

Derivation Report on the 2018 Small Cell Attachment Rate

Summary

The purpose of this report is to document the process and assumptions used to derive the pole attachment rate for the small cell attachment that is proposed to be effective in 2018. The small cell attachment rate, expressed in dollars per attachment per year, is \$81.12.

The proposed rate for small cell attachments to City owned electric wooden utility poles reflects the requirements of Assembly Bill (AB) 1027, which was signed by the Governor of California on October 8, 2011. AB 1027 requires that the pole attachment rate be based on Silicon Valley Power's (SVP) annual cost of ownership, which is the sum of capital costs and annual operation costs of the pole or support structure used for pole attachments. Annual capital costs must be based on SVP's net investment in equipment (capital costs) necessary for use by a communication service provider. Further, "the basis for the computation of annual capital costs shall be historical capital less depreciation" and "depreciation shall be based upon the average service life of the utility pole or support structure."

AB 1027 also requires the annual cost of ownership be allocated to communications service providers based on the assumption (subject to factual rebuttal) that there is 13.5 feet of usable space on an average electric wooden utility pole and that a third party attachment occupies 1 foot of that 13.5 feet, resulting in the share cost of ownership of 7.4%. Based on the same cost study used to develop rates for cable attachments, adopted by Council on January 12, 2016 (Resolution No.16-8285), staff performed further analysis to determine the appropriate cost allocation to support the small cell attachment to electric wooden utility poles. Since the required clearance requirement for a small cell attachment is 4 feet of space on an electric wooden utility pole, instead of 1 foot for cable attachments, it was determined that the appropriate share of available space is 29.6% for a small cell attachment. Riser attachment space is also required for the power supply to the small cell attachment, and the share of available space for a riser attachment is 20%, as adopted by Resolution No. 16-8285. Therefore, the share of ownership for a small cell attachment is 49.6% and the allocated cost of ownership is \$81.12 per attachment per year. Table 1 – Pole Attachment Cost Analysis for Small Cell Attachments further depicts the calculations to achieve that rate. Table 2 – Derivation of Usable Space Allocation, Table 3 – Derivation of O&M and A&G Expenses as Related to Pole Attachments, and Table 4 – Derivation of the Historical Net Cost of Poles from the 2015 cost study are also attached as for convenient reference.

The small cell attachment rate will be subject to the same 2.5% annual escalator adopted for cable attachment rates, as well as the adopted schedule for an updated cost study to be conducted no later than 2020.

Cost of Ownership

The cost of ownership components considered in the 2015 study were:

- SVP's net depreciated investment in poles and fixtures, expressed in dollars, divided by the number of poles in use;
- SVP's cost of long-term debt;
- SVP's operations and maintenance expenses that contribute to the availability and reliability of space used for communications attachments; and

- Expenses related to SVP's revenues from pole attachments.

SVP's net investment in poles and fixtures necessary for use by a communication service provider has been determined as follows. The number and age of SVP's poles were taken primarily from work by Osmose Utilities Services, Inc. (Osmose), a contractor whose primary task was to survey every SVP pole and to make recommendations for repair or replacement as appropriate. This work is performed on a 10-year cycle and is 100% pole related. Due to the accounting system not containing data on the installed cost of each pole, it was necessary to estimate the installed cost of the poles identified by Osmose. At the time of the study, SVP's current poles were installed between 1900 and 2015. A proxy installed cost for each year was determined by using the estimated installed cost (reduced by estimated salvage) for a replacement pole in 2015, and discounting that 2015 cost each year by each year's change in the Consumer Price Index. Depreciation rates were based on a 40-year service life through 1995, 37 years for 1996 and 1997, and 25 years thereafter. The primary reason for the reduction in estimated service life is the change of wood preservative.

SVP's cost of capital is estimated at 5%. SVP has financed its distribution system from various connection fees and from customer service revenues, so there is no outstanding debt related to its distribution system. SVP has routinely used 5% as a proxy for the opportunity cost of money, whether in the form of long-term debt or in the form of the long-term earning potential of cash reserves.

Operations and maintenance (O&M) expenses related to poles and pole attachments are estimated as follows. SVP uses a combination of City accounts and the FERC Uniform System of Accounts for both capital and operating expenses. This means that overhead O&M expenses are available from FERC accounts 583 and 593. Amounts in these accounts were augmented by allocating a prorated portion of total distribution supervision and Administration and General (A&G) expenses (FERC account 580 and accounts 921-927). These expenses, as augmented, were then allocated to reflect the estimated proportion of pole related expenses (10%) as a percentage of total distribution expenses. This allocation was based on the judgment of distribution management personnel.

In addition, certain expenses are directly allocated. These include Osmose's pole inspection and repair expenses completed by Osmose and tree trimming. Tree trimming is critical to maintain clearance for both overhead electrical wires and the communications cables and other equipment attached to SVP's poles.

Table 1 - Pole Attachment Cost Analysis for Small Cell Attachments

Line No.	Cost of Ownership	2015 Cost Study	2018 Small Cell Attachment
	Estimated Historical Net Cost of Poles		
1	Cost (net of salvage value) (from Table 4)	\$ 486.71	
2	Depreciation Exp - % (Recovery of Capital)	4.0%	
3	Cost of Money	5.0%	
4	O&M + A&G Expenses - % (from Table 3)	21.4%	
5	Cost of Ownership - % (Total 1.2 through 1.4)	30.44%	
6	Cost of Ownership - \$ (1.5 * 1.1)	\$ 148.17	
6a	Escalation Factor - 2016 to 2018		1.050625
6b	Adjusted Cost of Ownership (1.6 * 1.6a)		\$ 155.67
7	Adjusted for Contribution in Lieu of Taxes	5.0% \$ 7.41	\$ 7.78
8	Adjusted total Cost of Ownership (1.6b + 1.7)	\$ 155.58	\$ 163.45
9	Cost of Ownership % (from Table 2)		49.6%
10	Allocated Cost of Ownership for Small Cell Attachments - \$/Year (1.8 * 1.9)		\$ 81.12

Table 2 - Derivation of Usable Space Allocation

			Small Cell Attachment	Riser Attachment
Line No.				
1	AB1027 "Available space"	feet	13.5	13.5
2	Additional space occupied by riser	feet	0	18
3	Total Available Space	feet	13.5	31.5
4	Attachment Space (1)	feet	4.0	6.3
5	Attachment space as % of total available space		29.6%	20.0%

(1) Small Cell Attachment Space is determined by 4' of safety requirement.
Riser Attachment Space shown in I.4 is based on 20% assumption in I.5

			Small Cell Attachment
6	AB1027 1 foot of usable space	%	7.4%
7	Safety Requirement (from secondary line)	feet	4.00
8	Small Cell as % of total available space	%	29.6%
9	Riser Attachment as % of total available space	%	20%
10	Total Attachment space as % of total available space	%	49.6%

Table 3 - Derivation of O&M and A&G Expenses as Related to Pole Attachments**Line No. Derivation of Allocated O&M + A&G Expenses**

	FY14-15 Recorded		
1	Overhead Operating Expense (including Supervisor and A&G)	\$	579,296.06
2	Overhead Maintenance Expense (including Supervisor and A&G)	\$	2,463,847.29
3	Less: Osmose included in FERC Acct 593	\$	-
4	Less: Tree Trimming included in FERC Acct 593	\$	858,324.81
5	Total Overhead O&M	\$	2,184,818.54
6	Allocation as Pole-related - %		10%
7	Allocation as Pole-related - \$	\$	218,481.85
	Derivation of Pole Attachment Related to Operating and Maintenance Expenses		
8	Pole-related Overhead O&M expense - other than contract services (from I.7)	\$	218,481.85
	Contract Services:		
9	Direct allocation - Tree Trimming in FERC Acct 593		858,324.81
10	Direct allocation - Osmose pole inspection and repair cost	\$	105,207.20
11	Total O&M	\$	1,182,013.87
12	Pole-related depreciated investment (from Table 4)	\$	5,512,519.52
13	O&M as % of pole-related depreciated investment - % (I.11 / I.12)		21.4%

Table 4 - Derivation of the Historical Net Cost of Poles

Yr. Installed	No. of Poles (Osmove Data)	Install Year Unknown - Allocated (Osmove Data)	Total	CPI-U index	Deflator	Imputed Escalation	Imputed installed cost/pole (net of salvage)	Imputed OC - Total	Imputed Salvage % of OC	Depreciation Life	Age	Depr Rate %/yr	Accum Depr	Depr	Original Cost Less Depreciation (OCLD)
Inputs in Bold										0%			%	\$	\$
1900	22	1	23	9.900	-41.07%		\$ 332.25	\$ 7,642	0.00%	40	40	2.5%	100%	\$ 7,642	\$ -
1910	1	0	1	9.900	-50.50%		\$ 332.25	\$ 332	0.00%	40	40	2.5%	100%	\$ 332	\$ -
1920	2	0	2	20.000	19.05%		\$ 671.22	\$ 1,342	0.00%	40	40	2.5%	100%	\$ 1,342	\$ -
1922	1	0	1	16.800	0.60%	69.70%	\$ 563.82	\$ 564	0.00%	40	40	2.5%	100%	\$ 564	\$ -
1930	0	0	0	16.700	28.46%	-0.60%	\$ 560.47	\$ -	0.00%	40	40	2.5%	100%	\$ -	\$ -
1933	1	0	1	13.000	-9.72%	-22.16%	\$ 436.29	\$ 436	0.00%	40	40	2.5%	100%	\$ 436	\$ -
1937	1	0	1	14.400	2.86%	10.77%	\$ 483.28	\$ 483	0.00%	40	40	2.5%	100%	\$ 483	\$ -
1940	2	0	2	14.000	-22.22%	-2.78%	\$ 469.85	\$ 940	0.00%	40	40	2.5%	100%	\$ 940	\$ -
1945	4	0	4	18.000	-7.69%	28.57%	\$ 604.09	\$ 2,416	0.00%	40	40	2.5%	100%	\$ 2,416	\$ -
1946	3	0	3	19.500	-12.56%	8.33%	\$ 654.44	\$ 1,963	0.00%	40	40	2.5%	100%	\$ 1,963	\$ -
1947	13	1	14	22.300	-7.47%	14.36%	\$ 748.41	\$ 10,478	0.00%	40	40	2.5%	100%	\$ 10,478	\$ -
1948	15	1	16	24.100	1.26%	8.07%	\$ 808.82	\$ 12,941	0.00%	40	40	2.5%	100%	\$ 12,941	\$ -
1949	7	0	7	23.800	-1.24%	-1.24%	\$ 798.75	\$ 5,591	0.00%	40	40	2.5%	100%	\$ 5,591	\$ -
1950	182	8	190	24.100	-7.31%	1.26%	\$ 808.82	\$ 153,675	0.00%	40	40	2.5%	100%	\$ 153,675	\$ -
1951	175	8	183	26.000	-1.89%	7.88%	\$ 872.58	\$ 159,682	0.00%	40	40	2.5%	100%	\$ 159,682	\$ -
1952	369	16	385	26.500	-0.75%	1.92%	\$ 889.36	\$ 342,404	0.00%	40	40	2.5%	100%	\$ 342,404	\$ -
1953	122	5	127	26.700	-0.74%	0.75%	\$ 896.07	\$ 113,801	0.00%	40	40	2.5%	100%	\$ 113,801	\$ -
1954	473	21	494	26.900	0.37%	0.75%	\$ 902.79	\$ 445,976	0.00%	40	40	2.5%	100%	\$ 445,976	\$ -
1955	894	39	933	26.800	-1.47%	-0.37%	\$ 899.43	\$ 839,168	0.00%	40	40	2.5%	100%	\$ 839,168	\$ -
1956	505	22	527	27.200	-3.20%	1.49%	\$ 912.85	\$ 481,074	0.00%	40	40	2.5%	100%	\$ 481,074	\$ -
1957	375	16	391	28.100	-2.77%	3.31%	\$ 943.06	\$ 368,736	0.00%	40	40	2.5%	100%	\$ 368,736	\$ -
1958	787	34	821	28.900	-0.69%	2.85%	\$ 969.91	\$ 796,294	0.00%	40	40	2.5%	100%	\$ 796,294	\$ -
1959	491	21	512	29.100	-1.69%	0.69%	\$ 976.62	\$ 500,029	0.00%	40	40	2.5%	100%	\$ 500,029	\$ -
1960	1344	59	1403	29.600	-1.00%	1.72%	\$ 993.40	\$ 1,393,740	0.00%	40	40	2.5%	100%	\$ 1,393,740	\$ -
1961	556	24	580	29.900	-0.99%	1.01%	\$ 1,003.47	\$ 582,011	0.00%	40	40	2.5%	100%	\$ 582,011	\$ -
1962	163	7	170	30.200	-1.31%	1.00%	\$ 1,013.54	\$ 172,301	0.00%	40	40	2.5%	100%	\$ 172,301	\$ -
1963	192	8	200	30.600	-1.29%	1.32%	\$ 1,026.96	\$ 205,392	0.00%	40	40	2.5%	100%	\$ 205,392	\$ -
1964	150	7	157	31.000	-1.59%	1.31%	\$ 1,040.38	\$ 163,340	0.00%	40	40	2.5%	100%	\$ 163,340	\$ -
1965	126	6	132	31.500	-2.78%	1.61%	\$ 1,057.17	\$ 139,546	0.00%	40	40	2.5%	100%	\$ 139,546	\$ -
1966	213	9	222	32.400	-2.99%	2.86%	\$ 1,087.37	\$ 241,396	0.00%	40	40	2.5%	100%	\$ 241,396	\$ -
1967	50	2	52	33.400	-4.02%	3.09%	\$ 1,120.93	\$ 58,288	0.00%	40	40	2.5%	100%	\$ 58,288	\$ -
1968	126	6	132	34.800	-5.18%	4.19%	\$ 1,167.92	\$ 154,165	0.00%	40	40	2.5%	100%	\$ 154,165	\$ -
1969	127	6	133	36.700	-5.41%	5.46%	\$ 1,231.68	\$ 163,814	0.00%	40	40	2.5%	100%	\$ 163,814	\$ -
1970	46	2	48	38.800	-4.20%	5.72%	\$ 1,302.16	\$ 62,504	0.00%	40	40	2.5%	100%	\$ 62,504	\$ -
1971	126	6	132	40.500	-3.11%	4.38%	\$ 1,359.21	\$ 179,416	0.00%	40	40	2.5%	100%	\$ 179,416	\$ -
1972	118	5	123	41.800	-5.86%	3.21%	\$ 1,402.84	\$ 172,550	0.00%	40	40	2.5%	100%	\$ 172,550	\$ -
1973	142	6	148	44.400	-9.94%	6.22%	\$ 1,490.10	\$ 220,535	0.00%	40	40	2.5%	100%	\$ 220,535	\$ -
1974	472	21	493	49.300	-8.36%	11.04%	\$ 1,654.55	\$ 815,692	0.00%	40	40	2.5%	100%	\$ 815,692	\$ -
1975	22	1	23	53.800	-5.45%	9.13%	\$ 1,805.57	\$ 41,528	0.00%	40	40	2.5%	100%	\$ 41,528	\$ -
1976	76	3	79	56.900	-6.11%	5.76%	\$ 1,909.61	\$ 150,859	0.00%	40	39	2.5%	98%	\$ 147,088	\$ 3,771
1977	192	8	200	60.600	-7.06%	6.50%	\$ 2,033.78	\$ 406,757	0.00%	40	38	2.5%	95%	\$ 386,419	\$ 20,338
1978	73	3	76	65.200	-10.19%	7.59%	\$ 2,188.16	\$ 166,300	0.00%	40	37	2.5%	93%	\$ 153,828	\$ 12,473
1979	10	0	10	72.600	-11.89%	11.35%	\$ 2,436.51	\$ 24,365	0.00%	40	36	2.5%	90%	\$ 21,929	\$ 2,437
1980	53	2	55	82.400	-9.35%	13.50%	\$ 2,765.41	\$ 152,098	0.00%	40	35	2.5%	88%	\$ 133,085	\$ 19,012
1981	90	4	94	90.900	-5.80%	10.32%	\$ 3,050.68	\$ 286,764	0.00%	40	34	2.5%	85%	\$ 243,749	\$ 43,015
1982	21	1	22	96.500	-3.11%	6.16%	\$ 3,238.62	\$ 71,250	0.00%	40	33	2.5%	83%	\$ 58,781	\$ 12,469
1983	27	1	28	99.600	-4.14%	3.21%	\$ 3,342.66	\$ 93,594	0.00%	40	32	2.5%	80%	\$ 74,875	\$ 18,719
1984	92	4	96	103.900	-3.44%	4.32%	\$ 3,486.97	\$ 334,749	0.00%	40	31	2.5%	78%	\$ 259,430	\$ 75,318
1985	74	3	77	107.600	-1.82%	3.56%	\$ 3,611.14	\$ 278,058	0.00%	40	30	2.5%	75%	\$ 208,543	\$ 69,514
1986	98	4	102	109.600	-3.52%	1.86%	\$ 3,678.26	\$ 375,183	0.00%	40	29	2.5%	73%	\$ 272,008	\$ 103,175
1987	49	2	51	113.600	-3.97%	3.65%	\$ 3,812.51	\$ 194,438	0.00%	40	28	2.5%	70%	\$ 136,107	\$ 58,331
1988	57	2	59	118.300	-4.60%	4.14%	\$ 3,970.24	\$ 234,244	0.00%	40	27	2.5%	68%	\$ 158,115	\$ 76,129
1989	56	2	58	124.000	-5.13%	4.82%	\$ 4,161.54	\$ 241,369	0.00%	40	26	2.5%	65%	\$ 156,890	\$ 84,479
1990	35	2	37	130.700	-4.04%	5.40%	\$ 4,386.40	\$ 162,297	0.00%	40	25	2.5%	63%	\$ 101,435	\$ 60,861
1991	45	2	47	136.200	-2.92%	4.21%	\$ 4,570.98	\$ 214,836	0.00%	40	24	2.5%	60%	\$ 128,902	\$ 85,934
1992	60	3	63	140.300	-2.91%	3.01%	\$ 4,708.58	\$ 296,641	0.00%	40	23	2.5%	58%	\$ 170,568	\$ 126,072
1993	74	3	77	144.500	-2.50%	2.99%	\$ 4,849.54	\$ 373,414	0.00%	40	22	2.5%	55%	\$ 205,378	\$ 168,036
1994	13	1	14	148.200	-2.76%	2.56%	\$ 4,973.71	\$ 69,632	0.00%	40	21	2.5%	53%	\$ 36,557	\$ 33,075
1995	123	5	128	152.400	-2.87%	2.83%	\$ 5,114.67	\$ 654,677	0.00%	40	20	2.5%	50%	\$ 327,339	\$ 327,339
1996	35	2	37	156.900	-2.24%	2.95%	\$ 5,265.69	\$ 194,831	0.00%	37	19	2.7%	51%	\$ 100,048	\$ 94,782
1997	81	4	85	160.500	-1.53%	2.29%	\$ 5,386.51	\$ 457,853	0.00%	37	18	2.7%	49%	\$ 222,739	\$ 235,114
1998	201	9	210	163.000	-2.16%	1.56%	\$ 5,470.41	\$ 1,148,786	0.00%	25	17	4.0%	68%	\$ 781,175	\$ 367,612
1999	100	4	104	166.600	-3.25%	2.21%	\$ 5,591.23	\$ 581,488	0.00%	25	16	4.0%	64%	\$ 372,152	\$ 209,336
2000	99	4	103	172.200	-2.77%	3.36%	\$ 5,779.17	\$ 595,255	0.00%	25	15	4.0%	60%	\$ 357,153	\$ 238,102
2001	13	1	14	177.100	-1.55%	2.85%	\$ 5,943.62	\$ 83,211	0.00%	25	14	4.0%	56%	\$ 46,598	\$ 36,613
2002	64	3	67	179.880	-2.22%	1.57%	\$ 6,036.92	\$ 404,473	0.00%	25	13	4.0%	52%	\$ 210,326	\$ 194,147
2003	94	4	98	183.960	-2.62%	2.27%	\$ 6,173.85	\$ 605,037	0.00%	25	12	4.0%	48%	\$ 290,418	\$ 314,619
2004	16	1	17	188.900	-3.28%	-2.03%	\$ 6,339.64	\$ 107,774	0.00%	25	11	4.0%	44%	\$ 47,420	\$ 60,353
2005	50	2	52	195.300	-3.12%	-3.12%	\$ 6,554.42	\$ 340,830	0.00%	25	10	4.0%	40%	\$ 136,332	\$ 204,498
2006	29	1	30	201.600	-2.77%	-2.77%	\$ 6,765.86	\$ 202,976	0.00%	25	9	4.0%	36%	\$ 73,071	\$ 129,904
2007	41	2	43	207.342	-3.70%	-3.70%	\$ 6,958.56	\$ 299,218	0.00%	25	8	4.0%	32%	\$ 95,750	\$ 203,468
2008	81	4	85	215.303	0.36%	0.36%	\$ 7,225.74	\$ 614,188	0.00%	25	7	4.0%	28%	\$ 171,973	\$ 442,215
2009	59	3	62	214.537	-1.61%	-1.61%	\$ 7,200.03	\$ 446,402	0.00%	25	6	4.0%	24%	\$ 107,137	\$ 339,266
2010	45	2	47	218.056	-3.06%	-3.06%	\$ 7,318.13	\$ 343,952	0.00%	25	5	4.0%	20%	\$ 68,790	\$ 275,162
2011	55	2	57	224.939	-2.03%	-2.03%	\$ 7,549.13	\$ 430,301	0.00%	25	4	4.0%	16%	\$ 68,848	\$ 361,452
2012	26	1	27	229.594	-1.44%	-1.44%	\$ 7,705.36	\$ 208,045	0.00%	25	3	4.0%	12%	\$ 24,965	\$ 183,079
2013	9	0	9	232.957	-1.60%	-1.60%	\$ 7,818.22	\$ 70,364	0.00%	25	2	4.0%	8%	\$ 5,629	\$ 64,735
2014	6	0	6	236.736	-0.51%	-0.51%	\$ 7,945.05	\$ 47,670	0.00%	25	1	4.0%	4%	\$ 1,907	\$ 45,763
2015	13	1	14	237.945	0.00%	0.00%	\$ 7,985.63	\$ 111,799	0.00%	25	0	4.0%	0%	\$ -	\$ 111,799
Total															
Total															