WA Exhibit No. 1

JOB DUTIES OF WILFRED ARNETT

EXPERIENCE

General:

Over fifty years of line and staff utility technical, engineering, and management experience. Extensive engineering management experience at BellSouth having responsibility for Outside Plant Engineering, Planning, and Project Management. Thirty years of negotiations experience with Federal, state and local agencies and railroad, common carrier, CATV and electric utility companies. Experienced in dealing with utility agreements, engineering and construction contracts and other issues that directly impact utility operations, revenues and costs. Managed Joint Use and Right of Way Acquisition for BellSouth North Sector (GA, NC, SC). Responsible for Contract Engineering and Right of Way administration for Georgia, North Carolina and South Carolina from 1987 until 1994. Responsible for liaison activities with Federal Highway Administration and with the Departments of Transportation in Georgia, North Carolina and South Carolina. Also responsible for training of field forces and managers on policies and procedures relative to joint use and the use and occupancy of public and private right of way. Accounting major – State University of West Georgia. Past Member of Transportation Research Board, Utilities Committee A2A07, National Academy of Sciences, involved in utility impacts on roadway safety. Past President of Georgia Chapter 22, International Right of Way Association (IRWA) and past Chairman for Region 6, IRWA (Southeast US). Extensive experience in joint-use contract matters having negotiated contracts between IOU's and ILEC's and third-party occupants representing over 12 million poles.

Work History:

7/13 – Present Managing Principal/Director, TRC Engineers, Inc. Responsible for joint use support and consulting to Investor-Owned, Cooperatively-owned and Municipal electric companies regarding operational provisions and rental rates in joint-use agreements and pole attachment agreements. Currently Director of joint use operations and client support for TRC nationwide.

10/97 - 7/13 Vice President of USS, Inc. Directed the provision of engineering, and field inspection services to support various utility and communications companies/agencies.

10/97 - 7/13 Member of RASR Associates, LLC, a Consultant to Investor-Owned,

Cooperatively-owned and Municipal electric companies regarding operational provisions and rental rates in joint-use agreements and pole attachment agreements. Represented over 75 power companies/authorities.

3/96 – 10/97 Vice President of Universal Ensco and Universal Field Services in Georgia. Responsible for Right of Way acquisition and Outside Plant Engineering staff.

10/94 - 2/96 Manager, BellSouth Consumer Multimedia Services, Atlanta, GA. Outside Plant Engineering and Right of Way responsibilities for BellSouth's entry into Broadband Network provisioning and Video Dial Tone Project in Metro Atlanta.

10/87 - 10/94 Manager - Joint Use, Right of Way, DOT Liaison, Contracts (Engineering and Right of Way) & License Agreements (CATV, etc.), for North Sector (GA, NC, SC) of BellSouth Telecommunications, Inc.

10/75 - 10/87 Supervising Engineer - Southern Bell, Carrollton, GA. Responsible for Outside Plant Engineering, Planning, and the Loop Assignment Center.

9/73 - 10/75 Outstate Construction Staff Supervisor - Southern Bell. Responsible for GA Maintenance Budget, District Operational Reviews of construction practices and Conformance Testing for 9 Districts in Georgia.

9/71 – 9/73 Outstate Engineering Staff Supervisor – Southern Bell. Responsible for Capital Budget, major project reviews and Operational Reviews of engineering practices in 9 Districts in Georgia.

6/68 – 9/71 Outside Plant Engineer with various line assignments in Southeast and Central Georgia, including Savannah, Augusta and Dublin.

10/66 – 6/68 Outside Plant Technician – Southern Bell Telephone in Savannah, GA.

Other Affiliations:

Member of Carrollton First United Methodist Church
Served Georgia Army National Guard, Battery B – 214th Artillery, 1967 – 1973 (Staff Sergeant)
Supporting member of Transportation Research Board – National Academy of Sciences
Georgia Cattlemen's Association

WA Exhibit No. 2.1 - TVA Rental Rate Formula
Blue Ridge EMC
FY 2014 Data

Line #	Description	Amount	Definition/Data Input Code
	Attacher Responsibility Percentage		
1	Space occupied	1.11	Per audit
2	Safety Space	3.33	
3	Unusable space	27.30	Calculation-excludes Safety Space
4	Number of attaching entities	2.35	Per audit
5	Pole height	36.83	Calculated with CPR detail
6	**Attacher responsibility percentage**	**41.25%**	(Ln 1 +(1/(Ln 4-1)*Ln 2)+((1/Ln 4)*Ln 3))/Ln 5
	Net Cost of a Bare Pole		
7	Gross pole investment (Acct. 364)	49,295,043	
8	Accumulated depreciation for poles	16,755,290	
9	Accumulated deferred income taxes	0	
10	Net pole investment	32,539,753	
11	Appurtenance factor	87.00%	
12	Gross pole investment allocable to attachments	28,309,585	Line 10 x Line 11
13	Total number of poles	107,751	
14	**Net cost of a bare pole**	**$262.73**	Line 12/Line 13
	Net Carrying Charge		
15	Total general and administrative	10,164,119	
16	Total electric plant in service	425,883,764	
17	Total electric plant accumulated depreciation	134,648,942	
18	Total electric plant accumulated deferred income taxes	0	
19	**Administrative carrying charge**	**3.49%**	Line 15/(Line 16 - Line 17 - Line 18)
20	Maint expense for overhead lines-Current Year	7,674,619	
21	Maint expense for overhead lines-Current Year - 1	8,203,571	
22	Maint expense for overhead lines-Current Year - 2	7,117,045	
23	Maint expense for overhead lines-3-Year Average	7,665,078	(Line 20 + Line 21 + Line 22) / 3
24	Pole investment in Accts. 364, 365, & 369	158,218,973	
25	Depreciation (poles) related to Accts. 364, 365, & 369	45,505,682	
26	Accumulated deferred income taxes for 364, 365, & 369	0	
27	**Maintenance carrying charge**	**6.80%**	Line 23/(Line 24 - Line 25 - Line 26)
28	Gross pole investment (Acct. 364)	49,295,043	
29	Net pole investment	32,539,753	Line 10
30	Depreciation rate for gross pole Investment	3.60%	
31	**Depreciation carrying charge**	**5.45%**	(Line 28/Line 29) x Line 30
32	Taxes (Accts. 408.1 + 409.1 + 410.1 + 411.4 - 411.1)	2,160,782	
33	Total utility plant in service	425,883,764	
34	Total company accumulated depreciation	134,648,942	
35	Total company accumulated deferred income taxes	0	
36	**Taxes carrying charge**	**0.74%**	Line 32/(Line 33 - Line 34 - Line 35)
37	Applicable rate of return (default)	8.50%	TVA Required Rate
38	**Return carrying charge (ROI * Net) / Gross**	**8.50%**	
39	**Total carrying charges**	**24.99%**	Line 19 + Line 27 + Line 31 + Line 36 + Line 38
	RATE		
40	**Attacher responsibility percentage**	**41.25%**	Line 6
41	**Net cost of a bare pole**	**$262.73**	Line 14
42	**Total carrying charges**	**24.99%**	Line 39
43	**Pole attachment rental rate**	**27.08**	Line 40 x Line 41 x Line 42

WA Exhibit No. 2.2 - TVA Rental Rate Formula
Blue Ridge EMC
2015 Data

Line #	Description	Amount	Definition/Data Input Code
	Attacher Responsibility Percentage		
1	Space occupied	1.11	Per audit
2	Safety Space	3.33	
3	Unusable space	27.28	Calculation-excludes Safety Space
4	Number of attaching entities	2.35	Per audit
5	Pole height	36.85	Calculated with CPR Detail
6	**Attacher responsibility percentage**	**41.21%**	(Ln 1 +(1/(Ln 4-1)*Ln 2)+((1/Ln 4)*Ln 3))/Ln 5
	Net Cost of a Bare Pole		
7	Gross pole investment (Acct. 364)	50,390,546	
8	Accumulated depreciation for poles	17,924,217	
9	Accumulated deferred income taxes	0	
10	Net pole investment	32,466,329	
11	Appurtenance factor	87.29%	
12	Gross pole investment allocable to attachments	28,339,266	Line 10 x Line 11
13	Total number of poles	108,086	
14	**Net cost of a bare pole**	**$262.19**	Line 12/Line 13
	Net Carrying Charge		
15	Total general and administrative	9,870,339	
16	Total electric plant in service	440,866,858	
17	Total electric plant accumulated depreciation	144,871,920	
18	Total electric plant accumulated deferred income taxes	0	
19	**Administrative carrying charge**	**3.33%**	Line 15/(Line 16 - Line 17 - Line 18)
20	Maint expense for overhead lines-Current Year	7,951,569	
21	Maint expense for overhead lines-Current Year - 1	7,674,619	
22	Maint expense for overhead lines-Current Year - 2	8,203,571	
23	Maint expense for overhead lines-3-Year Average	7,943,253	(Line 20 + Line 21 + Line 22) / 3
24	Pole investment in Accts. 364, 365, & 369	164,546,374	
25	Depreciation (poles) related to Accts. 364, 365, & 369	48,323,315	
26	Accumulated deferred income taxes for 364, 365, & 369	0	
27	**Maintenance carrying charge**	**6.83%**	Line 23/(Line 24 - Line 25 - Line 26)
28	Gross pole investment (Acct. 364)	50,390,546	
29	Net pole investment	32,466,329	Line 10
30	Depreciation rate for gross pole Investment	3.60%	
31	**Depreciation carrying charge**	**5.59%**	(Line 28/Line 29) x Line 30
32	Taxes (Accts. 408.1 + 409.1 + 410.1 + 411.4 - 411.1)	1,477,001	
33	Total utility plant in service	440,866,858	
34	Total company accumulated depreciation	144,871,920	
35	Total company accumulated deferred income taxes	0	
36	**Taxes carrying charge**	**0.50%**	Line 32/(Line 33 - Line 34 - Line 35)
37	Applicable rate of return (default)	8.50%	TVA Required Rate
38	**Return carrying charge (ROI * Net) / Gross**	**8.50%**	
39	**Total carrying charges**	**24.76%**	Line 19 + Line 27 + Line 31 + Line 36 + Line 38
	RATE		
40	**Attacher responsibility percentage**	**41.21%**	Line 6
41	**Net cost of a bare pole**	**$262.19**	Line 14
42	**Total carrying charges**	**24.76%**	Line 39
43	**Pole attachment rental rate**	**26.75**	Line 40 x Line 41 x Line 42

WA Exhibit 2.3 - TVA Rental Rate Formula
Blue Ridge EMC
FY 2016 Data

Line #	Description	Amount	Definition/Data Input Code
	Attacher Responsibility Percentage		
1	Space occupied	1.11	Per Audit
2	Safety Space	3.33	
3	Unusable space	27.26	Calculation - excludes Safety Space
4	Number of attaching entities	2.35	Per audit
5	Pole height	36.87	Calculated with CPR detail
6	**Attacher responsibility percentage**	**41.16%**	(Ln 1 +(1/(Ln 4-1)*Ln 2)+((1/Ln 4)*Ln 3))/Ln 5
	Net Cost of a Bare Pole		
7	Gross pole investment (Acct. 364)	51,209,182	
8	Accumulated depreciation for poles	19,197,595	
9	Accumulated deferred income taxes	0	
10	Net pole investment	32,011,587	
11	Appurtenance factor	87.41%	
12	Gross pole investment allocable to attachments	27,981,967	Line 10 x Line 11
13	Total number of poles	108,330	
14	**Net cost of a bare pole**	**$258.30**	Line 12/Line 13
	Net Carrying Charge		
15	Total general and administrative	9,666,925	
16	Total electric plant in service	454,916,323	
17	Total electric plant accumulated depreciation	156,430,349	
18	Total electric plant accumulated deferred income taxes	0	
19	**Administrative carrying charge**	**3.24%**	Line 15/(Line 16 - Line 17 - Line 18)
20	Maint expense for overhead lines-Current Year	8,486,535	
21	Maint expense for overhead lines-Current Year - 1	7,951,569	
22	Maint expense for overhead lines-Current Year - 2	7,674,619	
23	Maint expense for overhead lines-3-Year Average	8,037,574	(Line 20 + Line 21 + Line 22) / 3
24	Pole investment in Accts. 364, 365, & 369	168,093,587	
25	Depreciation (poles) related to Accts. 364, 365, & 369	51,825,495	
26	Accumulated deferred income taxes for 364, 365, & 369	0	
27	**Maintenance carrying charge**	**6.91%**	Line 23/(Line 24 - Line 25 - Line 26)
28	Gross pole investment (Acct. 364)	51,209,182	
29	Net pole investment	32,011,587	Line 10
30	Depreciation rate for gross pole Investment	3.60%	
31	**Depreciation carrying charge**	**5.76%**	(Line 28/Line 29) x Line 30
32	Taxes (Accts. 408.1 + 409.1 + 410.1 + 411.4 - 411.1)	1,698,970	
33	Total utility plant in service	454,916,323	
34	Total company accumulated depreciation	156,430,349	
35	Total company accumulated deferred income taxes	0	
36	**Taxes carrying charge**	**0.57%**	Line 32/(Line 33 - Line 34 - Line 35)
37	Applicable rate of return (default)	8.50%	TVA Required Rate
38	**Return carrying charge (ROI * Net) / Gross**	**8.50%**	
39	**Total carrying charges**	**24.98%**	Line 19 + Line 27 + Line 31 + Line 36 + Line 38
	RATE		
40	**Attacher responsibility percentage**	**41.16%**	Line 6
41	**Net cost of a bare pole**	**$258.30**	Line 14
42	**Total carrying charges**	**24.98%**	Line 39
43	**Pole attachment rental rate**	**26.56**	Line 40 x Line 41 x Line 42

WA Exhibit No. 2.4 - Transmission Pole Bare Pole Cost
Blue Ridge EMC
FY 2016 Data

Net Cost of a Bare Pole-Transmission			
7	Gross pole investment (Acct. 355)	25,154,088	
8	Accumulated depreciation for poles	7,702,588	
9	Accumulated deferred income taxes	0	
10	Net pole investment	17,451,500	
11	Appurtenance factor	96.37%	
12	Gross pole investment allocable to attachments	16,818,257	Line 10 x Line 11
13	Total number of poles	4,629	
14	**Net cost of a bare pole**	**$3,633.24**	Line 12/Line 13

WA Exhibit No.2.5
FCC Cable Only Rate - Default Space

FCC CABLE-ONLY RATE
Blue Ridge EMC
FY 2016 Data

Line #	Description	Amount	Definition
	Attacher Responsibility Percentage		
1	Space occupied	1	Presumption
2	Total usable space	13.50	Presumption
3	**Attacher responsibility percentage**	**7.41%**	Line 1/Line 2
	Net Cost of a Bare Pole		
4	Gross pole investment (Acct. 364)	51,209,182	
5	Accumulated depreciation for poles	19,197,595	
6	Accumulated deferred income taxes	0	
7	Net pole investment	32,011,587	Line 4 - Line 5 - Line 6
8	Appurtenance factor	87.41%	
9	Net pole investment allocable to attachments	27,981,967	Line 7 x Line 8
10	Total number of poles	108,330	
11	**Net cost of a bare pole**	**$258.30**	Line 9/Line 10
	Carrying Charge		
12	Total general and administrative	9,666,925	
13	Total electric plant in service	454,916,323	
14	Total electric plant accumulated depreciation	156,430,349	
15	Total electric plant accumulated deferred income taxes	0	
16	**Administrative carrying charge**	**3.24%**	Line 12/(Line 13 - Line 14 - Line 15)
17	Maintenance expense for overhead lines	8,486,535	
18	Pole investment in Accts. 364, 365, & 369	168,093,587	
19	Depreciation (poles) related to Accts. 364, 365, & 369	51,825,495	
20	Accumulated deferred income taxes for 364, 365, & 369	0	
21	**Maintenance carrying charge**	**7.30%**	Line 17/(Line 18 - Line 19 - Line 20)
22	Gross pole investment (Acct. 364)	51,209,182	
23	Net pole investment	32,011,587	Line 7
24	Depreciation rate for gross pole Investment	3.60%	
25	**Depreciation carrying charge**	**5.76%**	(Line 22/Line 23) x Line 24
26	Taxes (Accts. 408.1 + 409.1 + 410.1 + 411.4 - 411.1)	1,698,970	
27	Total utility plant in service	454,916,323	
28	Total company accumulated depreciation	156,430,349	
29	Total company accumulated deferred income taxes	0	
30	**Taxes carrying charge**	**0.57%**	Line 26/(Line 27 - Line 28 - Line 29)
31	Applicable rate of return (default)	11.00%	
32	**Return carrying charge**	**11.00%**	FCC Mandate
33	**Total carrying charges**	**27.87%**	Line 16 + Line 21 + Line 25 + Line 30 + Line 32
	RATE		
34	**Attacher responsibility percentage**	**7.41%**	Line 3
35	**Net cost of a bare pole**	**$258.30**	Line 11
36	**Total carrying charges**	**27.87%**	Line 33
37	**Pole attachment rate for cable-only**	**5.33**	Line 34 x Line 35 x Line 36

WA Exhibit No. 3

PROPOSED BOARD RESOLUTION
(Pole Attachments)

WHEREAS, TVA regulates the retail rates of the Local Power Companies (LPCs) that distribute TVA power and establishes the terms and conditions under which TVA power is sold to ensure that LPC systems are operated for the benefit of the electric consumers and that rates are kept as low as feasible;

WHEREAS, so that electric system assets and funds are not used in a manner that would result in the subsidization of non-electric activities, an LPC's electric system must be appropriately compensated for the use of electric system assets, including use by cable and telecommunication providers making or maintaining wireline attachments on an LPC's electric system poles;

WHEREAS, a memorandum from the Chief Financial Officer and Executive Vice President, Financial Services (CFO), dated January 22, 2016 (Memorandum), a copy of which is filed with the records of the Board as Exhibit _____, recommends that the Board of Directors approve the recommended methodology for regulation of pole attachment rates by adopting the Determination on Regulation of Pole Attachments as described in the Memorandum;

BE IT RESOLVED, that after review of said Memorandum, the Board of Directors finds it to be appropriate and in the interest of TVA to approve the recommended methodology for regulation of pole attachment rates and adopts the Determination on Regulation of Pole Attachments attached to and described in the Memorandum.

RESOLVED further, that the Board hereby authorizes and directs the Chief Executive Officer (CEO), to take all actions necessary or appropriate to implement the Determination on Regulation of Pole Attachments as further described in the Memorandum.

January 22, 2016
Financial Services

Board of Directors

SUBJECT

The Board is requested to approve the recommended methodology for regulation of pole attachment rates by adopting the Determination on Regulation of Pole Attachments set out in Attachment A and further described in this memorandum. The Board is further requested to authorize the Chief Executive Officer (CEO) to take all actions necessary or appropriate to implement the Determination on Regulation of Pole Attachments as described.

BACKGROUND

TVA sells electric power to local power companies that distribute TVA power (LPCs) pursuant to the Property Clause of the Constitution. Specifically, TVA electric power is property of the United States, and Congress has delegated to TVA the authority to manage that property. Through the TVA Act, Congress has vested broad discretion in the TVA Board of Directors in the exercise of their authority to sell surplus power. Section 10 of the TVA Act authorizes the TVA Board:

> ... to include in any contract for the sale of power such terms and conditions, including resale rate schedules, and to provide for such rules and regulations as in its judgment may be necessary or desirable for carrying out the purposes of this chapter ...

TVA is the exclusive retail rate regulator for LPCs that distribute TVA power. Further, through the wholesale power contract with each LPC, TVA seeks to ensure that electric systems are operated for the benefit of electric consumers and that rates are kept as low as feasible. It is important to achieving these objectives that TVA ensure that LPC electric systems are appropriately compensated for the use of electric system assets for non-electric purposes.

Over the last few years, TVA has seen an increased regulatory focus on pole attachment fees in the Valley. For example, in 2012 the Kentucky Cable Telecommunications Association (KCTA) petitioned the Kentucky Public Service Commission (KYPSC) to order that the KYPSC has jurisdiction over the rates charged by TVA LPCs. In 2015, the KYPSC determined that it was preempted from regulating the pole attachment rates charged by TVA LPCs. KCTA has appealed the decision by the KYPSC. Similarly in 2014, an opinion was sought from the Tennessee Attorney General regarding the jurisdiction of the State of Tennessee (State) to regulate the pole attachment rates of TVA LPCs. The Tennessee Attorney General concluded that such regulation by the State is not currently "clearly preempted," but stated that if TVA were to assert its regulatory authority over the rates and revenues of TVA LPCs in a way that directly affected pole attachments, then regulation by the State would likely be preempted.

These and other activities in the Valley led to TVA's reevaluation of the need to refine TVA's regulation of pole attachment rates to ensure that electric systems are being appropriately compensated for the use of electric system assets. Failure to do so has a direct impact on the

retail rates charged by LPCs because electric ratepayers will be forced to subsidize the business activities of those entities attaching to the assets of LPCs for non-electric purposes.

ALTERNATIVES CONSIDERED

TVA's Regulatory Assurance staff (Staff) reviewed information related to pole attachment regulation throughout the country and sought input from LPCs and the Tennessee Valley Public Power Association (TVPPA) on the need for further regulation and suggested methods for such regulation. TVPPA proposed a rate formula to TVA, and after consideration of feedback that was received, Staff developed a draft proposal for refinement of TVA's pole attachment regulation. TVA sought feedback from LPCs on the proposal, and based on that feedback TVA developed the following recommendation. TVA has held webinars and other meetings with LPCs to discuss and solicit input on pole attachment regulation. Feedback from individual LPCs and the TVPPA Board of Directors has been generally supportive of TVA's efforts and the actions recommended.

RECOMMENDED ACTION AND POTENTIAL IMPACTS

It is recommended that the Board approve the methodology recommended by Staff for regulation of pole attachment rates that is further described below by adopting the Determination on Regulation of Pole Attachments set out in Attachment A. A summary of Staff's considerations and the feedback received in developing this recommendation is provided as Attachment B.

After studying several methodologies for calculating pole attachment rates, Staff developed a methodology that provides for the fully allocated cost of the pole and is consequently designed to better protect the electric ratepayer. Under this rate methodology, the pole attachment rate is calculated by first establishing the total annual cost of pole ownership, which includes administration, depreciation, maintenance, taxes, and return on investment (ROI). The total cost is then allocated among pole users based on: the actual number of pole users; an equal allocation of support space among the pole users; an equal allocation of safety space among pole users that are attaching for communication purposes; and an allocation of usable space to each pole user.

The methodology provides for equal sharing of support space among all users, including electric. Safety space, however, is allocated equally among users that are attaching for communication purposes. While Staff had initially developed a methodology that allocated safety space to all users, based on input from TVPPA and LPCs, Staff further evaluated the appropriate allocation of safety space. As noted by the National Electrical Safety Code, the safety space on a pole is for the safety of communication workers. Staff concluded that it is proper to allocate safety space to users that attach for communication purposes, and the methodology is reflected in Attachment A.

Certain assumptions have been used for simplification and ease of administration in developing a fully allocated cost methodology for individual LPCs. The calculation assumes: an average

pole height of 37.5 feet, which is consistent with pole attachment rate formulas used in many jurisdictions; a 15% discount factor to remove items such as cross arms and anchors from pole costs; a uniform ROI equal to 8.5%; and that one foot (or two feet depending on the attacher) of space is occupied by each non-electric attaching party. Space allocation will be determined using the actual number of attaching parties per pole, including the pole owner. TVA may adjust the appropriateness of using assumptions and the assumptions being used from time to time. Any such adjustments will be reported at least annually to the Audit, Risk, and Regulation Committee of the TVA Board.

Some LPCs asked that TVA allow an LPC to apply actual data in place of the other assumptions used in the formula, noting that some LPCs have actual system data that would allow for a more accurate calculation. Staff considers a uniform ROI important to promoting consistency across the Valley, but agrees that it may be appropriate to allow LPCs to use actual system data for average pole height and discount factor. Accordingly, where such data is available and the LPC provides sufficient justification to TVA supporting the use of actual data inputs for both pole height and discount factor assumptions, the LPC may be permitted to use actual data. This is reflected in Attachment A.

Staff completed a preliminary analysis to better understand the potential impacts of the proposed new pole attachment rate methodology. Based on a review of current pole attachment rates charged by LPCs, the mid-point in the Valley is approximately $18. Applying the recommended methodology may result in a mid-point of approximately $30. Although most LPCs are expected to see increased rates, some will see decreases from rates that are currently charged. These impacts will likely change once individual LPC pole accounting data is reconciled and validated by both the LPC and TVA.

Several LPCs expressed concern about the variance from current rates that will be produced by the methodology. While Staff considers these changes necessary to ensure proper cost recovery, Staff also recognizes the need to mitigate impacts of new rates. Accordingly, the recommendation reflected in Attachment A provides for a phase-in period. Further, before an LPC may apply the rate derived from the fully allocated cost methodology, Staff must validate data and approve such rate. Following the Board's adoption of the methodology set out in Attachment A, Staff will evaluate the rates calculated by analyzing each LPC's actual data. It is recommended that the CEO be authorized to approve a mechanism, if needed, to further address LPC rates that fall outside certain statistical parameters. This mechanism would be subject to review by the Audit, Risk, and Regulation Committee of the TVA Board prior to implementation.

It is recommended that the Board authorize and direct the CEO to take all actions necessary or appropriate to implement the Determination on Regulation of Pole Attachments. Further, for purposes of clarity, TVA will develop a contract amendment in form and substance acceptable to the Office of the General Counsel to more specifically incorporate TVA's regulatory control over pole attachment rates into the wholesale power contract.

Staff will continue to work with LPCs and TVPPA to provide for orderly implementation of the pole attachment methodology. All LPCs will be expected to enter into the contract amendment described above as soon as practicable. An LPC may begin using the rate methodology adopted herein as soon as TVA completes an evaluation of and affirms the rate. All LPCs are expected to begin using the new pole attachment rate methodology by January 2017, but no later than January 2018, as described in Attachment A.

Attachments

Attachment A: Determination on Regulation of Pole Attachments
Attachment B: Summary of Considerations and Comments

John M. Thomas III
Executive Vice President and Chief Financial Officer
Financial Services
MR 6 D-C

Attachments
cc (Attachments)
Dwain K. Lanier, MR 6D-C
Daniel P. Pratt, MR 6D-C
Van M. Wardlaw, BR 5D-C
Laura J. Campbell, MK 1A-MET
Jeffrey T. McKenzie, WT 7C-K
EDMS, WT CA-K

Sherry A. Quirk Date

William D. Johnson Date

Tennessee Valley Authority
Determination on Regulation of Pole Attachments
February 2016

Determination By TVA Board

TVA is the exclusive retail rate regulator for local power companies (LPCs) that distribute TVA power. Primarily through the wholesale power contract with each LPC, TVA seeks to ensure that electric systems are operated for the benefit of electric consumers and that electric rates are kept as low as feasible. Ensuring that LPCs are appropriately compensated for the use of electric system assets is important to achieving these goals. Importantly, failure to do so will have a direct impact on retail electric rates because electric ratepayers will be forced to subsidize the business activities of those entities that are utilizing electric system assets. To this end, TVA has evaluated the need to refine its regulation of the rates charged by LPCs where parties such as cable or telecommunication (including broadband) providers make or maintain wireline attachments to electric system assets.

The TVA Board determines it to be appropriate to refine TVA's regulation in this area by identifying the methodology to be used by TVA LPCs in determining pole attachment rates and clarifying TVA's regulatory control over pole attachments within the wholesale power contract between TVA and each LPC.[1]

Methodology

In establishing the formula to reflect the fully allocated cost methodology for each individual LPC, certain assumptions have been used to simplify the calculation. The calculation for each attaching party assumes: an average pole height of 37.5 feet; a 15 percent cross arm discount factor; and allocation of either one foot or two feet of space depending on space occupied by the communication attaching party; and a uniform return on investment (ROI) equal to 8.5%.

A more detailed explanation of the components in the pole attachment formula is located in Appendix 1, and an example of the data used in the formula is located in Appendix 2. The formula to be used by all LPCs in establishing pole attachment rates is:

Pole Attachment Rate = (Space Allocation) x (Net Cost of Bare Pole) x (Carrying Cost)

Space Allocation - The percentage share of space based upon amount, types, and purposes of space on the pole. Space is allocated based on: the actual number of pole users; an equal allocation of support space among the pole users; an equal allocation of safety space among pole users that are attaching for communication purposes; and an allocation of usable space to each pole user. (See Appendix 3)

[1] Nothing herein is intended to apply to reciprocal or joint use agreements at this time, although TVA expects that appropriate costs will be borne by all participants in these reciprocal or joint use agreements.

- **Net Cost of Bare Pole** – The net pole investment, after applying Discount Factor, divided by the number of poles.
- **Carrying Cost** - Annual operating expenses associated with pole ownership. (Administrative Charge, Maintenance Charge, Depreciation Charge, and Taxes as a percent of net plant plus the Return on Investment)

It is recognized that there may be circumstances in which it is appropriate for LPCs to use actual system data where such data is available. Accordingly, if an LPC provides sufficient justification to TVA supporting the use of actual data inputs for both average pole height and discount factor, TVA may approve the use of such data. Further, TVA may re-evaluate the assumptions used in the formula periodically as well as the appropriateness of using assumptions or actual data in the formula and make adjustments as deemed appropriate. Any such adjustments will be reported at least annually to the Audit, Risk, and Regulation Committee of the TVA Board.

Before an LPC may apply the rate derived from the fully allocated cost methodology, TVA must validate data and approve such rate. Thereafter, on an annual basis, TVA will evaluate and approve the rate to be used. In the event that the methodology produces a rate for an individual LPC that TVA determines to be outside certain statistical parameters, an additional level of review will be required for such rate.[2] Recognizing that LPCs will need a period of time to phase-in any necessary changes to pole attachment rates to mitigate the effect of any significant changes in rates, TVA will work with LPCs to implement the rates derived from the methodology adopted herein using the attached Guideline Adjustment Scale (See Appendix 4) to provide for a transition period to the new rates.

Once the LPC begins applying the rate derived from the fully allocated cost methodology to its arrangements with communication attachers, such rate should be properly adjusted either by using the Handy Whitman Index or by applying the updated TVA approved pole attachment rate. TVA also expects pole attachment counts to be updated on a reasonable cycle in order to ensure accurate revenue collection to cover costs.

Incorporation into Wholesale Power Contract

For purposes of clarity, each LPC is expected to enter into an agreement with TVA as soon as practicable to more specifically incorporate TVA's regulatory control over pole attachment rates into the wholesale power contract. An LPC may begin using the rate methodology adopted herein as soon as TVA completes an evaluation of and affirms the rate. All LPCs are expected to begin using the new pole attachment rate methodology by January 2017 for all new and renewal contracts. In the event that individual LPCs' circumstances warrant, TVA may extend the time for implementation to no later than January 2018. TVA will develop guidance for LPCs to address the application of new rates where existing contracts contain such provisions as automatic renewal, extension, or re-opener provisions.

[2] Following the Board's adoption of the methodology, TVA Staff will evaluate the rates calculated by analyzing each LPC's actual data. If it is determined that there is a need to do so, the CEO is authorized to approve a mechanism to further address LPC rates that fall outside certain statistical parameters, subject to review by the Audit, Risk, and Regulation Committee of the TVA Board prior to implementation.

Attachment A - Appendix 1

Pole Attachment Formula Components

Definitions: For purposes of this Exhibit, the following definitions shall apply, and all financial data have been obtained from the local power companies (LPCs) most recent Annual Report to the Tennessee Valley Authority:

"**Administrative Charge**" shall mean the total of all of the LPCs' administrative and general expenses shown in all of the Sample LPCs' FERC Account 625 (which is a totaling account for FERC Accounts 920, 921, 923-926, 929 & 930) divided by the total of all of the LPCs' electric plant, net of accumulated depreciation.

"**Carrying Costs**" shall mean the sum of the Administrative Charge, the Depreciation Charge, the Maintenance Charge, the Rate of Return, and the Tax-Equivalent Charge, all of which shall be stated as a percentage of net plant.

"**Depreciation Charge**" shall mean the median depreciation rate for the LPCs' multiplied by the quotient of the LPCs' gross FERC Account 364 plant divided by the LPCs' net FERC Account 364 plant.

"**Maintenance Charge**" shall mean the three year average of the LPCs' FERC Account 593 plant expenses divided by the sum of the Sample LPCs' plant shown in FERC Accounts 364, 365 and 369, net of accumulated depreciation.

"**Net Cost of Bare Pole**" shall mean the pole investment as shown in the LPCs' FERC Account 364, net of accumulated depreciation, multiplied by 1 minus the discount factor divided by the total number of LPC utility poles included in FERC Account 364.

"Discount Factor" represents the percentage of distribution pole plant items (only) in FERC Account 364 excluding cross arms, anchors, etc.

"**Return on Investment**" shall mean eight and a half percent (8.5%).

"**Space Allocation**" is based upon a standard average 37.5 foot pole and the actual number of parties per pole, including the pole owner.

"**Tax and Tax-Equivalent Charges**" shall mean the quotient of the LPCs' tax and/or tax-equivalent payments shown in FERC Account 408.1 divided by all of the LPCs' electric plant, net of accumulated depreciation.

Attachment A - Appendix 2
Pole Attachment Formula Example

Net Cost of Bare Pole	$	278.93	(a)
Carrying Charge		26.61%	(b)
Annual Cost of Ownership (a*b=X)	$	74.22	X
Space Allocation (% of Total Pole)			
Fully Allocated Cost Formula (B+(1/(A-1)*C)+(1/A)*E)/(D+E)		28.44%	Y
Maximum Rate per Pole			
Fully Allocated Cost Formula (X*Y=Z)	**$**	**21.11**	Z

Space Allocation: Assumptions include 3 entities attaching to 37.5' pole.

(A) Number of Attaching Parties	3	
(B) Space Occupied by Attaching Party	1	feet
(C) Safety Space	3.33	feet
(D) Total Usable Space	13.5	feet
(E) Total Support Space (6' Ground + 18' Clearance)	24	feet

Net Cost of a Bare Pole:

(1) Gross Pole Investment (FERC A/C 364)	$	7,545,190.30
(2) Depreciation Reserve (FERC A/C 108.364)	$	1,972,753.62
(3) Gross Plant Investment (FERC A/C 364, 365,& 369)	$	14,998,392.35
(4) Net Investment (Poles) (L(1)-L(2))	$	5,572,436.68
(5) Net Investment (Bare Pole) (L(4) x .85)	$	4,736,571.18
(6) Number of Poles		16,981
(7) Net Cost of a Bare Pole (L(5)/L(6))	**$**	**278.93** (a)

Carrying Charge:

(1) Administrative Charge	3.26%
(2) Maintenance Charge	8.56%
(3) Depreciation Charge	4.06%
(4) Taxes	2.23%
(5) Return on Investment	8.50%
(6) Total Carrying Charge Rate (L(1)+L(2)+L(3)+L(4)+L(5))	**26.61%** (b)

Administrative Charge

(1) A&G Expense (TVA AR Rpt item 625 & a/c 935 -page 6)	$ 1,321,181.13
(2) Net Plant Investment (TVA AR Rpt item 6-Page 1)	$ 40,478,879.32
(3) Administrative Charge (L(1)/L(2))	**3.26%**

Maintenance Charge

(1) Maintenance Exp.(Three yr avg. -TVA AR a/c 593-Page 6)	$ 837,521.00
(2) Net Investment (Pole Accounts 364, 365 & 369)	$ 9,779,762.19
(3) Maintenance Charge (L(1)/L(2))	**8.56%**

Depreciation Charge

(1) Depreciation Rate (TVA AR Rpt -page 11)	3.00%
(2) Gross Pole Investment (Account 364)	$ 7,545,190.30
(3) Net Pole Investment (Account 364)	$ 5,572,436.68
(4) Depreciation Charge (L(1) x (L(2)/L(3))	**4.06%**

Taxes

(1) Total Current and Deferred Taxes (TVA AR a/c 408 Property -pg 29)	$ 902,919.19
(2) Net Plant Investment	$ 40,478,879.32
(3) Taxes (L(1)/L(2))	**2.23%**

Return on Investment

Authorized by Regulatory Authority	**8.50%**

Attachment A - Appendix 3
Space Allocation Illustration:
The Fully Allocated Cost Method

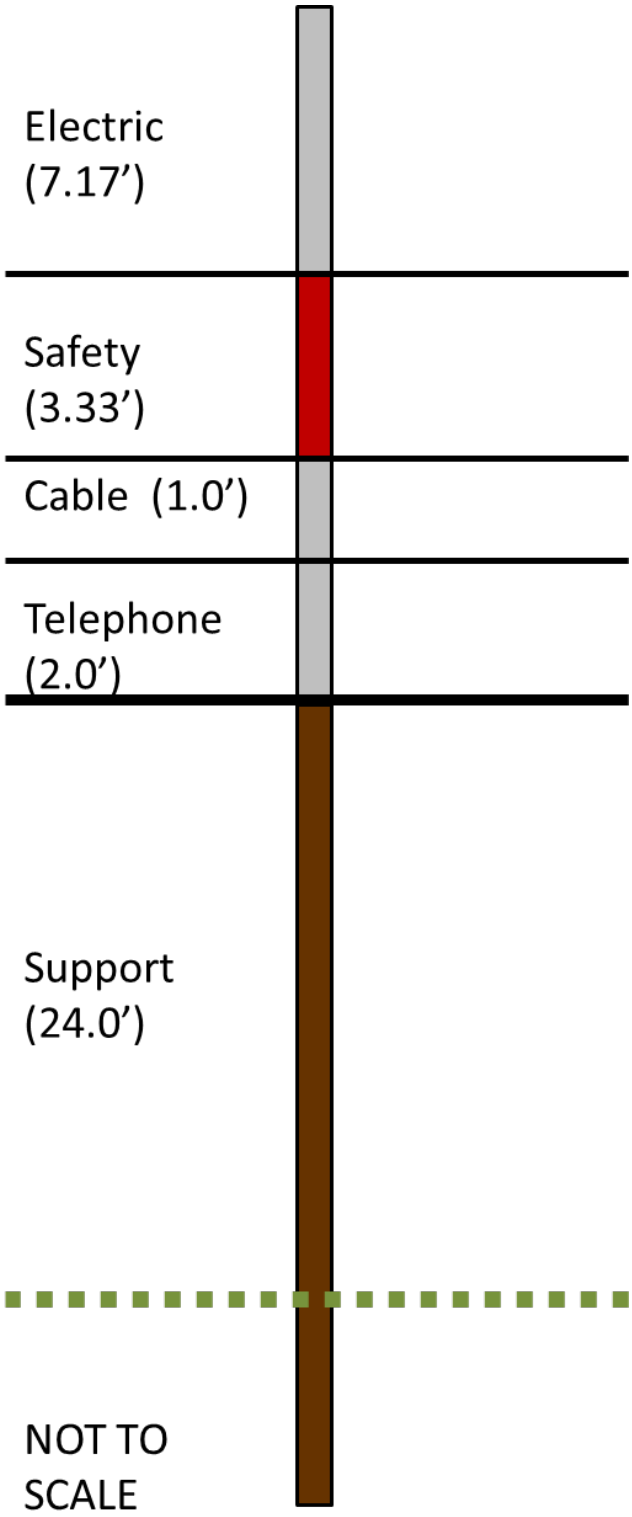
Allocates usable space

Equal sharing of safety space among all users attaching for communication purposes

Equal sharing of support space among all users including electric

Space allocation is 28.44% based on assumed 37.5 foot pole with 3 average users

Results in a fair allocation of costs among pole owner and pole users



Guideline Adjustment Scale:

		Monthly - Adjustment (+/-)			
Dollar Variance	**Transition Period ***	**Low**		**High**	
$ 0 - $ 5	Immediate action	$	-	$	0.42
$ 6 - $10	No more than 2 years	$	0.21	$	0.42
$11 - $20	No more than 3 years	$	0.31	$	0.56
$21 - $30	No more than 4 years	$	0.44	$	0.63
$31 or greater	No more than 5 years	$	0.52	$	> 0.52

* Transition period begins upon effective date of new or updated contract with attaching party.

Attachment B

Summary of Consideration and Comments

Related to Recommendation to TVA Board February 2016

To understand the proposal being made to the TVA Board, the following summary is being provided to address: 1) pole attachment rate methodologies, 2) the scope of pole attachment regulation, and 3) comments TVA received regarding such regulation.

I. METHODOLOGIES

TVA's Regulatory Assurance staff (Regulatory Staff) reviewed several methodologies by which other regulatory bodies set pole attachment rates. After such review, Regulatory Staff focused on four methodologies. Generally, all formulas for calculating pole attachment rates are the product of space factor and annual pole cost. Space factor, which establishes the percentage of annual pole costs that each user of the pole will bear, is the primary driver in the differences between formulas.

A. The Federal Communications Commission Method (FCC):

The FCC has established formulas for determining pole attachment rates for cable and telecommunication attachments for investor-owned utilities. The FCC uses separate formulas for cable and telecommunication service attachments. The FCC rate for cable service attachments results in the lowest rate, requiring the attacher to typically only pay a rate that amounts to recovery of approximately 7.4% of the annual pole cost. The traditional telecommunication formula produces a rate that is typically 16.9% of the annual pole cost in non-urban areas and 11.2% in urban areas. In order to further the FCC's goal of "promoting consistent, cross-industry attachment rates that encourage deployment and adoption of broadband Internet access services,"[1] the FCC, in recent years, has taken steps to "bring cable and telecom rates for pole attachments into parity at the cable-rate level" by applying certain allocators that serve to reduce recovery of capital and operating costs. The FCC does not have jurisdiction to regulate the pole attachment rates of municipal and cooperative systems.

After careful review, Regulatory Staff recognized that because the FCC formulas are designed to further the policy goal of encouraging broadband investment, particularly in rural areas, they do not appropriately compensate the electric utility for the attachment. Unlike the FCC, however, TVA is charged with keeping electric rates as low as feasible, and ensuring that electric ratepayers do not subsidize other business activities is important in achieving this objective. The manner in which the FCC methods determine space allocation on poles requires pole owners to absorb most of the capital and operating costs of a pole on the assumption that pole owners do not take the interests of attaching entities into account in making their capital

[1] *Implementation of Section 224 of the Act; A National Broadband Plan for Our Future*, WC Docket No. 07-245, GN Docket No. 09-51, Order on Reconsideration, (released Nov. 24, 2015) https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-151A1.pdf

investment decisions. This is particularly true in the cable formula, which only accounts for the space occupied on the usable space of a pole. Regulatory Staff disagrees with this assumption.

TVA's recommended methodology differs from the FCC telecommunication formula in determining the space factor in several respects. Safety space, which is an amount of unused space that is required on utility poles to safely separate electric facilities from communication facilities, is assigned to the electric pole owner even though the safety space is solely for the safety of communication workers. Regarding support space, the FCC telecommunication method assigns 1/3 of the support space to the pole owner, which is the electric utility, and then the remaining 2/3 of the support space is equally shared among all attaching entities, which also includes the electric utility. The recommended TVA methodology allocates all of the safety space to the communications attachers and equally allocates support space among all attachers, including electric.

B. The American Public Power Association Model (APPA):

The APPA has created a model licensing agreement that covers attachments to municipal utility poles, ducts, and conduits owned by municipal electric utilities and a shared-cost formula for calculating rates. The APPA model is designed to provide the utility with full recovery of its expenses and fair compensation for use of its poles, and Regulatory Staff was able to utilize many components from the APPA model. The primary difference between the TVA proposed methodology and the APPA methodology is in allocation of safety space.

In determining the space factor, the APPA model allocates safety space equally among all pole users, including electric. Like the APPA model, TVA plans on employing assumptions for average pole height and discount factor, but with flexibility to allow the use of actual data when it is available and otherwise justified.

C. "Analysis of Pole Attachment Rate Issues in Tennessee," prepared by Tennessee Advisory Commission on Intergovernmental Relations (TACIR[2]):

In 2007, the TACIR commissioned a study of proposed legislation in Tennessee that addressed the issue of pole attachments by cable and telecommunication providers to the poles owned by cooperative and municipally owned utilities. The TACIR report collected information about methods used by electric providers in Tennessee, and it provided a comparison of the FCC cable formula, the FCC telecommunication formula, and a "full-cost" methodology utilized by some electric utilities. The full cost allocation method reviewed in the TACIR report most closely met the objectives of TVA's pole attachment regulation. For a three-party pole, this method generally results in a space factor of 28.4%, which allocates safety space to non-electric users and provides for equal sharing of support space. This is consistent with the final TVA recommendation.

[2] Available at https://www.tn.gov/assets/entities/tacir/attachments/pole_attachment_rate_issues.pdf

D. Tennessee Valley Public Power Association (TVPPA):

In response to a request from TVA, TVPPA proposed a methodology for TVA to consider in its regulation of pole attachment rates. (See Appendix 1) Like the formula reviewed in the TACIR report, TVPPA proposed a methodology that provides for an equal allocation of support space, an equal allocation of safety space to all communication users, and an allocation of usable space to each pole user. Because Regulatory Staff concluded that the methodology proposed by TVPPA best reflects full cost allocation, the final recommendation is largely consistent with the TVPPA proposal. It does, however, differ in a few respects. Notably, the Regulatory Staff recommendation includes an 8.5% ROI instead of 10%, and the TVA methodology uses the actual number of pole attachers instead of an assumption of three per pole.

II. SCOPE

The scope of pole attachment regulation by many regulatory bodies is broader than the regulation that TVA is seeking to refine with this current effort. Regulatory Staff considered whether such regulation should include joint use agreements or other similar reciprocal agreements with telephone companies that also own poles within LPCs' respective service areas. Because joint use and reciprocal arrangements provide benefits (from reciprocal use of poles) that are not present in non-reciprocal arrangements, the rate methodology under consideration was not determined at this time to be well-suited to address joint use and other reciprocal arrangements.

Further, Regulatory Staff noted that many regulatory bodies not only regulate the rate for pole attachments but also the terms and conditions for pole attachment, such as dismantling fees and penalties. Regulatory Staff contemplated a similar regulatory scope but determined that regulating beyond the rate is neither feasible nor appropriate at this time.

III. COMMENTS

A. Solicitation of Input

On August 12, 2015, TVA sent a letter to LPCs and the Tennessee Valley Public Power Association (TVPPA) indicating that TVA was evaluating further refinement of TVA's regulation of pole attachment rates. TVA invited recommendations on a pole attachment methodology. (See Appendix 2) TVPPA recommended the methodology described above, and TVA reviewed the TVPPA recommendation along with research conducted by Regulatory Staff. On November 10, 2015, TVA provided to all LPCs for input a draft recommendation addressing refinement of TVA's regulation of pole attachment rates and setting out a proposed methodology. (See Appendix 3)

TVA conducted a series of webinars and meetings with LPCs and received feedback from many of them and TVPPA. Largely, that feedback fell into three broad categories: methodology; changes in rates/implementation; and scope of regulation. Regulatory Staff considered the feedback in developing the final recommendation made to the TVA Board. Below is a summary of the Regulatory Staff's consideration of the feedback received.

B. Summary of Feedback

1. Methodology

TVA's initial draft recommendation provided for the safety space on an electric pole to be allocated equally among all attachers, including electric. TVA specifically asked for input on this issue, and many LPCs expressed concern about the appropriateness of allocating any of this space to electric. While some LPCs supported the equal allocation of safety space, almost all that commented on this issue noted that safety space is only required for the protection of communication workers. The National Electrical Safety Code recognizes this space as being a "Communication Worker Safety Zone," and many LPCs urged TVA to recognize this by allocating all of the safety space to non-electric attachers. Regulatory Staff agrees that safety space should be allocated to the communications attachers and this is reflected in the ultimate recommendation to the TVA Board.

For simplification and ease of administration, the methodology developed by Regulatory Staff for calculation of pole attachment rates includes certain assumptions. Regulatory Staff attempted to balance rate calculations for each LPC with concerns about cost and other resource constraints associated with compiling and validating individual data components that may not be easily available. The initial draft that was provided to LPCs for input included assumptions for pole height, discount factor, return on investment, space occupied per attacher, and number of attachers per pole. Feedback on each of these is provided below:

- Pole Height – Regulatory Staff's initial draft recommendation assumed a pole height of 37.5 feet, which is consistent with the assumption included in pole attachment rate formulas used in many jurisdictions. Several LPCs noted that pole heights vary significantly and questioned whether actual pole height data should be used. Some expressed concerns about using such assumptions since some LPCs operate and maintain an electric system with an average pole height greater than 37.5 feet and some LPCs may be lower. LPCs also indicated that utilizing each LPC's actual average pole height will produce a more accurate rate for that utility. While Regulatory Staff considers pole height to be an area where it is appropriate to utilize an assumption, the final recommendation to the TVA Board allows for LPCs to use actual data for both pole height and discount factor when requested by the LPC and verified by TVA as appropriate.
- Discount Factor – In order to determine the cost of a pole, the net pole cost as reflected in the LPC's financial records is reduced by an amount determined to represent costs associated with items such as cross arms and anchors because these items are not used by communication attachers. Consistent with some of the methodologies reviewed, Regulatory Staff considers 15% of the net pole costs to be a fair representation of these costs. Some LPCs suggested that it would be more appropriate to permit LPCs to use their actual system data for this input into the formula. As explained above, this is reflected in the final recommendation.
- Return on Investment – Staff has recommended that the methodology include an 8.5% return on investment (ROI). Several LPCs questioned the use of a standard ROI instead

of allowing for the use of individual LPC calculations of the cost of capital. Some suggested that 8.5% is too high, and others thought it is too low. Rather than using an individualized ROI that is calculated for each LPC system, Regulatory Staff considers a uniform ROI to be appropriate in order to promote consistency across the Valley. The assumption included in the methodology was calculated by TVA's Treasury Staff utilizing 2014 LPC financial data. TVA provided additional information to LPCs to describe the manner in which TVA concluded that 8.5% represents a reasonable weighted average cost of capital for LPCs as reflected in the final Regulatory Staff recommendation. (See Appendix 4)

- Space Occupied per Attacher – The initial draft recommendation included an assumption that one foot of space is occupied by each attaching party. Some LPCs noted that the amount of space used by an attacher can vary depending upon the type of attachment and questioned whether different assumptions should be used. To address this, Regulatory Staff modified the formula to calculate a rate for either one foot of space or two feet of space. This is reflected in the final recommendation to the TVA Board.
- Number of Attachers per Pole – Regulatory Staff's initial draft recommendation utilized an assumption of three attachers per pole in determining space allocation. Regulatory Staff considered this to be a reasonable average to use across the Valley, and this assumption is consistent with some of the other methodologies that were reviewed. Several LPCs provided information about the actual number of attachers on their system and questioned the use of an assumption instead of actual data. This feedback increased TVA's level of confidence that LPCs have the data available to determine the actual number of attachers. In the final recommendation to the TVA Board, space allocation will be determined using the actual number of attachers on the poles.

Tax-equivalent charges directly paid by LPCs are included in determining the carrying costs component of the proposed formula. Some LPCs suggested that 5% of the LPC power costs should also be added to their annual pole costs because LPC wholesale rates include an amount that represents payments paid by TVA to state and local governments in-lieu-of taxes (PILOT). Regulatory Staff does not consider it appropriate to include these power costs because they do not directly apply to the cost of the pole asset.

2. Change in Rates and Implementation Issues

As LPCs evaluated the rates for their own systems using the methodology being proposed to the TVA Board, many raised concerns about both the variance from current rates and the appropriate way to implement the rates. Several LPCs noted that their own rates are likely to increase based on a preliminary review of the rate methodology. They expressed concern about the reaction of current attachers to these increases and suggested that this could result in legal challenges and collection problems. Some LPCs suggested that it may be appropriate to cap the rates produced by the methodology or to otherwise provide for some flexibility in determining the appropriate rate for an LPC. For example, one LPC questioned whether TVA would allow an LPC to charge the Valley-wide average pole rate or a rate that is within a certain band of the Valley-wide average pole rate.

While Regulatory Staff considers it necessary for the TVA Board to adopt a methodology that ensures appropriate cost recovery for the use of electric system assets, Regulatory Staff recognizes the need to mitigate some of the impacts associated with the new rates. Accordingly, where rates are determined to be outside certain statistical parameters an additional level of review will be required. Following the Board's adoption of a methodology, Regulatory Staff will evaluate and analyze the rates calculated by applying each LPC's actual data to the methodology. The recommendation being made to the TVA Board provides for TVA's Chief Executive Officer (CEO) to approve a mechanism to further address LPC pole attachment rates that fall outside certain statistical parameters.

Regulatory Staff is also recommending a phase-in approach to implementing new pole attachment rates. This is designed to provide a period of time for the LPC and attaching parties to adjust to changes in rates calculated by the new methodology. TVA received many questions related to implementation and TVA's expectations related to new and existing contracts. Regulatory Staff believes that the nature of the issues raised is such that they can be resolved through continued discussion between TVA and LPCs.

3. Scope of Recommendation

Several LPCs suggested that TVA's regulatory focus should extend beyond the rates charged for attachments. For example, some suggested that TVA should authorize punitive actions to be taken for certain actions, such as failure to pay in a timely manner and failure to remove attachments. Some LPCs noted that certain actions by attaching parties can create safety and other concerns for the electric department. Some also suggested that TVA should develop regulations or guidance to address things such as non-payment, late fees, back-billing for unreported attachments, contractual issues, and enforcement of new rates.

Regulatory Staff considers these issues to be outside the scope of the present effort and is not making any recommendations to the TVA Board at this time. Regulatory Staff will continue to work with LPCs on issues related to pole attachments and evaluate the appropriateness of further regulation.

TVPPA

Tennessee Valley
Public Power Association, Inc.

PO Box 6189
Chattanooga, TN 37401-6189
423.756.6511 • Fax: 423.267.2280
www.tvppa.com

October 8, 2015

Ms. Jennifer Brogdon
TVA Regulatory Assurance
1101 Market Street MR 6D
Chattanooga TN 37402

Dear Ms. Brogdon:

As you know, the Board of Directors of the Tennessee Valley Public Power Association (TVPPA) and various TVPPA committees have been evaluating ways in which TVA could more directly regulate pole attachment rates for TVPPA member systems. While pole attachment rates are already within TVA's regulatory oversight, this approach would provide a more specific framework for evaluating and regulating these rates.

The TVPPA Board of Directors discussed this matter at its September 14, 2015 meeting. At that meeting, the Board of Directors unanimously approved some pole cost calculation and cost allocation principles for recommendation to TVA based upon the work of the TVPPA Joint Use Committee and the TVPPA Regulatory Committee. TVPPA has developed a proposed Rate Formula based upon this methodology.

We have attached an overview of the proposed Rate Formula as Exhibit A. Exhibit B contains more detailed information on the Rate Formula. TVPPA submits that the Rate Formula provides a rate methodology that appropriately shares costs of pole ownership between local power companies and the parties that utilize their poles. The Rate Formula calculates the total annual cost of pole ownership, including administration, depreciation, maintenance, taxes and payments in lieu of taxes, cost of capital and a rate of return, and then allocates that total cost among pole users based on an assumed system average number of pole users. The allocation methodology provides for an equal allocation of support space on the pole among all pole users, an equal allocation of safety space on the pole among pole users other than the electric system, and an allocation of usable space to each pole user.

As you will note, TVPPA suggests that this formula should be limited to regulation of rates included in license agreements between local power companies and third parties making or maintaining wireline attachments in the communications space on the local power companies' poles. Today, local power companies typically operate under long-standing joint use arrangements or other similar reciprocal agreements with telephone companies that also own poles within the local power companies' respective service areas. This regulatory policy is not intended to apply to such current or future joint use arrangements.

The TVPPA Board recommends that TVA adopt a transition period that will give local power companies sufficient time to compile, review and, if necessary, reconcile their pole plant accounting records in order to capture the appropriate costs of ownership. This transition period should also allow local power companies sufficient time to phase in any necessary changes to their pole attachment rates to mitigate any significant changes in rates – positive or negative – on TVPPA member systems and the parties that utilize their poles. To provide greater predictability and stability for this rate structure, TVPPA further submits that TVA should allow local power companies to use plant account data from multiple years where necessary to normalize a local power company's plant costs; and TVPPA requests that TVA allow local power companies to utilize a generally accepted index, such as the Handy-Whitman Index, to adjust costs on intervals not to exceed five (5) years.

The transition plan will play a critical role in ensuring the success of this more detailed regulatory structure, and TVPPA would welcome the opportunity to discuss transition issues in greater detail with TVA. The TVPPA Joint Use and Regulatory Committees have a wealth of knowledge on this topic and will be valuable resources to TVA in this process.

We appreciate the opportunity to work with you and others at TVA on this issue. The TVPPA Board, its Committees, its staff and I will be available at your convenience to discuss next steps in this process.

Sincerely,

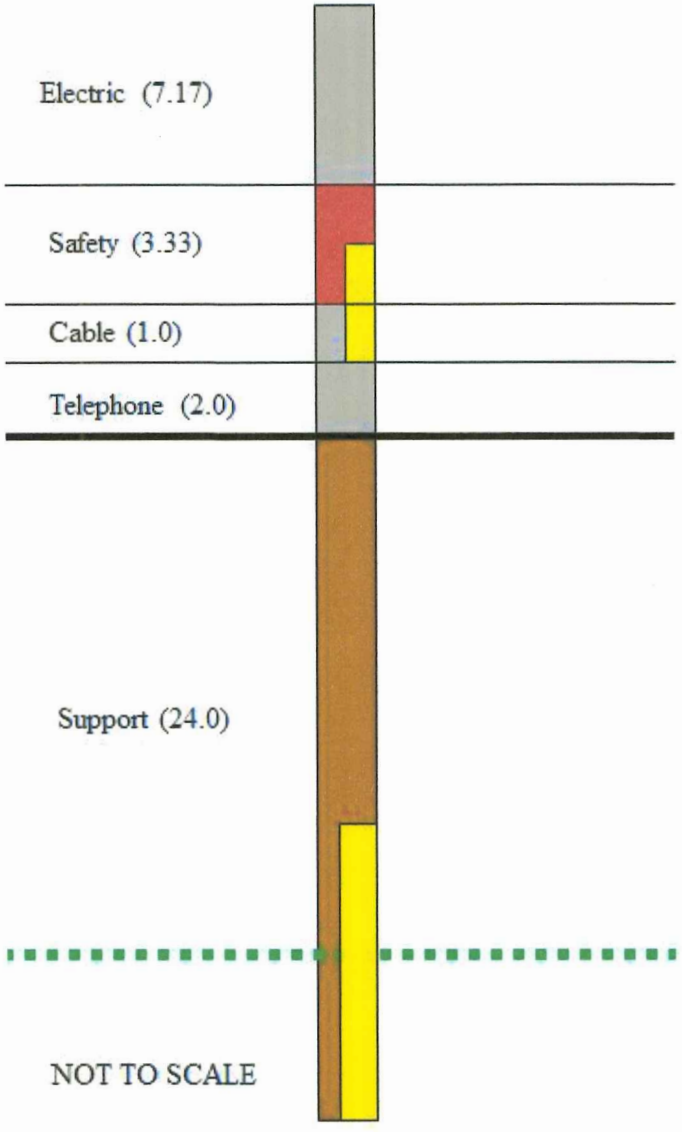
Jack W. Simmons
President & CEO

Pole Attachment Rate Formula

Attachment Rate	=	Pole Cost	*	Carrying Costs	*	Space Allocation

- Pole cost = Net cost of a bare pole (the average investment per pole net of depreciation)
- Carrying costs = Annual operating expenses associated with pole ownership
  - Administrative
  - Maintenance
  - Depreciation
  - Taxes and in lieu of tax payments
  - Cost of capital and rate of return
- Space allocation = share of costs based upon amount of space on a pole

Space Allocation: The Fully Allocated Cost Method



- The fully allocated cost method allocates:
  - Usable Space
  - Equal sharing of Safety Space with communications attachers
  - Equal sharing of Support Space with all users (including local power company)
- Space Allocation: 28.44%, based upon an assumed 37.5' pole with 3 average users
- This allocation method results in a more equal allocation of costs among the pole owner and pole users

EXHIBIT B

Rate Formula

1. **Attachment Rate Calculation**. A local power company (or "LPC") will use the following formula for calculating a cost-based pole attachment rate:

Attachment Rate = Pole Cost * Space Allocation * Carrying Costs

2. **Definitions**. For purposes of this Exhibit, the following definitions shall apply, and an LPC shall calculate the Pole attachment rate financial data drawn from the LPC's Annual Report filings with TVA:

a. "Administrative Charge" shall mean the total of all of the LPC's administrative and general expenses associated with ownership of its overhead plant, including without limitation those expenses shown in the LPC's FERC Account 625 (which is a totaling account for FERC Accounts 920, 921, 923-926, 929 & 930) divided by the total of all of the LPC's electric plant, net of accumulated depreciation.

b. "Carrying Costs" shall mean the sum of the Administrative Charge, the Depreciation Charge, the Maintenance Charge, the Rate of Return, and the Tax-Equivalent Charge, all of which shall be stated as a percentage of net plant.

c. "Depreciation Charge" shall mean the depreciation rate for the LPC's pole plant multiplied by the quotient of the LPC's gross FERC Account 364 plant divided by the LPC's net FERC Account 364 plant.

d. "Maintenance Charge" shall mean the total of all of the LPC's maintenance expenses associated with ownership of its overhead plant, including without limitation the LPC's FERC Account 593 plant expenses divided by the sum of the LPC's plant shown in FERC Accounts 364, 365 and 369, net of accumulated depreciation.

e. "Pole Cost" shall mean eighty-five percent (85%) of the pole investment as shown in the LPC's FERC Account 364, net of accumulated depreciation, divided by the total number of LPC utility poles included in FERC Account 364.

f. "Rate of Return" shall mean ten percent (10%).

g. "Space Allocation" shall mean twenty-eight and 44/100 percent (28.44%), which is based upon an average 37.5 foot pole and an average of three pole users per pole, including the pole owner.

h. "Tax and Tax-Equivalent Charges" shall mean the total of all of the LPC's tax and tax equivalent charges associated with ownership of its overhead plant, including without limitation the quotient of the Sample LPCs' tax and/or tax-equivalent payments shown in FERC Account 408.1 divided by all of the Sample LPCs' electric plant, net of accumulated depreciation.

3. **Applicability.** The Rate Formula is limited to regulation of rates included in license agreements between LPCs and third parties making or maintaining wireline attachments in the communications space on the local power companies' poles. As of the date of adoption of this policy, LPCs typically operate under long-standing joint use arrangements or other similar reciprocal agreements with telephone companies that also own poles within the local power companies' respective service areas. Those agreements provide for a different allocation and sharing of operating and financial responsibilities between the parties. While a LPC is not precluded from using this rate policy for joint use agreements, nothing in this rate policy is intended to apply to such current or future joint use arrangement.

Attachment B - Appendix 2

Tennessee Valley Authority, 1101 Market Street, MR 6D-C, Chattanooga, Tennessee 37402-2801

August 12, 2015

Dear :

At the February 5, 2014, TVPPA Regulatory Committee meeting, TVA President and CEO Bill Johnson stated that in light of increased regional regulatory focus on pole attachment fees, TVA will evaluate whether further refinement of its regulation of Local Power Company (LPC) pole attachment rates is needed. TVA, pursuant to the TVA Act, has the exclusive authority to regulate retail rates and service practices of LPCs, including establishing terms and conditions under which TVA power is resold. TVA has a duty to ensure that electrical power is supplied at the lowest feasible cost, and this requires that the electric system is appropriately compensated for the use of electric system assets. To this end, in accordance with Mr. Johnson's directive, TVA is further analyzing the pole attachment charges throughout the Valley to determine whether current practices ensure appropriate recovery so that ratepayers are charged costs properly assigned to their electric system.

TVA appreciates the efforts by TVPPA's Joint Use Committee, on behalf of the TVPPA membership, in studying pole attachment rate practices at TVA's request. We look forward to the Committee making a recommendation to TVA on a fair and consistent pole attachment cost recovery methodology. Given that any regulatory policy changes in pole attachment regulation will impact many, if not all, LPCs, TVA encourages TVPPA's and LPCs' engagement and input on this matter. If, as a result of these efforts, TVA staff concludes that refinements to TVA's pole attachment regulation are necessary or desirable, we expect to make such a proposal to the TVA Board at its February 2016 meeting. In order to provide adequate time for review and consideration of feedback from all 155 LPCs, the following preliminary timeline has been established:

- August to September 2015 - TVA continues to coordinate with TVPPA Joint Use Committee and solicits input from LPCs. Send all feedback to Barry Barnett at jbbarnett@tva.gov.
- September 2015 - Date by which TVA expects a recommendation from LPCs and TVPPA
- September 2015 - TVA completes draft recommendation and provides to TVPPA and LPCs
- October 2015 to November 2015 - TVA solicits feedback from LPCs and TVPPA on TVA's draft recommendation
- January 2016 - TVA finalizes recommendation for TVA Board action Sincerely,

Jennifer Brogdon
Director
Regulatory Assurance

Tennessee Valley Authority, 1101 Market Street, MR 6D-C, Chattanooga, Tennessee 37402-2801

November 10, 2015

Dear TVA Local Power Company:

TVA has been reviewing its regulation of pole attachment rates. We appreciate the local power companies (LPCs) who responded to our August 12 request and provided input to TVA on an appropriate and consistent cost recovery methodology. TVA also appreciates the collaborative efforts of TVPPA and the Joint Use Committee who, on behalf of its members, studied pole attachment rate practices and made a proposal to TVA.

TVA has incorporated feedback from LPCs and TVPPA in developing the enclosed pole attachment rate methodology. Information is provided on the scope, methodology, and implementation plan.

So that you can fully consider TVA's recommendation, I am enclosing a rate calculation template to assist you in calculating the pole attachment rate that would be derived from the formula proposed in TVA staff's recommendation if it is ultimately adopted by the TVA Board. An excel spreadsheet version will be e-mailed to you for your use. If you need assistance with the template, please contact Laura McDade at 423-751-2474 or ldmcdade@tva.gov.

TVA plans to present a final recommendation to the TVA Board at the February 2016 meeting. As you will see in the enclosed recommendation, TVA is specifically seeking additional input on the allocation of safety space to pole users. Please submit your input on TVA's Staff Recommendation to Barry Barnett at 865-632-2107 or jbbarnett@tva.gov. To allow adequate time for TVA's review and consideration, please provide your feedback on this recommendation by November 30. Please note that a webinar is scheduled Thursday, November 19 from 2:00 p.m. until 4:00 p.m. (CT) to provide an opportunity for more discussion.

In order to better analyze pole attachment rates, TVA would appreciate current pole attachment rate information from you. Your assigned TVA Distributor Assurance field accountant will contact your accountant for information in the coming days. If you have any questions, please contact me at 423-751-8397 or a member of the Regulatory Assurance staff.

Sincerely,

(Original Signed By):

Jennifer Brogdon
Director
Regulatory Assurance

Enclosures

Tennessee Valley Authority

TVA Staff Recommendation for Refining Pole Attachment Rate Regulation

Provided For Input

November 10, 2015

Scope

Tennessee Valley Authority (TVA) is the exclusive retail rate regulator for local power companies (LPCs) that distribute TVA power. One primary objective of TVA is to ensure that power is sold at rates as low as feasible, and accordingly, LPC electric systems must be appropriately compensated for the use of electric system assets for non-electric purposes. As part of approving each LPC's electric rates, TVA evaluates each LPC's revenue requirements which, among other things, include revenue from pole attachment fees.

TVA staff's recommendation for refining its pole attachment regulation (Staff Recommendation) is being provided for TVPPA's and LPC's input, and a final recommendation ultimately will be proposed to the TVA Board. The scope of the Staff Recommendation is limited to regulation of rates included in agreements between LPCs and third parties making or maintaining wireline attachments, such as cable or telecommunication (including broadband) providers. This recommendation is not intended to apply to reciprocal or joint use agreements at this time although TVA also expects appropriate costs to be borne by all participants in these reciprocal or joint use agreements.

Methodology

TVA staff reviewed information related to pole attachment regulation throughout the country. Staff has observed that most methods for calculating pole attachment rates are based on the annual cost (or carrying charge) of a pole and the proportion of the attaching space on the pole occupied by an attachment. TVA does not feel that these methods recover the full costs associated with the pole attachment, so the Staff Recommendation provides for a pole attachment rate methodology that recovers the full cost of the pole in order to ensure that electric system ratepayers are not incurring costs that should be borne by attachers.

Under this proposed rate methodology, the pole attachment rate is calculated by first establishing the total annual cost of pole ownership, which includes administration, depreciation, maintenance, taxes, and rate of return. The total cost is then allocated among pole users based on: an assumed system average number of pole users; an equal allocation of support space among the pole users; an equal allocation of safety space among pole users; and an allocation of usable space to each pole user. As to the allocation of safety space among all pole users, TVA is specifically seeking additional input.

It has been suggested to TVA that allocation of safety space to only the third-party attachers would be more appropriate because the safety space is for the benefit of those third parties. Accordingly, while the attached methodology reflects an equal allocation of this space, TVA staff will further evaluate this issue along with any additional feedback that is received.

TVA recognizes that LPCs will need a period of time to phase-in any necessary changes to pole attachment rates to mitigate any significant changes in rates that will impact the LPCs and the attachers. Accordingly, TVA will work with LPCs to implement the rates derived from this rate methodology using the attached Guideline Adjustment Scale (Appendix 1) to provide for a transition period to the new rates. The Guideline Adjustment Scale provides for a period of time to adjust rates based on the difference between current and new rates.

In establishing the formula to reflect the fully allocated cost methodology for each individual LPC, TVA has utilized certain assumptions to simplify the calculation. For example, the calculation assumes an average of three attaching parties per pole, an average pole height of 37.5 feet, a 15 percent cross arm discount factor, and a uniform return on investment equal to 8.5%. A uniform return on investment percent used by all LPCs in the calculation of their pole cost rate will help promote consistency across the Valley. TVA will re-evaluate this percentage periodically for the pole attachment formula. A more detailed explanation of the components in the pole attachment formula is located in Appendix 2, and an example of the data used in the formula is located in Appendix 3.

Formula: (Space Allocation) x (Net Cost of Bare Pole) x (Carrying Cost)

- **Space Allocation** - The share of cost based upon amount, types, and purposes of space on the pole. (See Appendix 4)
- **Net Cost of a Bare Pole** – 85% of the net pole investment divided by the number of poles.
- **Carrying Cost** - Annual operating expenses associated with pole ownership. (Administrative, Maintenance, Depreciation, and Taxes as a percent of net plant plus input for return on investment.)

Once the LPC is applying the rate derived from the fully allocated cost methodology, then the LPC may use the Handy Whitman Index to annually escalate the pole attachment rate. Also, TVA would expect pole attachment counts to be updated in a reasonable cycle time to ensure accurate revenue collection to cover cost.

Implementation

Contingent upon TVA Board approval, TVA and LPCs should enter into an agreement no later than January 2017 to put the new methodology and rate into effect, some of which will be transitioned over time. TVA expects LPC's financial and accounting records to be accurate and urges LPCs to begin reviewing accounting information now. TVA recognizes that some LPCs may need this additional time (until January 2017) to review and reconcile pole plant accounting data.

Appendix 1

Guideline Adjustment Scale:

		Monthly - Adjustment (+/-)			
Dollar Variance	**Transition Period ***	**Low**		**High**	
$ 0 - $ 5	Immediate action	$	-	$	0.42
$ 6 - $10	No more than 2 years	$	0.21	$	0.42
$11 - $20	No more than 3 years	$	0.31	$	0.56
$21 - $30	No more than 4 years	$	0.44	$	0.63
$31 or greater	No more than 5 years	$	0.52	$	> 0.52

* Transition period begins once current contractual agreements have expired.

Appendix 2

Pole Attachment Formula Components

Definitions: For purposes of this Exhibit, the following definitions shall apply, and all financial data have been obtained from the local power companies (LPCs) most recent Annual Report to the Tennessee Valley Authority:

"**Administrative Charge**" shall mean the total of all of the LPCs' administrative and general expenses shown in all of the Sample LPCs' FERC Account 625 (which is a totaling account for FERC Accounts 920, 921, 923-926, 929 & 930) divided by the total of all of the LPCs' electric plant, net of accumulated depreciation.

"**Carrying Costs**" shall mean the sum of the Administrative Charge, the Depreciation Charge, the Maintenance Charge, the Rate of Return, and the Tax-Equivalent Charge, all of which shall be stated as a percentage of net plant.

"**Depreciation Charge**" shall mean the median depreciation rate for the LPCs' multiplied by the quotient of the LPCs' gross FERC Account 364 plant divided by the LPCs' net FERC Account 364 plant.

"**Maintenance Charge**" shall mean the three year average of the LPCs' FERC Account 593 plant expenses divided by the sum of the Sample LPCs' plant shown in FERC Accounts 364, 365 and 369, net of accumulated depreciation.

"**Pole Cost**" shall mean eighty-five percent (85%) of the pole investment as shown in the LPCs' FERC Account 364, net of accumulated depreciation, divided by the total number of Sample LPC utility poles included in FERC Account 364.

"**Rate of Return**" shall mean eight and a half percent (8.5%).

"**Space Allocation**" shall mean twenty-six and 96/100 percent (26.96%), which is based upon an average 37.5 foot pole and an average of three parties per pole, including the pole owner.

"**Tax and Tax-Equivalent Charges**" shall mean the quotient of the LPCs' tax and/or tax-equivalent payments shown in FERC Account 408.1 divided by all of the LPCs' electric plant, net of accumulated depreciation.

Appendix 3
Pole Attachment Formula Example

Net Cost of a Bare Pole	$	278.56	(a)
Carrying Charge		26.81%	(b)
Annual Cost of Ownership (a*b=X)	$	74.68	X
Space Allocation (% of Total Pole)			
Fully Allocated Cost Formula (B+(1/(A)*C)+(1/A)*E)/(D+E)		26.96%	Y
Maximum Rate per Pole			
Fully Allocated Cost Formula (X*Y=Z)	**$**	**20.13**	Z

Space Allocation: Assumptions include 3 entities attaching to 37.5' pole.

(A) Number of Attaching Parties	3	
(B) Space Occupied by Attaching Party	1	feet
(C) Safety Space	3.33	feet
(D) Total Usable Space	13.5	feet
(E) Total Support Space (6' Ground + 18' Clearance)	24	feet

Net Cost of a Bare Pole:

(1) Gross Pole Investment (FERC A/C 364)	$	7,545,190.30
(2) Depreciation Reserve (FERC A/C 108.364)	$	1,972,753.62
(3) Gross Plant Investment (FERC A/C 364, 365,& 369)	$	14,998,392.35
(4) Net Investment (Poles) (L(1)-L(2))	$	5,572,436.68
(5) Net Investment (Bare Pole) (L(4) x .85)	$	4,736,571.18
(6) Number of Poles		17,004
(7) Net Cost of a Bare Pole (L(5)/L(6))	**$**	**278.56** (a)

Carrying Charge:

(1) Administrative Charge	3.26%
(2) Maintenance Charge	8.75%
(3) Depreciation Charge	4.06%
(4) Taxes	2.23%
(5) Return on Investment	8.50%
(6) Total Carrying Charge Rate (L(1)+L(2)+L(3)+L(4)+L(5))	**26.81%** (b)

Administrative Charge

(1) A&G Expense (TVA AR Rpt item 625 & a/c 935 -page 6)	$ 1,321,181.13
(2) Net Plant Investment (TVA AR Rpt item 6-Page 1)	$ 40,478,879.32
(3) Administrative Charge (L(1)/L(2))	**3.26%**

Maintenance Charge

(1) Maintenance Exp.(Three yr avg. -TVA AR a/c 593-Page 6)	$ 855,593.57
(2) Net Investment (Pole Accounts 364, 365 & 369)	$ 9,779,762.19
(3) Maintenance Charge (L(1)/L(2))	**8.75%**

Depreciation Charge

(1) Depreciation Rate (TVA AR Rpt -page 11)	3.00%
(2) Gross Pole Investment (Account 364)	$ 7,545,190.30
(3) Net Pole Investment (Account 364)	$ 5,572,436.68
(4) Depreciation Charge (L(1) x (L(2)/L(3))	**4.06%**

Taxes

(1) Total Current and Deferred Taxes (TVA AR a/c 408 Property -pg 29)	$ 902,919.19
(2) Net Plant Investment	$ 40,478,879.32
(3) Taxes (L(1)/L(2))	**2.23%**

Return on Investment

Authorized by Regulatory Authority	**8.50%**

Appendix 4
Space Allocation:
The Fully Allocated Cost Method

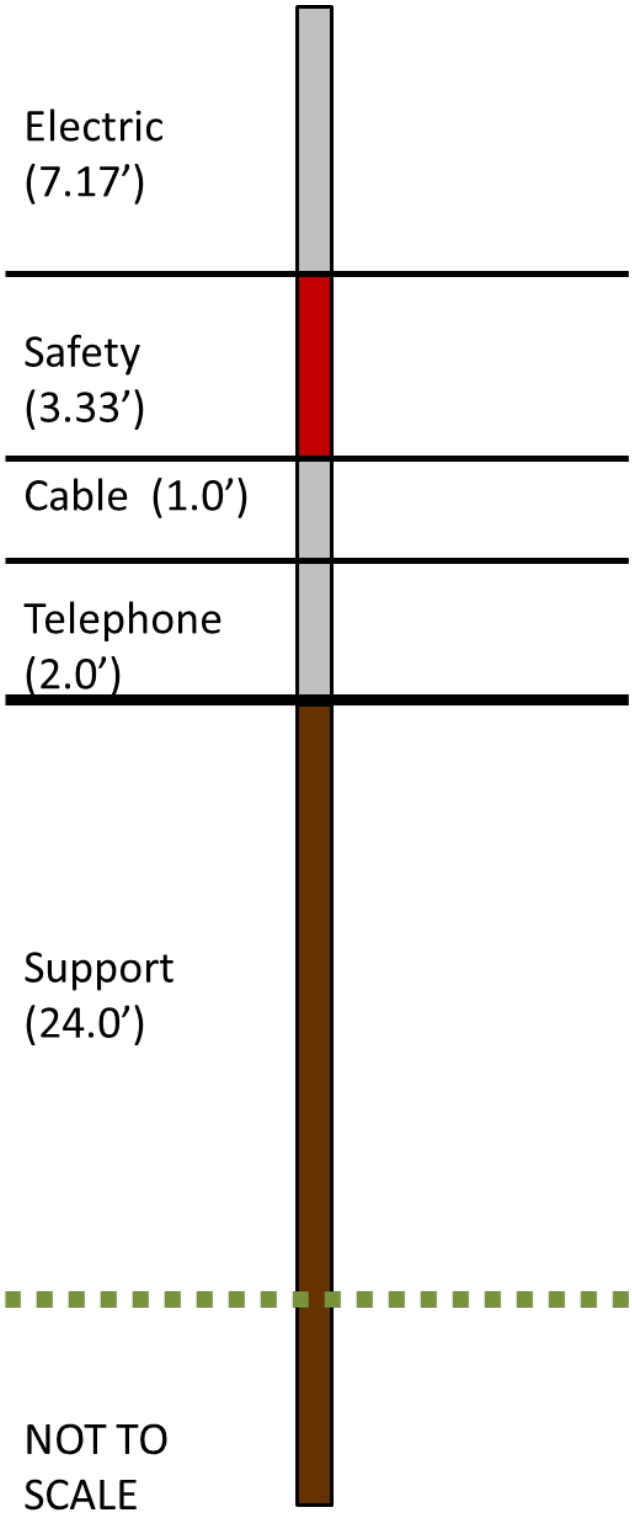
Allocates usable space

Equal sharing of safety space among all users including electric

Equal sharing of support space among all users including electric

Space allocation is 26.96% based on assumed 37.5 foot pole with 3 average users

Results in equal allocation of costs among pole owner and pole users



POLE ATTACHMENT FEE CALCULATION
FISCAL YEAR ENDED JUNE 30, 2014

Select Local Power Company	*Input Fiscal Year of Data*
	2014

This template is a tool to calculate pole attachment rates under TVA's proposed pole attachment recommendation. To use, input data specific to the local power company for the gray sections only. All other numbers calculate automatically. Source locations for the required data are noted in blue. For any questions or help populating the required data, please contact Laura McDade at (423) 751-2474 or ldmcdade@tva.gov.

DATA INPUTS

Data required for gray sections only.

Plant Account Data

Total Plant	2014	
Item 1 - Gross Plant	$ -	ANNUAL REPORT, PAGE 1
Item 2 - Depreciation	-	ANNUAL REPORT, PAGE 1
Net Plant	$ -	

	2014		
	Gross Plant	Depreciation	Net Plant
Plant Related to Poles	ANNUAL REPORT, PAGES 9 & 11		
Account 364 - Poles, Towers, and Fixtures	$ -	$ -	$ -
Account 365 - Overhead Conductors & Devices	$ -	$ -	$ -
Account 369 - Services	$ -	$ -	$ -
Total	$ -	$ -	$ -

Account 364 Data

	2014	
Number of Poles Pole	-	LPC INTERNAL POLE COUNT RECORDS
Depreciation (% Gross Plant)	0.00%	ANNUAL REPORT, PAGE 11

Expense Data

	2014	
Item 625 + Account 935 - Administrative &General Expense	$ -	ANNUAL REPORT, PAGE 6
Account 408.1 - Property Taxes Net	$ -	ANNUAL REPORT, PAGE 29
Current Deferred Operating Income Taxes Net	$ -	LPC INTERNAL ACCOUNTING RECORDS
Noncurrent Deferred Operating Income Taxes	$ -	LPC INTERNAL ACCOUNTING RECORDS
Account 593 - Overhead Lines Distribution Maintenance		ANNUAL REPORT, PAGE 6
2012	$ -	
2013	$ -	
2014	$ -	
3 Year Average	$ -	

Note: Confirm that account 593 captures maintenance expenses for accounts 364, 365 & 369

Rate of Return

Authorized by Regulatory Authority	8.5%

CALCULATIONS

Space Allocation Scenarios	3 party, 1 foot
(A) Number of Attaching Parties	3
(B) Space Occupied by Attaching Party	1
(C) Safety Space	3.33
(D) Total Usable Space	13.50
(E) Total Support Space (6' Ground + 18' Clearance)	24
Space Allocation (% of Total Pole)	
Fully Allocated Cost Formula (B+(1/(A)*C)+(1/A)*E)/(D+E)	26.96%
Net Cost of a Bare Pole (Breakdown below)	NA
Carrying Charge Rate (Breakdown below)	NA
Annual Cost of Ownership	NA

Maximum Rate per Pole (Space Allocation % x Annual Cost)	**3 party, 1 foot**
Fully Allocated Cost Formula	**NA**

POLE ATTACHMENT FEE CALCULATION
FISCAL YEAR ENDED JUNE 30, 2014

Select Local Power Company		*Input Fiscal Year of Data*
		2014

Breakdown of Inputs in Calculations

Net Cost of a Bare Pole		
(1) Gross Pole Investment	$	-
(2) Depreciation Reserve	$	-
(3) Net Current Deferred Operating Income Taxes	$	-
(4) Net Noncurrent Deferred Operating Income Taxes	$	-
(5) Net Deferred Operating Income Taxes (L(3)+L(4))	$	-
(6) Gross Plant Investment	$	-
(7) Net Deferred Operating Income Taxes (Poles) ((L(1)/L(6) x L(5))		NA
(8) Net Investment (Poles) (L(1)-L(2)-L(7))		NA
(9) Net Investment (Bare Pole) (L(8) x .85)		NA
(10) Number of Poles		-
(11) Net Cost of a Bare Pole (L(9)/L(10))		**NA**
Carrying Charge Rate		
Carrying Charge		
(1) Administrative Charge		NA
(2) Maintenance Charge		NA
(3) Depreciation Charge		NA
(4) Taxes		NA
(5) Return on Investment		8.5%
(6) Total Carrying Charge Rate (L(1)+L(2)+L(3)+L(4)+L(5))		**NA**
Administrative Charge		
(1) A&G Expense (625 + 935)	$	-
(2) Net Plant	$	-
Investment		
(3) Administrative Charge (L(1)/L(2))		NA
Maintenance Charge		
(1) Average Maintenance Expense (593)	$	-
(2) Net Investment (Pole Accounts 364, 365 & 369)	$	-
(3) Maintenance Charge (L(1)/L(2))		NA
Depreciation Charge		
(1) Depreciation Rate		0.00%
(2) Gross Pole Investment (Account 364)	$	-
(3) Net Pole Investment (Account 364)	$	-
(4) Depreciation Charge (L(1) x (L(2)/L(3))		NA
Taxes		
(1) Total Current and Deferred Taxes	$	-
(2) Net Plant Investment	$	-
(3) Taxes (L(1)/L(2))		NA
Return on Investment		
Authorized by Regulatory Authority		8.5%

WACC with Public Utility Basis Capital Structure

- Using a Public Power Utility Basis Model implied LPC capital structure and applying a CAPM approach to derive targeted ROE, a reasonable WACC for LPCs would be 8.5%

Components	TVA Equivalent Debt	Lower Cost Debt	Lowest Cost Debt
Debt Rate of Return	7.0%	6.8%	6.6%
Equity Rate of Return	8.7%	8.7%	8.7%
WACC RESULTS			
LPC Average	8.4%	8.3%	8.3%
LPC Minimum	7.6%	7.5%	7.4%
LPC Maximum	8.7%	8.7%	8.7%

- The table above does not include any adjustments for project specific risk, which should be considered when calculating hurdle rates for project analysis
- The equity return of 8.7% is estimated using the Capital Asset Pricing Model

  $r_i = r_{rf} + \beta(R_m - r_{rf})$

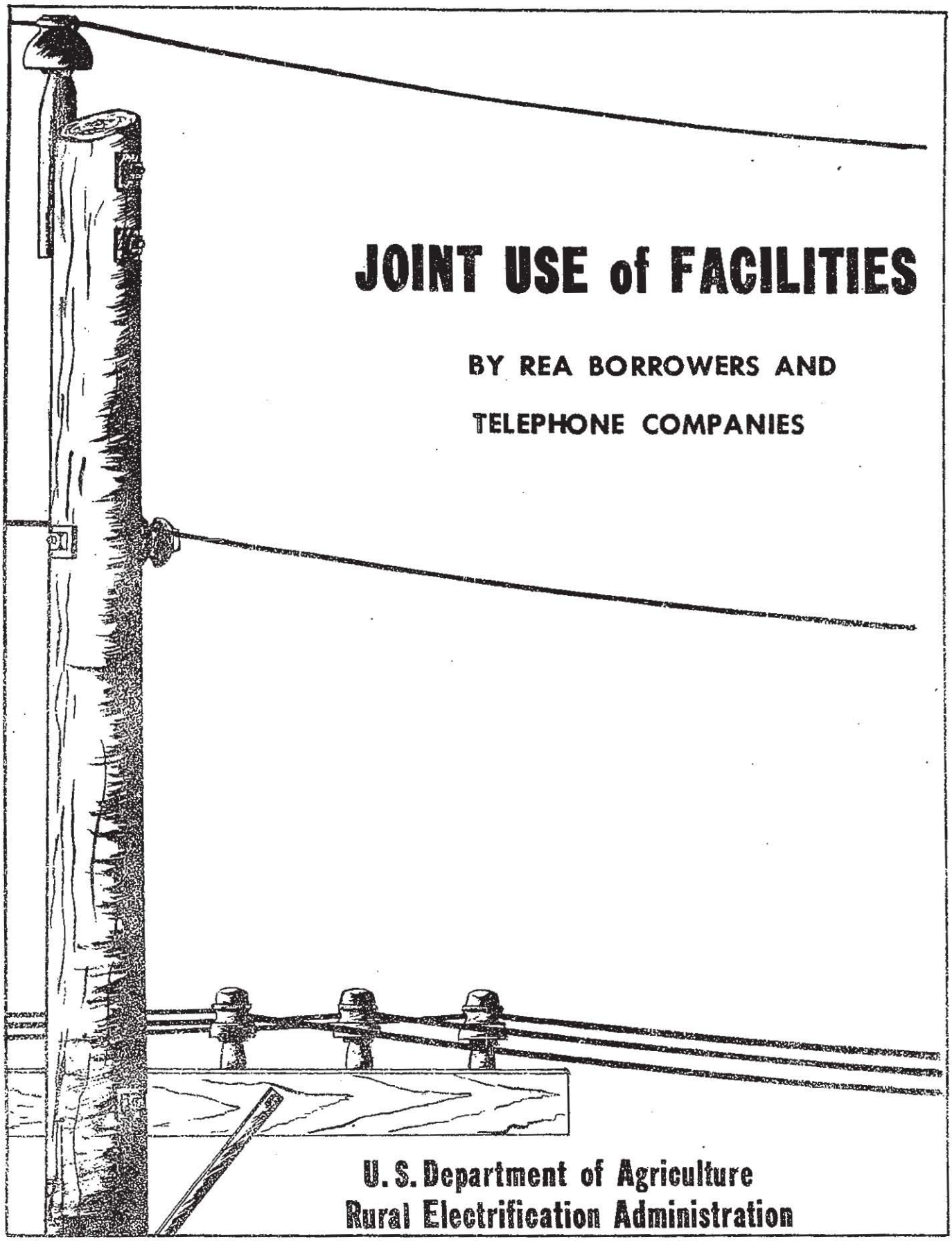
  r_{rf} = 4.08% (30 year average of 10-year US Treasury Bond Yield)

  β = 0.93 (debt/equity per Utility Basis model; utility unlevered Barra beta estimate of 0.42*)

  $(R_m - r_{rf})$ = 5% (research-based long-term average equity return)**

* beta estimate sourced from January 2015 update of Betas by Sector by Aswath Damodaran, Stern School of Business, NYU

** 5% was commonly used prior to 2008, after which all equity market risk premium have significantly increased. A light downward trend is observed after 2010 according to a KPMG study in January 2015.



JOINT USE of FACILITIES

BY REA BORROWERS AND TELEPHONE COMPANIES

U. S. Department of Agriculture
Rural Electrification Administration

CONSIDERATIONS INVOLVED IN JOINT USE OF FACILITIES BY REA BORROWERS AND TELEPHONE COMPANIES

TABLE OF CONTENTS

CONSIDERATIONS INVOLVED IN JOINT USE OF FACILITIES BY REA BORROWERS AND TELEPHONE COMPANIES

Introduction

Joint use of facilities by power and telephone systems has been found to be feasible in rural areas with the development of high strength telephone wires that can match rural power line spans and the development of generally accepted construction standards and safety devices to minimize any possible hazards. The power line carrier telephone system, wherein the power wires act as guides for carrier radio waves, is another recent development having application in rural areas.

Joint use raises for REA borrowers questions of policy with respect to (1) protecting and advancing the interests of their members in connection with telephone rates and area coverage, (2) uniform relations with local telephone companies in their areas that may include mutuals, independents and members of the Bell Telephone System, and (3) development of engineering, construction and operating practices in cooperation with the local telephone companies that will make joint use an asset to all. Joint use raises for REA questions with respect to use of loan funds and protection of the Government's interests in borrowers' systems as they may be affected by joint use arrangements.

The joint use contract forms, copies of which were distributed to all borrowers with the Administrator's memorandum of July 3, 1947, were designed to include desirable legal, business and technical factors to provide adequate protection for REA borrowers and to establish a practical working framework for relations between REA borrowers and their local telephone companies when they wish to engage in joint use of facilities.

I. Objective of Joint Use of Facilities

The primary objective of joint use of facilities is to achieve savings in cost by eliminating one pole line. Elimination of structural conflicts as well as local regulations may also require or make joint use desirable.

The costs as well as the savings of joint use construction should be shared equitably by the power and telephone suppliers. Where the savings are appreciable, it can well mean that both services can be extended into areas where construction might not otherwise be economically feasible. Therefore, even though power system poles are already in place and can accommodate telephone facilities with little, if any, extra cost, telephone companies should be required to make payments representing their fair share of the costs of the poles so that savings can accrue to the consumers of electricity as well as to the telephone subscribers. In other words, the power consumers should not be asked to subsidize telephone subscribers.

II. REA Financing as Related to Joint Use Facilities

As a general rule, an REA borrower should not invest REA loan funds in joint use facilities in a given area to a greater extent than would have been required to provide facilities capable of rendering electric service alone in the same given area. This will raise no serious problem since the pole sizes in common use by REA borrowers are capable of accommodating certain telephone facilities and the contracts provide that the telephone companies shall pay any additional capital outlays required as well as rentals for the benefits they secure from the use of REA borrowers' poles and wires. Moreover, since telephone companies may also set and own joint use poles, an REA borrower should actually have a lesser investment in pole plant than would be required for separate line construction considering an area as a whole.

III. Telephone Company Qualifications

The sample forms of contracts and the recommended payments contained therein are predicated on the assumption that the telephone supplier is fully competent to carry its part of responsibility and that the REA borrower will not be put to any additional expense by reason of the telephone supplier's lack of knowledge or competence. Therefore, REA borrowers, before entering joint use agreements, should satisfy themselves that:

A. the telephone company concerned is a financially responsible organization which is fully capable of bearing its proper share of the costs and responsibilities for any possible hazards.

B. the telephone company has available a qualified engineering and construction force to assure that its facilities on joint use lines will be installed in accordance with accepted construction standards and safety practices.

C. the telephone company has a maintenance and operations force capable, where necessary, of maintaining its own facilities when installed jointly with power lines.

IV. Insurance

The contract forms have no clauses concerning insurance coverage on the assumption that each party will carry its usual insurance and that in the event of any claims, liability will be assessed according to the legal responsibility that is determined.

REA borrowers should satisfy themselves that the local telephone companies with which they share joint use facilities either

A. provide adequate reserves for insurance, or

B. carry adequate insurance policies.

The Bell Telephone System, for example, is self insured and sets aside reserves against losses. However, smaller telephone companies should be required to have liability insurance coverage comparable to that carried by REA borrowers.

WA Exhibit No. 5
Blue Ridge EMC 2016
Average Attaching Entities

BREMC Distribution Poles in Joint Use		
A	**B**	**A x B**
# Attachers (Including BREMC)	**Joint Use Poles**	
2	37,137	74,274
3	17,915	53,745
4	878	3,512
5	31	155
Totals	**55,961**	**131,686**
Avg # Attaching Entities		**2.35**