.14	93.2%	\$ 0.01	0.1%
2009	1,769,658	\$ 12.73	100.0%	\$ 0.85	6.7%	-	0.0%	\$ 11.87	93.3%	\$ 0.01	0.1%
2010	1,781,330	\$ 12.28	100.0%	\$ 0.91	7.4%	-	0.0%	\$ 11.35	92.5%	\$ 0.01	0.1%
2011	1,793,909	\$ 16.06	100.0%	\$ 1.07	6.7%	-	0.0%	\$ 14.98	93.3%	\$ 0.01	0.1%
2012	1,800,004	\$ 13.80	100.0%	\$ 1.02	7.4%	-	0.0%	\$ 12.77	92.5%	\$ 0.01	0.1%
2013	1,810,903	\$ 14.50	100.0%	\$ 1.07	7.4%	-	0.0%	\$ 13.42	92.5%	\$ 0.01	0.1%
2014	1,822,431	\$ 13.33	100.0%	\$ 0.90	6.7%	-	0.0%	\$ 12.42	93.2%	\$ 0.01	0.1%
2015	1,835,514	\$ 11.67	100.0%	\$ 0.77	6.6%	-	0.0%	\$ 10.89	93.4%	\$ 0.01	0.1%
Average	1,774,607	\$ 17.89		\$ 1.10	6.1%	-	0.0%	\$ 16.79	93.8%	\$ 0.01	0.0%

Installed poles represent ~97% of the province

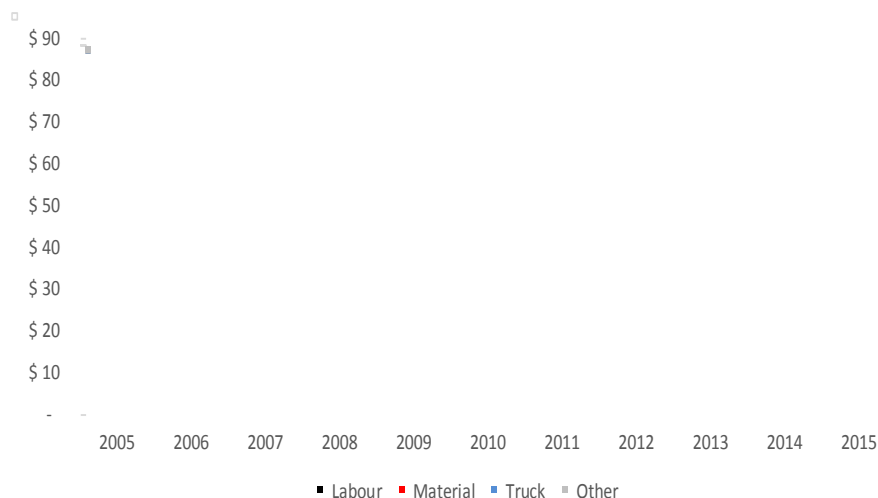


- Overall cost **decreased** by 10.4% annually, primarily due to very high costs in 2000/6
- Two LDCs submitted complete table
- Wide variation in proportion of poles cost
- Ratio of poles ranges from 5% to 92% of total cost

Annual Repair & Right of Way Cost Per Pole

Year	Installed Poles	Total General Submission		Distribution Of Maintenance Cost - Act 5135							
				Labour		Material		Truck		Other	
2005	1,682,644	\$ 53.94	100.0%	\$ 43.94	81.5%	\$ 0.64	1.2%	\$ 8.22	15.2%	\$ 1.14	2.1%
2006	1,728,781	\$ 55.10	100.0%	\$ 44.90	81.5%	\$ 0.65	1.2%	\$ 8.39	15.2%	\$ 1.15	2.1%
2007	1,736,323	\$ 67.98	100.0%	\$ 55.40	81.5%	\$ 0.81	1.2%	\$ 10.36	15.2%	\$ 1.42	2.1%
2008	1,759,177	\$ 72.29	100.0%	\$ 58.94	81.5%	\$ 0.85	1.2%	\$ 11.01	15.2%	\$ 1.50	2.1%
2009	1,769,658	\$ 71.63	100.0%	\$ 55.89	78.0%	\$ 0.86	1.2%	\$ 11.34	15.8%	\$ 3.54	4.9%
2010	1,781,330	\$ 75.52	100.0%	\$ 60.40	80.0%	\$ 0.86	1.1%	\$ 12.84	17.0%	\$ 1.43	1.9%
2011	1,793,909	\$ 75.59	100.0%	\$ 62.21	82.3%	\$ 1.03	1.4%	\$ 11.32	15.0%	\$ 1.04	1.4%
2012	1,800,004	\$ 78.25	100.0%	\$ 64.33	82.2%	\$ 1.17	1.5%	\$ 11.62	14.8%	\$ 1.12	1.4%
2013	1,810,903	\$ 81.76	100.0%	\$ 68.39	83.6%	\$ 1.11	1.4%	\$ 11.13	13.6%	\$ 1.13	1.4%
2014	1,822,431	\$ 79.95	100.0%	\$ 65.16	81.5%	\$ 0.66	0.8%	\$ 12.53	15.7%	\$ 1.60	2.0%
2015	1,835,514	\$ 69.06	100.0%	\$ 57.17	82.8%	\$ 0.63	0.9%	\$ 10.16	14.7%	\$ 1.10	1.6%
Average	1,774,607	\$ 71.01		\$ 57.88	81.5%	\$ 0.84	1.2%	\$ 10.81	15.2%	\$ 1.47	2.1%

Installed poles represent ~97% of the province

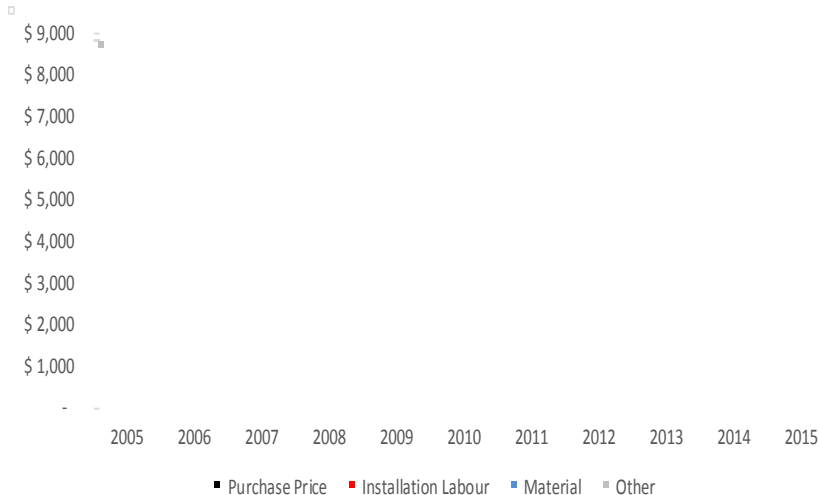


- Overall cost ***increased*** by 2.5% annually
- Two LDCs submitted complete table, except order volumes
- Ratio of labour ranges from 80% to 85% of total cost
- How much of these cost should apply to poles?

Installation Cost Per Pole

Year	New Poles Installed	Poles Installed Cost (Growth / Replacement / Renewal)									
		Total Installation Cost		Purchase Price		Installation Labour		Material		Other	
2005	3,541	\$ 8,047.3	100.0%	\$ 254.48	3.2%	\$ 3,725	46.3%	\$ 1,530.5	19.0%	\$ 2,536.88	31.5%
2006	6,106	\$ 6,805.2	100.0%	\$ 188.93	2.8%	\$ 3,214	47.2%	\$ 1,255.5	18.4%	\$ 2,146.66	31.5%
2007	8,248	\$ 6,540.2	100.0%	\$ 196.45	3.0%	\$ 3,328	50.9%	\$ 1,106.7	16.9%	\$ 1,909.27	29.2%
2008	7,878	\$ 6,894.7	100.0%	\$ 138.82	2.0%	\$ 3,712	53.8%	\$ 851.4	12.3%	\$ 2,192.52	31.8%
2009	8,842	\$ 7,396.8	100.0%	\$ 164.14	2.2%	\$ 3,934	53.2%	\$ 844.4	11.4%	\$ 2,453.98	33.2%
2010	8,721	\$ 7,788.0	100.0%	\$ 535.76	6.9%	\$ 4,127	53.0%	\$ 488.6	6.3%	\$ 2,636.95	33.9%
2011	8,809	\$ 7,845.1	100.0%	\$ 492.34	6.3%	\$ 4,232	53.9%	\$ 495.0	6.3%	\$ 2,625.68	33.5%
2012	9,078	\$ 7,848.0	100.0%	\$ 581.90	7.4%	\$ 4,140	52.8%	\$ 473.3	6.0%	\$ 2,652.64	33.8%
2013	12,340	\$ 7,472.6	100.0%	\$ 551.90	7.4%	\$ 4,133	55.3%	\$ 217.8	2.9%	\$ 2,569.45	34.4%
2014	12,680	\$ 8,532.3	100.0%	\$ 723.09	8.5%	\$ 4,668	54.7%	\$ 247.9	2.9%	\$ 2,893.64	33.9%
2015	13,694	\$ 8,117.0	100.0%	\$ 675.70	8.3%	\$ 4,469	55.1%	\$ 261.4	3.2%	\$ 2,711.41	33.4%
Average	9,085	\$ 7,571.57		\$ 409.41	5.4%	\$ 3,971.11	52.4%	\$ 706.59	9.3%	\$ 2,484.46	32.8%

Installed poles represent ~97% of the province



- Overall cost **increased** by only 0.1% annually
 - 10.8% annual increase pole purchase price, aligns with independent quotes
 - 1.8% annual increase in installation labour
 - 16.2% **decrease** in material cost
- Three LDCs submitted complete table
- Installation labour range from 41% to 67% of total cost
- Installation labour significantly high – presumable, power related installations constitute majority of the labour cost

Data Summary – Capital Cost per Pole

Installation Cost per Pole	Total		Applicable to Poles (%)	Estimated Cost	
Pole Price	\$ 409.41	5.4%	100.0%	\$ 409.41	5.4%
Labour	\$ 3,971.11	52.4%	100.0%	\$ 3,971.11	52.4%
Material	\$ 706.59	9.3%	100.0%	\$ 706.59	9.3%
Other	\$ 2,484.46	32.8%	100.0%	\$ 2,484.46	32.8%
Total	\$ 7,571.57	100.0%		\$ 7,571.57	100.0%

Embedded Cost per Pole (1830)	Total		Applicable to Poles (%)	Estimated Cost	
Pole	\$ 1,227.45	81.8%	100.0%	\$ 1,227.45	81.8%
Towers	-	-	100.0%	-	-
Power Fixtures	\$ 247.86	16.5%	100.0%	\$ 247.86	16.5%
Other	\$ 25.85	1.7%	100.0%	\$ 25.85	1.7%
	\$ 1,501.16	100.0%		\$ 1,501.16	100.0%

Data Summary – Maintenance Cost per Pole

Maintenance cost per Pole (5120)	Total		Applicable to Poles (%)	Estimated Cost	
Poles	\$ 1.10	6.1%	100.0%	\$ 1.10	6.1%
Towers	-	-	100.0%	-	-
Power Fixtures	\$ 16.79	93.8%	100.0%	\$ 16.79	93.8%
Other	\$ 0.01	0.0%	100.0%	\$ 0.01	0.0%
Total	\$ 17.89	100.0%		\$ 17.89	100.0%

Repair & Right of Way (5135)	Total		Applicable to Poles (%)	Estimated Cost	
Labour	\$ 57.88	81.5%	100.0%	\$ 57.88	81.5%
Material	\$ 0.84	1.2%	100.0%	\$ 0.84	1.2%
Truck	\$ 10.81	15.2%	100.0%	\$ 10.81	15.2%
Other	\$ 1.47	2.1%	100.0%	\$ 1.47	2.1%
	\$ 71.01	100.0%		\$ 71.01	100.0%

Key Issues

1) Data Quality

- Majority of LDC provided incomplete data or not responded
- Distribution of cost provided in Tables 1 to 4 is not consistent among utilities. Examples:
 - **Table 1:** ratio of pole cost varies from ~63% to ~85% of the total capital cost reported in a/c 1830
 - **Table 4:** ratio of pole price ranges from ~5% to ~42% of total pole installation cost

2) Rate Type

- Data not complete enough to allow development of regional rates e.g. rural versus urban
- Utility specific rate potentially will result in significantly different rates within same jurisdiction. For example, average installation cost of new pole range from ~\$2,400 to ~\$8,000 per pole

3) Cost Accounting

- Cost information is based on financial reporting standards rather than cost accounting structure

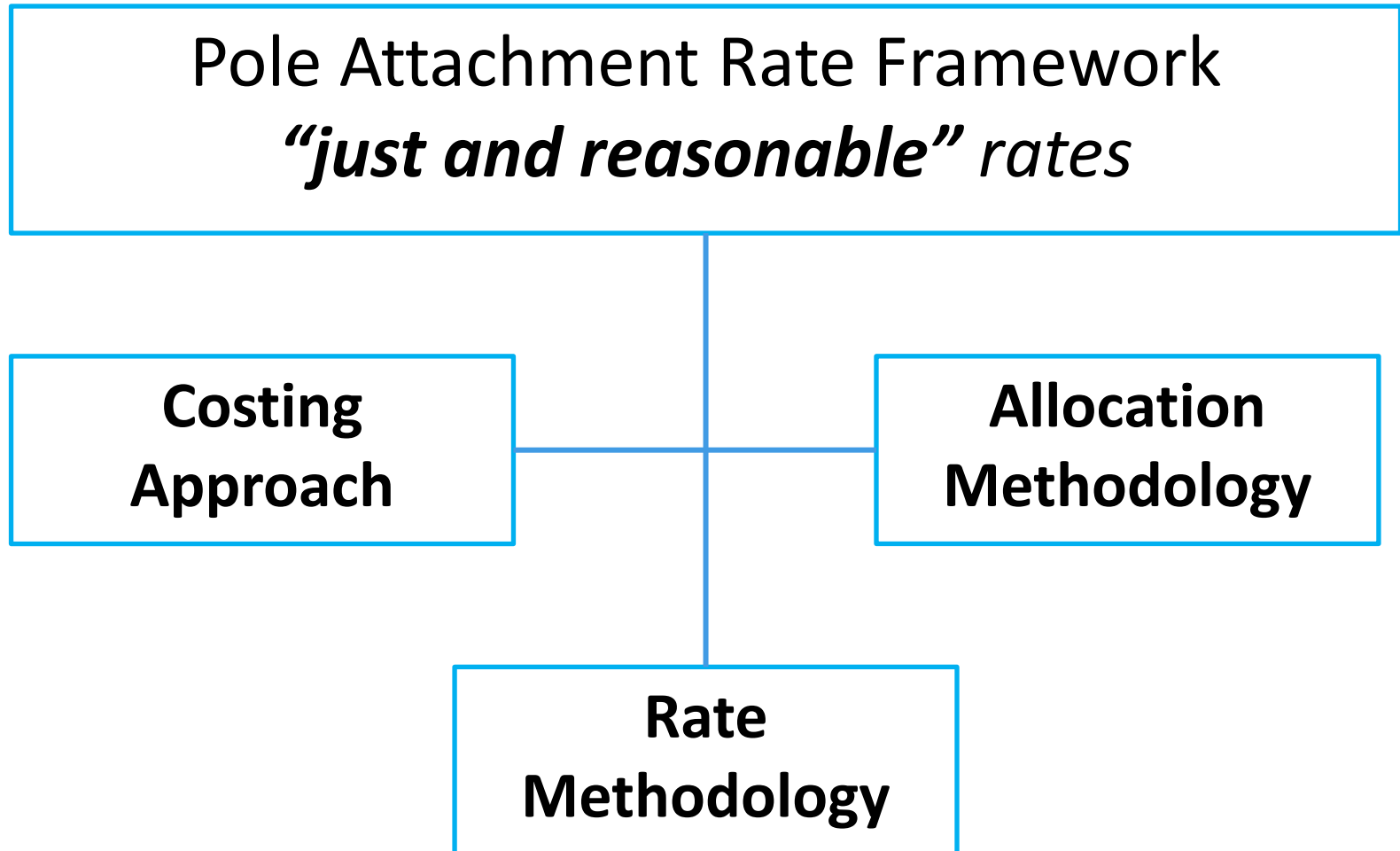
Part 2: Rate Model

Framework

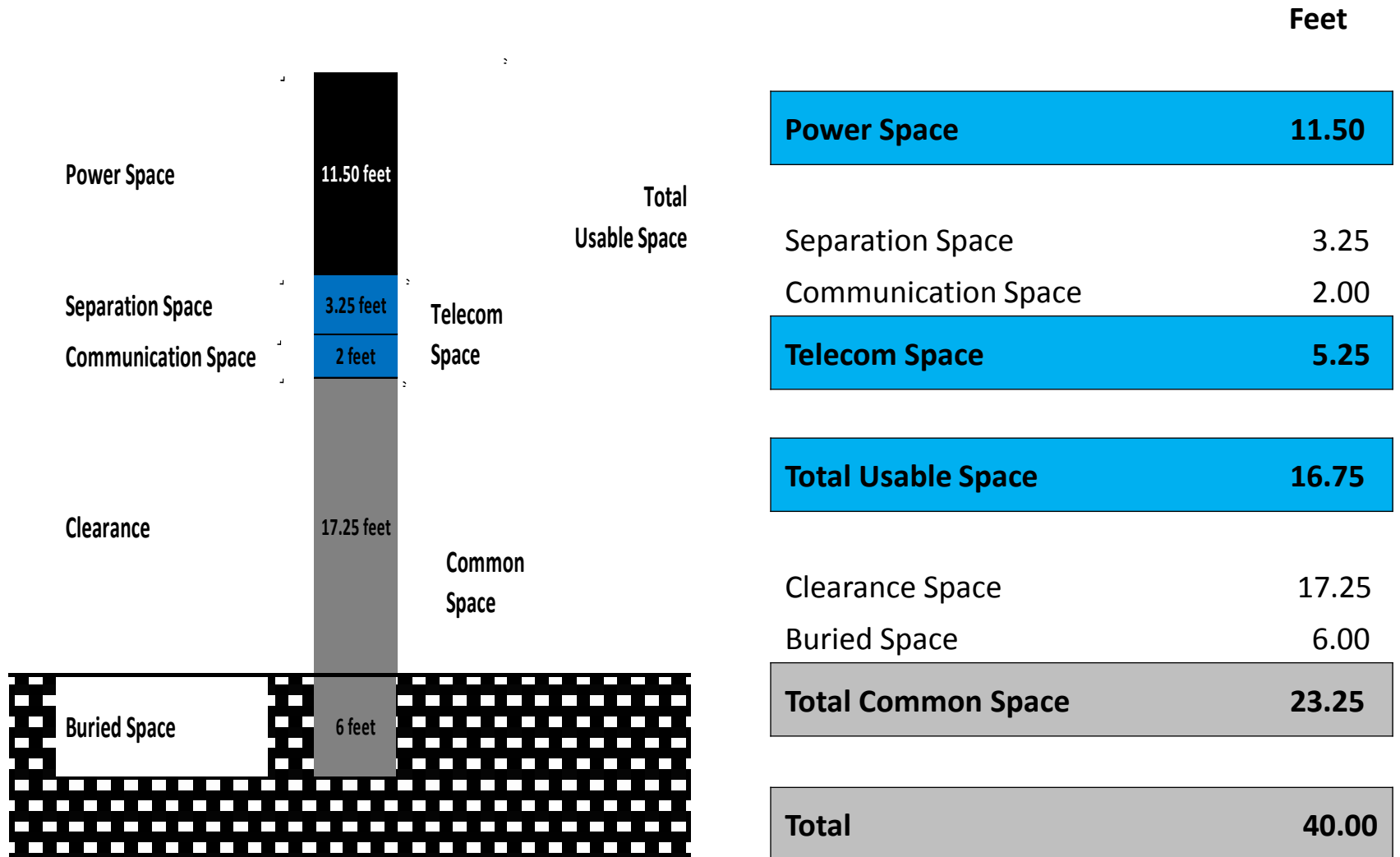
Decisions in Canadian Jurisdictions

Year	Canadian Jurisdiction	Annualised Common Cost	Annual Rate	Pole Population	Costing Approach	Allocation Methodology	Rate Methodology	
							Communication Space Attachers	#
1999	CRTC - Power Utility Poles (CRTC 99-13)	\$78.21	\$15.89	Joint Use Poles	Historical (representative)	Proportional	Presumptive Attachers	2.00
2000	Alberta Energy and Utilities Board (2000-86)	\$51.00	\$18.36	Joint Use Poles	Historical cost	Equal Sharing (implied)	Presumptive Attachers	2.00
2002	Nova Scotia Utility and Review Board (2002 NSUARB 1)	\$75.11	\$14.15	Joint Use Poles	Historical (representative)	Proportional	Presumptive Attachers	2.00
2005	Ontario Energy Board (RP-2003-0249)	\$93.31	\$22.35	Joint Use Poles	Historical (representative)	Equal Sharing	Presumptive Attachers	2.50
2006	New Brunswick Energy and Utilities Board (Jun 19, 2015)	n.a	\$18.00	<i>Interim order based on decisions in other jurisdictions</i>				n.a
2010	CRTC – Telephone Poles Ontario and Quebec (CRTC 2010-900) - Bell Canada and Aliant	\$62.78	\$12.48	Joint Use Poles	Historical	Proportional	Actual Attachers	1.70
2015	New Brunswick Energy and Utilities Board (matter no. 272) - NB Power	\$79.91	\$20.77	Total poles	Historical	Proportional	Actual Attachers	1.40
2015	Ontario Energy Board (EB-2015-0004) – Hydro Ottawa	\$169.69	\$53.00	Total Poles	Historical	Equal Sharing	Actual Attachers	1.74
2015	Ontario Energy Board (EB-2015-0141) – Hydro One	108.71	\$41.28	Total Poles	Historical	Equal Sharing	Actual Attachers	1.30
2016	Ontario Energy Board (EB-2014-0116) – Toronto Hydro	\$144.53	\$42.00	Total poles	<i>Not available (agreed upon in a settlement agreement)</i>			1.61
2016	CRTC 2016-228 - TELUS	\$62.26	\$19.33	Joint Use Poles	Historical	Proportional	Actual Attachers	1.32

Key Elements of Pole Attachment Rate Model



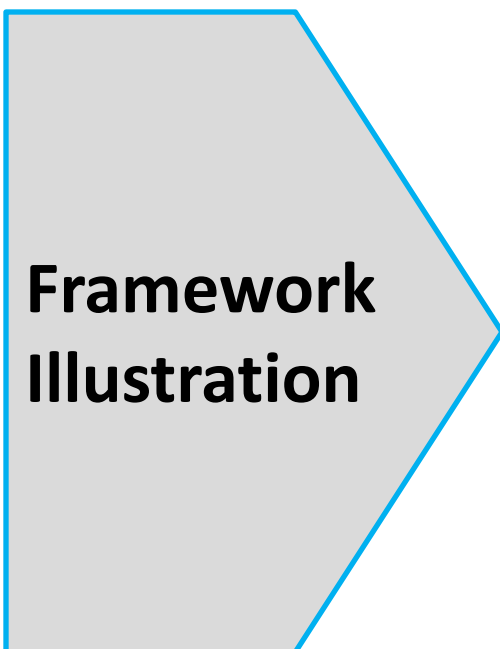
Maintain Existing (2005 Order) Pole Specs?



Capital Cost Input Framework

Capital Cost Input - Options

- 1) Implement appropriate modification in general reporting structure to ensure data quality and completeness, and inclusion of factors to reflect future trends, OR
- 2) Develop cost estimates based on independent assessment and update on periodic basis – 5 year period, AND
- 3) **Ad hoc rate increase for extraordinary costs**



Installation Cost per Pole	Total		Applicable to Poles (%)	Estimated Cost	
Pole Price	\$ 409.41	5.4%	100.0%	\$ 409.41	27.3%
Labour	\$ 3,971.11	52.4%	15.2%	\$ 605.33	40.3%
Material	\$ 706.59	9.3%	15.2%	\$ 107.71	7.2%
Other	\$ 2,484.46	32.8%	15.2%	\$ 378.71	25.2%
Total	\$ 7,571.57	100.0%		\$ 1,501.16	100.0%

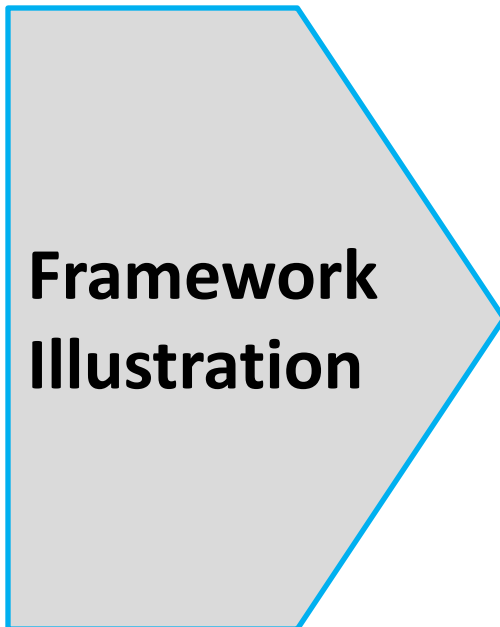
Embedded Cost per Pole (1830)	Total		Applicable to Poles (%)	Estimated Cost	
Pole	\$ 1,227.45	81.8%	100.0%	\$ 1,227.45	100.0%
Towers	-	-	-	-	-
Power Fixtures	\$ 247.86	16.5%	-	-	-
Other	\$ 25.85	1.7%	-	-	-
Total	\$ 1,501.16	100.0%		\$ 1,227.45	100.0%

Hypothetical assumption

Maintenance Cost Input Framework

Maintenance Cost Input - Options

- 1) Implement appropriate modification in general reporting structure to ensure data quality and completeness (incl. productivity loss, vegetation costs etc.), and inclusion of factors to reflect future trends, OR
- 2) Develop cost estimates based on historical trends, benchmarks and update on periodic basis – 5 year period, AND
- 3) Ad hoc rate increase for extra ordinary maintenance cost



Maintenance cost per Pole (5120)	Total		Applicable to Poles (%)	Estimated Cost	
Poles	\$ 1.10	6.1%	100.0%	\$ 1.10	100.0%
Towers	-	-	-	-	-
Power Fixtures	\$ 16.79	93.8%	-	-	-
Other	\$ 0.01	0.0%	-	-	-
Total	\$ 17.89	100.0%		\$ 1.10	100.0%

Repair & Right of Way (5135)	Total		Applicable to Poles (%)	Estimated Cost	
Labour	\$ 57.88	81.5%	15.2%	\$ 8.82	81.5%
Material	\$ 0.84	1.2%	15.2%	\$ 0.13	1.2%
Truck	\$ 10.81	15.2%	15.2%	\$ 1.65	15.2%
Other	\$ 1.47	2.1%	15.2%	\$ 0.22	2.1%
Total	\$ 71.01	100.0%		\$ 10.82	100.0%

Hypothetical assumption

Common Cost Allocation Framework

1) Two common used methodologies:

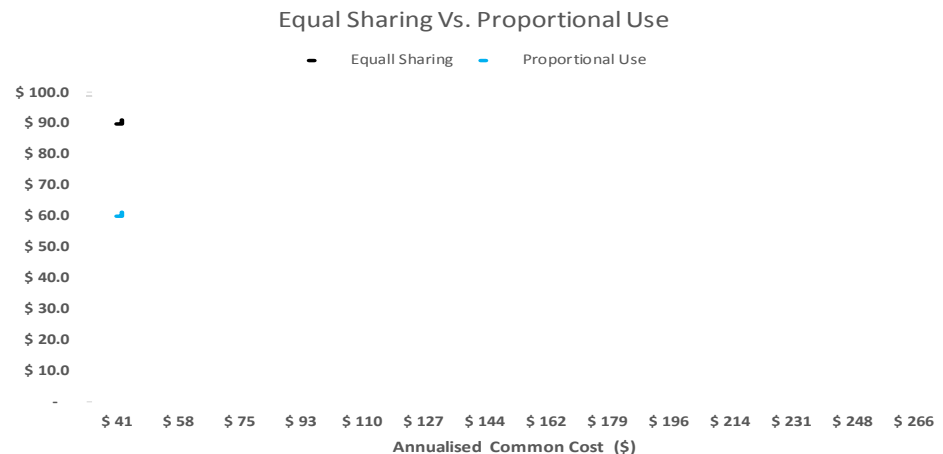
- Equal sharing
- Proportional use

2) Majority of other jurisdictions apply “proportional use” methodology:

“The Board recognizes that a case can be made for both the proportionate use and the equal sharing methodology” (2005 OEB Order, p. 7)

“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” (2005 OEB Order, p. 6)

Difference in rate using two approaches becomes increasingly material at higher common cost



Rate Calculation Framework

- 1) Number of “**attachments**” versus “number of “**attachers**” (users)
 - Feasibility study required to develop a system to track accurate number of attachment on regular basis
 - All other jurisdiction use number of attachers to calculate rate
- 2) “Presumptive” or “Actual” number of attachers
 - 2005 OEB Order based on presumptive number of attachers (2.5)
 - Boards in other Canadian jurisdictions applied actual number of attachers
 - CRTC uses presumptive number of attachers (2.0)
 - In USA, based on FCC 2015 Order, presumptive number of attachers - ranging from 2 to 5 attachers, according to service are used
- 3) Number of attachers to be based on “joint-use” or “total” pole population
 - 2005 OEB Order implies “joint-use” pole approach
 - Best practice principle - CRTC and FCC apply joint use pole

Rate Calculation – Direct Cost

- **Loss in Productivity:**

- Included as direct cost in 2005 OEB Order
- Included in commons cost in other Canadian jurisdictions
- Complete inclusion of maintenance cost based on relevant cost driver will likely capture this cost under common cost

- **Admin Cost**

- Ranges between less than \$1.00 to over \$2.00 across different Canadian jurisdictions
- LDC to provide detail cost data to develop average rate, which then can be adjusted periodically reflect inflation and productivity improvements
- Cost data required will include order volumes, process flow, touch points and handling time, fixed system support and upgrade costs

Rate Calculation – Overlapping Revenue

- Not raised in other Canadian jurisdictions
- Not subject to regulation in USA

“We expect and encourage the overlapping and host attaching entities to negotiate a just and reasonable rate of compensation between them for the overlapping, which will represent some sharing of the usable and unusable space costs. Until our intervention is necessary to facilitate pole attachments for these parties, we will rely on all parties to act in good faith to develop their own just and reasonable compensation.” (FCC 01-170, 2001, para 76)

- Inclusion of overlapping revenue (received by third party attacher) will increase the complexity of rate calculation framework
 - LDC to provide details of current process used to manage overlapping and the volume of impacted poles
 - Framework may be recommended to share overlapping revenue between the host attacher and LDC

Average Attachers per Pole

Pole Size (Feet)	London Hydro	Hydro Ottawa	Horizon	Average Attachers per Pole (excl. Hydro One) ⁽¹⁾
30	1.31	1.78	2.60	2.05
35	1.83	2.04	2.39	2.19
40	2.26	2.15	2.61	2.36
45	2.25	2.19	3.03	2.53
50	3.01	2.08	3.28	2.81
55	2.88	2.28	3.52	2.85
60	1.53	2.41	3.18	2.25
65	1.73	2.26	3.52	2.19
70	1.55	2.09	3.18	1.97
75	1.67	1.70	2.00	1.70
80	n/a	1.52	n/a	1.52
Others	n/a	1.09	n/a	1.09
Sample	2.13	2.13	2.70	2.37
Total	2.23	2.09	2.73	2.40

- Pole sizes 35' , 40' and 45' represent 75% of the total provincial population – referred to as “sample” group.
- Hydro One, who represents over 85% of the population, did not provide attacher data per each pole size, as requested.
- For the sample group, the average number of attachers per pole is 2.37, excluding Hydro One.
- OEB’s current rate (as per the 2005 Decision) is based on 2.5 average attachers or a total of 3.5 attachers including power.

(1) Average attachers per pole (excluding Hydro One), is calculated based on the total number of poles from the above utilities and the number of attachers (i.e. the utility itself, telecom attachers and other attachers). The method used is population-weighted average.

Average Attachers per Pole

		HydroOne		Other		Total	
Number of Poles							
A	Power only	1,001,477	64%	138,960	53%	1,140,437	62%
B	Joint Use	572,185	36%	125,170	47%	697,355	38%
C = B + C	Total	<u>1,573,662</u>	100%	<u>264,130</u>	100%	<u>1,837,792</u>	100%
Attachers							
D = C	Power	1,573,662	68%	264,130	60%	1,837,792	67%
E	Telecom + Other	733,753	32%	175,400	40%	909,153	33%
F = D + E	Total	<u>2,307,415</u>	100%	<u>439,530</u>	100%	<u>2,746,945</u>	100%
Average Attacher Per Pole							
G = E / B + 1	per Joint Use Poles	2.28		2.40		2.30	
H = F / C	per All Poles	1.47		1.66		1.49	

Illustration 1 - Rate Calculation (40 Year Useful Life)

Pole Specs	Joint Pole Length (ft.)		Attachers		Length Per Attacher (ft.)				
					Equal Sharing		Proportional Use		
Power space	11.50	A	÷	1.00					
Communication space	2.00	B	÷	1.40	=	1.43	B1	1.43	B2
Separation space	3.25	C	÷	1.40	=	2.32	C1	2.32	C2
Total Usable Space	16.75	D		2.40	=	3.75	D1 = B1 + C1	3.75	D2 = B2 + C2
Clearance	17.25	E							
Buried	6.00	F							
Total Common Space	23.25	G		2.40	=	9.69	G1	n.a	
Total Pole Length	40.00	H				13.44	H1 = D1 + G1	3.75	H2 = D2
Allocation Rate						33.6%	I1 = H1/H	22.4%	I2 = H2/H
Common Cost	\$ 110.53	J				\$ 37.14	J1 = I1 x J	\$ 24.75	J2 = I2 x J
Direct Cost (Admin)						\$ 1.92	K1	\$ 1.92	K2
Total Rate						\$ 39.06	= J1 + K1	\$ 26.67	= J2 + K2

Model Inputs

A	Capital Cost	\$ 1,501
B	Useful Life (Years)	40
C	Renewal and replacement	0.87%
D	Annual Amortization Factor	15.69
E	Annualised Capital Cost Per Pole	\$ 109.49 = (A/D) + (F + G)
F	Maintenance	\$ 11.92
G	Productivity Loss	\$ 1.92 OEB 2005 (Appendix 2)
H	Capital Carrying Cost	5.67%
I	Revenue Requirement Per Pole	\$ 110.53
J	Capital Cost Allowance (CCA) Factor	8%
K	Income Tax Rate	25%

The most critical drivers of the rate calculation are: (1) Capital Cost per Pole, (2) common cost allocation methodology, (3) number of attachers

Illustration 2 - Rate Calculation (25 Year Useful Life*)

* 25 Year useful life is used by CRTC

Pole Specs	Joint Pole Length (ft.)		Attachers		Length Per Attacher (ft.)			
					Equal Sharing		Proportional Use	
Power space	11.50	A	÷	1.00				
Communication space	2.00	B	÷	1.40	1.43	B1	1.43	B2
Separation space	3.25	C	÷	1.40	2.32	C1	2.32	C2
Total Usable Space	16.75	D		2.40	3.75	D1 = B1 + C1	3.75	D2 = B2 + C2
Clearance	17.25	E						
Buried	6.00	F						
Total Common Space	23.25	G		2.40	9.69	G1	n.a	
Total Pole Length	40.00	H			13.44	H1 = D1 + G1	3.75	H2 = D2
Allocation Rate					33.6%	I1 = H1/H	22.4%	I2 = H2/H
Common Cost	\$ 131.25	J			\$ 44.10	J1 = I1 x J	\$ 29.38	J2 = I2 x J
Direct Cost (Admin)					\$ 1.92	K1	\$ 1.92	K2
Total Rate					\$ 46.02	= J1 + K1	\$ 31.30	= J2 + K2

Model Inputs

A	Capital Cost	\$ 1,501
B	Useful Life (Years)	25
C	Renewal and replacement	0.87%
D	Annual Amortization Factor	13.19
E	Annualised Capital Cost Per Pole	\$ 127.61 = (A/D) + (F + G)
F	Maintenance	\$ 11.92
G	Productivity Loss	\$ 1.92 OEB 2005 (Appendix 2)
H	Capital Carrying Cost	5.67%
I	Revenue Requirement Per Pole	\$ 131.25
J	Capital Cost Allowance (CCA) Factor	8%
K	Income Tax Rate	25%

The most critical drivers of the rate calculation are: (1) Capital Cost per Pole, (2) common cost allocation methodology, (3) number of attachers

Back Up

Pole Specs

Pole Size (Feet)	All Pole Classes						Province ⁽¹⁾	
	Power Space (Feet)	Sepa. Space (Feet)	Comm. Space (Feet)	Clear. Space (Feet)	Buried Space (Feet)	Total (Feet)	Joint Use Poles	
30	3.86	2.87	1.90	14.91	4.95	28.50	61,047	9%
35	7.83	3.02	2.00	15.18	6.30	34.33	185,504	27%
40	11.77	3.22	2.00	14.56	7.17	38.73	192,239	28%
45	15.44	3.17	2.54	14.05	9.59	44.79	144,981	21%
50	20.96	3.33	2.00	13.99	8.77	49.06	46,437	7%
55	26.45	3.05	2.00	16.00	7.50	55.00	31,490	5%
60	30.64	3.08	2.00	16.28	8.00	60.00	18,725	3%
65	34.26	3.06	2.00	16.13	8.59	64.04	8,695	1%
70	38.79	3.08	2.00	17.13	9.00	70.00	3,086	0%
75	43.58	3.16	2.00	16.75	9.50	74.99	1,608	0%
Sample	11.39	3.14	2.15	14.64	7.53	38.85	522,724	75%
OEB	11.50	3.25	2.00	17.25	6.00	40.00	n.a.	n.a

(1) The province column only presents the total of all the data already submitted.

Here follow key differences relative to pole specs in OEB's current rate (as per the 2005 Decision)

- **The average power space is 11.39' . This is consistent to the current specs (11.5').**
- The average telecom space (communication + separation) is consistent with the current specs (3.14' vs. 3.25' and 2.15 vs. 2.00).
- The average common space (clearance + buried) is slightly different from the current specs (14.64' vs. 17.25' and 7.53' vs. 6.00').

Pole Population

Year	Toronto Hydro	London Hydro	Ottawa Hydro	Hydro One	Horizon	Total ⁽²⁾
2005	159,000	27,700	44,600	1,451,344	n/a	1,682,644
2006	190,816	27,860	46,761	1,463,344	n/a	1,728,781
2007	181,397	28,000	51,582	1,475,344	n/a	1,736,323
2008	142,300	28,000	49,201	1,487,344	52,332	1,759,177
2009	140,771	28,698	48,699	1,499,344	52,146	1,769,658
2010	139,842	29,424	48,574	1,511,344	52,146	1,781,330
2011	140,641	29,384	48,377	1,523,344	52,163	1,793,909
2012	135,986	28,345	48,298	1,535,344	52,031	1,800,004
2013	135,986	27,980	47,978	1,547,344	51,615	1,810,903
2014	135,986	27,680	47,825	1,559,522	51,418	1,822,431
2015	137,172	27,184	48,384	1,571,384	51,390	1,835,514
Average	149,082	28,205	48,207	1,511,364	51,905	1,774,607
CAGR	-1.47%	-0.19%	0.82%	0.80%	-0.26%	0.87%

(1) CAGR: Compound Annual Growth Rate

(2) The "Total" represents the total of pole data submitted by LDCs as above

- Pole stats provided by Hydro One here include all poles (i.e. power-only poles, poles with telecom attachers and poles with other attachers such as street lights).
- Pole stats provided by all other utilities are ASSUMED to be joint use poles.

Rate Model 1 – Cost Recovery (40 Year Useful Life)

Year	Capital Cost 0.9%	Maintenance 0.0%	Productivity 0.0%	Total Cost	Revenue 0.0%	Net Profit (before tax)	Net Profit (after tax)	Tax Shield	Net Cash Flow (after tax)	Carrying Cost 5.67%	NPV
0	(\$ 1,501.16)	-	-	(\$ 1,501.16)	-	-	-	\$ 213.74	(\$ 1,287.42)	1.0000	(\$ 1,287.42)
1	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.9463	\$ 77.63
2	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.8956	\$ 73.46
3	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.8475	\$ 69.52
4	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.8020	\$ 65.79
5	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.7590	\$ 62.26
6	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.7183	\$ 58.92
7	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.6797	\$ 55.76
8	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.6433	\$ 52.77
9	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.6087	\$ 49.94
10	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.5761	\$ 47.26
11	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.5452	\$ 44.72
12	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.5159	\$ 42.32
13	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.4882	\$ 40.05
14	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.4620	\$ 37.90
15	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.4372	\$ 35.87
16	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.4138	\$ 33.94
17	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.3916	\$ 32.12
18	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.3706	\$ 30.40
19	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.3507	\$ 28.77
20	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.3319	\$ 27.22
21	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.3141	\$ 25.76
22	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.2972	\$ 24.38
23	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.2813	\$ 23.07
24	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.2662	\$ 21.83
25	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.2519	\$ 20.66
26	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.2384	\$ 19.55
27	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.2256	\$ 18.50
28	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.2135	\$ 17.51
29	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.2020	\$ 16.57
30	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.1912	\$ 15.68
31	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.1809	\$ 14.84
32	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.1712	\$ 14.05
33	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.1620	\$ 13.29
34	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.1533	\$ 12.58
35	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.1451	\$ 11.90
36	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.1373	\$ 11.26
37	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.1300	\$ 10.66
38	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.1230	\$ 10.09
39	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.1164	\$ 9.55
40	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 111.13	\$ 124.97	\$ 93.73	\$ 1.94	\$ 82.03	0.1101	\$ 9.03
	(\$ 2,046.69)	(\$ 476.77)	(\$ 76.80)	(\$ 2,600.26)	\$ 4,445.26	\$ 4,998.83	\$ 3,749.12	\$ 291.41	\$ 1,993.84	16.6942	\$ 0.00

Rate Model 2 – Cost Recovery (25 Year Useful Life)

* 25 Year useful life is used by CRTC

Year	Capital Cost 0.9%	Maintenance 0.0%	Productivity 0.0%	Total Cost	Revenue 0.0%	Net Profit (before tax)	Net Profit (after tax)	Tax Shield	Net Cash Flow (after tax)	Carrying Cost 5.67%	NPV
0	(\$ 1,501.16)	-	-	(\$ 1,501.16)	-	-	-	\$ 213.74	(\$ 1,287.42)	1.0000	(\$ 1,287.42)
1	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.9463	\$ 92.34
2	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.8956	\$ 87.38
3	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.8475	\$ 82.70
4	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.8020	\$ 78.26
5	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.7590	\$ 74.06
6	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.7183	\$ 70.09
7	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.6797	\$ 66.32
8	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.6433	\$ 62.77
9	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.6087	\$ 59.40
10	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.5761	\$ 56.21
11	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.5452	\$ 53.19
12	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.5159	\$ 50.34
13	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.4882	\$ 47.64
14	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.4620	\$ 45.08
15	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.4372	\$ 42.66
16	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.4138	\$ 40.37
17	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.3916	\$ 38.21
18	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.3706	\$ 36.16
19	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.3507	\$ 34.22
20	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.3319	\$ 32.38
21	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.3141	\$ 30.64
22	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.2972	\$ 29.00
23	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.2813	\$ 27.44
24	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.2662	\$ 25.97
25	(\$ 13.64)	(\$ 11.92)	(\$ 1.92)	(\$ 27.48)	\$ 131.86	\$ 145.70	\$ 109.27	\$ 1.94	\$ 97.57	0.2519	\$ 24.58
	(\$ 1,842.11)	(\$ 297.98)	(\$ 48.00)	(\$ 2,188.10)	\$ 3,296.39	\$ 3,642.38	\$ 2,731.78	\$ 262.28	\$ 1,151.95	14.1942	\$ 0.00

Key Issues

Key Issues

As Identified at PAWG Meeting # 1 (May 20, 2016)

Framework	Costing Methodology	Allocation Methodology	Rate Methodology
<ul style="list-style-type: none"> • Rate Framework Approach and Inputs • Transparency with respect to the nature and quantum of the joint use pole-sharing arrangement that exists between the hydro company and the local telephone company • Whether there should be a province-wide rate, flexible rate based e.g. rural vs. urban or a company-specific rate • Relationship between pole attachment rates and electricity rates to consumers • Time period and process for pole rate review • Future Proofing (e.g. rates that are fixed throughout the term of the agreement and should be future proof such as linking to CPI or to make it applicable for 5-10 years) 	<ul style="list-style-type: none"> • Historical versus Forecasted Costs • How power-specific assets on the pole should be treated to ensure that they are not recovered through the pole attachment rate • How special circumstances and events should be treated (ice storms, fires, large pole replacement programs) • Stakeholders' alignment on appropriate cost elements including what factors that drives costs 	<ul style="list-style-type: none"> • Direct and Indirect Costs • Cost Allocation / Accounting Principles/ Cost Sharing Model • How the common costs of a pole should be allocated among the various users of the pole • Appropriate space on a pole that should be allocated to each of the different attachers • Inclusion of municipal street lighting attachments in the rate calculation equation • Standardize joint use poles size and number of possible attachments 	<ul style="list-style-type: none"> • Third Party Attachers / Overlapping / Access (Shared Access) • Number and types of all possible attachers, including actual and potential, third party power and wireless service providers • Joint use poles that are not used by communications attachers

Section VI

Additional (Detailed) Issues

Submitted by Rogers

Additional (Detailed) Issues – *Costing Approach*

Administration costs

1. What should be included in these costs?
 - Processing permits for attachments
 - Need to isolate costs of issuing wireline permits only.
 - Some LDCs charge a separate permit fee.
 - Invoicing pole attachers
 - Updating GIS system; GIS tracking
 - Administering the agreement
2. Should we use an industry wide value?
3. If necessary, need to strip out any costs associated with Bell's use of the poles.

Additional (Detailed) Issues – Costing Approach

Loss in productivity

4. What is included in these costs?
 - Responding to third party wires down
 - Responding to tree on third party wires
 - Pole inspection program
5. How to properly allocate these costs to wireline attachers?
 - Pole replacement (field visit and removal crew trip)
 - If pole replacement costs are already included in the net embedded cost, then there will be double recovery.
 - LDCs claim that, because of the wireline attacher, a second crew visit is necessary
 - Pole replacement costs to accommodate wireline attachers are recovered through make-ready costs.
6. How is this data tracked?
7. How do we account for work related to power assets or Bell facilities? If it is not tracked, how should it be calculated?

Additional (Detailed) Issues – Costing Approach

Net embedded cost per pole

8. Should historical (actual) or forecast costs be used?
9. What portion of the costs of the neutral and secondary, if any, should be allocated to the wireline attachers?
10. Should the value of LDC rights-of-way and easements be included?
11. Pole replacement program – issue of premature pole replacement
12. MIFRS vs. GAAP
13. Average vs. year-end value
14. How should power-only assets be removed from the costs?
15. Opportunity to use benchmarking or average costs for particular regions?

Depreciation expense

16. MIFRS vs. GAAP
17. Deduct power-only assets

Additional (Detailed) Issues – Costing Approach

Pole maintenance expense

18. What should be included in these costs?
 - Costs recorded in Account 5120
 - Vegetation management (line clearing, brush control, land owner contact and job planning)
 - Some LDCs allow the wireline attachers to do their own tree-trimming.
 - Maintenance line (line patrols, pole inspections, defect corrections)
 - Wood pole inspection and treatment
 - Use most recent actuals or 5-year average
 - Pole inspection program (collecting data to update records, assess condition of overhead assets and identify deficiencies).
 - What portion should be allocated to wireline attachers?
19. Need to remove costs associated with power-only assets.
20. Need to understand if the LDC and Bell provide each other with maintenance services and whether the associated costs should be removed.
21. Deduct power-only assets

Additional (Detailed) Issues – *Rate Methodology*

Average number of attachers per pole

22. Should the pole attachment rate be based on the number of attachments instead of the number of attachers?
 - Is it even possible for the LDCs to determine how many attachments are on each pole?
23. Presumptive no. of attachers vs. actual no. of attachers
24. Include joint use poles that do not have any third party attachers?
25. How to take into account the number and types of all possible attachers, including actual and potential, third party power, and wireless service providers

Additional (Detailed) Issues – *Allocation Methodology*

Cost allocation methodology

26. What kind of cost-sharing model should be adopted?
 - Equal sharing
 - Nordicity equal sharing
 - Proportionate usage
 - Incremental usage
 - Incremental costs plus mark-up
27. How should the relative spaces on a pole be allocated among the different users?
28. Should the different rights afforded to the different users be taken into consideration (pole owner vs. third party attacher)?
29. Should we look to what are other jurisdictions and utility boards are using?

Additional (Detailed) Issues – *Miscellaneous*

30. How should the cost and pole-sharing relationship between the LDC and Bell be taken into consideration?
31. Should the revenues third party attachers receive from others overlashing to their strand be taken into consideration?
32. Should make ready costs (in particular, the cost of providing a brand new pole) be incorporated into the pole attachment rate?
33. How should special circumstances and events (ice storms, fires, huge pole replacement programs) be treated?
34. How should clearance poles, overlash attachments and power supplies be treated?
35. Should there be a province-wide rate instead of a company-specific rate?
36. Should the relationship between pole attachment rates and electricity rates to consumers be considered?
37. What is the appropriate time period and process for pole rate review?
38. What role, if any, should benchmarking and taking into account the costs of other pole owners and/or pole rates across the country have?