Southwestern Electric Power Company
Derivation of Mean Equity Risk Premium Based Studies
Using Holding Period Returns and
Projected Market Appreciation of the S&P Utility Index

Line No.		Implied Equity Risk Premium
	Equity Risk Premium based on S&P Utility Index Holding Period Returns (1):	
1.	Historical Equity Risk Premium	4.21 %
2.	Regression of Historical Equity Risk Premium (2)	6.76
3.	Forecasted Equity Risk Premium Based on PRPM (3)	5.57
4.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Value Line Data) (4)	6.93
5.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Bloomberg Data) (5)	5.40
6.	Average Equity Risk Premium (6)	5.77 %

Notes: (1) Based on S&P Public Utility Index monthly total returns and Moody's Public Utility Bond average monthly yields from 1928-2019. Holding period returns are calculated based upon income received (dividends and interest) plus the relative change in the market value of a security over a one-year holding period.

(2) This equity risk premium is based on a regression of the monthly equity risk premiums of the S&P Utility Index relative to Moody's A rated public utility bond yields from 1928 - 2019 referenced in note 1 above.

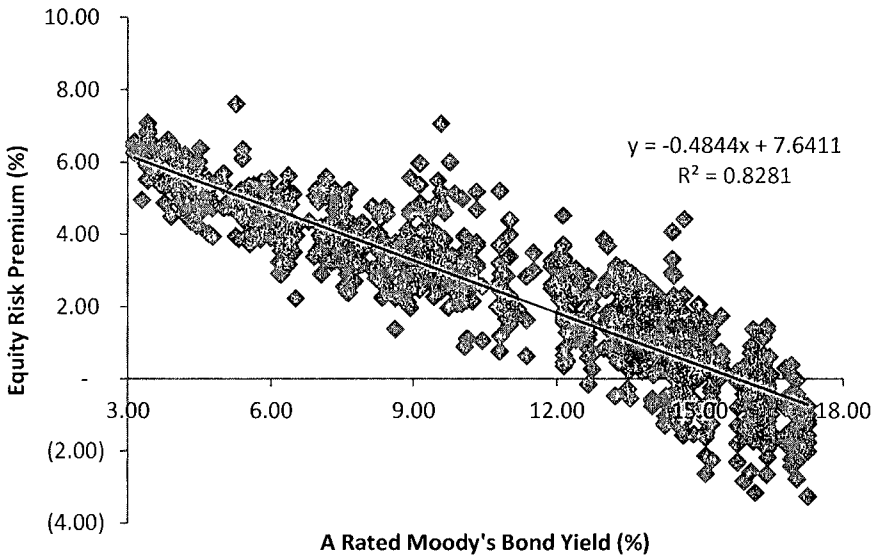
(3) The Predictive Risk Premium Model (PRPM) is applied to the risk premium of the monthly total returns of the S&P Utility Index and the monthly yields on Moody's A rated public utility bonds from January 1928 - July 2020.

(4) Using data from Value Line for the S&P Utilities Index, an expected return of 10.57% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation. Subtracting the expected A rated public utility bond yield of 3.64%, calculated on line 3 of page 3 of this Schedule results in an equity risk premium of 6.93%. (10.57% - 3.64% = 6.93%)

(5) Using data from Bloomberg Professional Service for the S&P Utilities Index, an expected return of 9.04% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation. Subtracting the expected A rated public utility bond yield of 3.64%, calculated on line 3 of page 3 of this Schedule results in an equity risk premium of 5.40%. (9.04% - 3.64% = 5.40%)

(6) Average of lines 1 through 5.

Southwestern Electric Power Company
Prediction of Equity Risk Premiums Relative to
Moody's A Rated Utility Bond Yields



Constant	Slope	Prospective A Rated Utility Bond (1)	Prospective Equity Risk Premium
7.641103 %	-0.48442	3.64 %	5.88 %

Notes:
(1) From line 3 of page 3 of this Schedule.

Source of Information: Regulatory Research Associates

Southwestern Electric Power Company
Indicated Common Equity Cost Rate Through Use
of the Traditional Capital Asset Pricing Model (CAPM) and Empirical Capital Asset Pricing Model (ECAPM)

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Fourteen Electric Companies	Value Line Adjusted Beta	Bloomberg Adjusted Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (3)
ALLETE	0.85	1.00	0.92	10.92 %	2.09 %	12.14 %	12.36 %	12.25 %
Alliant Energy	0.80	1.01	0.90	10.92	2.09	11.92	12.19	12.06
Ameren Corp.	0.80	0.93	0.87	10.92	2.09	11.59	11.95	11.77
Duke Energy	0.85	0.97	0.91	10.92	2.09	12.03	12.28	12.15
Edison Int'l	0.90	1.04	0.97	10.92	2.09	12.69	12.77	12.73
Entergy Corp.	0.95	1.11	1.03	10.92	2.09	13.34	13.26	13.30
IDACORP, Inc.	0.80	1.00	0.90	10.92	2.09	11.92	12.19	12.06
NorthWestern Corp.	0.90	1.21	1.06	10.92	2.09	13.67	13.51	13.59
OGE Energy	1.05	1.18	1.11	10.92	2.09	14.22	13 92	14.07
Otter Tail Corp.	0.85	0.99	0.92	10.92	2.09	12.14	12.36	12.25
Pinnacle West Capital	0.85	1.06	0.95	10.92	2.09	12.47	12.60	12.54
PNM Resources	0.90	1.26	1.08	10.92	2.09	13.89	13.67	13.78
Portland General	0.85	1.02	0.93	10.92	2.09	12.25	12.44	12.34
Xcel Energy Inc.	0.75	0.95	0.85	10.92	2.09	11.38	11.79	11.58
Mean			0.96			12.55 %	12.66 %	12.61 %
Median			0.93			12.19 %	12.40 %	12.30 %
Average of Mean and Median			0.95			12.37	12.53	12.46 %

Notes on page 2 of this Schedule.

Southwestern Electric Power Company
Notes to Accompany the Application of the CAPM and ECAPM

Notes:

(1) The market risk premium (MRP) is derived by using six different measures from three sources: Ibbotson, Value Line, and Bloomberg as illustrated below:

Historical Data MRP Estimates:

Measure 1. Ibbotson Arithmetic Mean MRP (1926-2019)

Arithmetic Mean Monthly Returns for Large Stocks 1926-2019:	12 10	%
Arithmetic Mean Income Returns on Long-Term Government Bonds.	5 09	
MRP based on Ibbotson Historical Data:	7 01	%

Measure 2 Application of a Regression Analysis to Ibbotson Historical Data (1926-2019)	10.20	%

Measure 3: Application of the PRPM to Ibbotson Historical Data: (January 1926 - July 2020)	10 67	%

Value Line MRP Estimates:

Measure 4 Value Line Projected MRP (Thirteen weeks ending July 31, 2020)

Total projected return on the market 3-5 years hence*	16.53	%
Projected Risk-Free Rate (see note 2).	2.09	
MRP based on Value Line Summary & Index:	14.44	%

*Forcasted 3-5 year capital appreciation plus expected dividend yield

Measure 5. Value Line Projected Return on the Market based on the S&P 500

Total return on the Market based on the S&P 500.	13 66	%
Projected Risk-Free Rate (see note 2):	2.09	
MRP based on Value Line data	11.57	%

Measure 6: Bloomberg Projected MRP

Total return on the Market based on the S&P 500.	13.75	%
Projected Risk-Free Rate (see note 2).	2.09	
MRP based on Bloomberg data	11 66	%
Average of Value Line, Ibbotson, and Bloomberg MRP:	10.92	%

(2) For reasons explained in the direct testimony, the appropriate risk-free rate for cost of capital purposes is the average forecast of 30 year Treasury Bonds per the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts. (See pages 10-11 of Schedule DWD-4.) The projection of the risk-free rate is illustrated below:

Third Quarter 2020	1 40	%
Fourth Quarter 2020	1 50	
First Quarter 2021	1.60	
Second Quarter 2021	1 70	
Third Quarter 2021	1.80	
Fourth Quarter 2021	1.90	
2022-2026	3.00	
2027-2031	3.80	
	2.09	%

(3) Average of Column 6 and Column 7.

Sources of Information:

Value Line Summary and Index
Blue Chip Financial Forecasts, June 1, 2020 and July 31, 2020
Stocks, Bonds, Bills, and Inflation - 2020 SBBI Yearbook, John Wiley & Sons, Inc
Bloomberg Professional Services

Southwestern Electric Power Company
Basis of Selection of the Group of Non-Price Regulated Companies
Comparable in Total Risk to the Utility Proxy Group

The criteria for selection of the proxy group of forty-five non-price regulated companies was that the non-price regulated companies be domestic and reported in Value Line Investment Survey (Standard Edition).

The Non-Price Regulated Proxy Group were then selected based on the unadjusted beta range of 0.62 – 0.90 and residual standard error of the regression range of 2.4836 – 2.9620 of the Utility Proxy Group.

These ranges are based upon plus or minus two standard deviations of the unadjusted beta and standard error of the regression. Plus or minus two standard deviations captures 95.50% of the distribution of unadjusted betas and residual standard errors of the regression.

The standard deviation of the Utility Proxy Group's residual standard error of the regression is 0.1196. The standard deviation of the standard error of the regression is calculated as follows:

$$\text{Standard Deviation of the Std. Err. of the Regr.} = \frac{\text{Standard Error of the Regression}}{\sqrt{2N}}$$

where: N = number of observations. Since Value Line betas are derived from weekly price change observations over a period of five years, N = 259

$$\text{Thus, } 0.1196 = \frac{2.7228}{\sqrt{518}} = \frac{2.7228}{22.7596}$$

Source of Information: Value Line, Inc., June 2020
Value Line Investment Survey (Standard Edition)

Southwestern Electric Power Company
Basis of Selection of Comparable Risk
Domestic Non-Price Regulated Companies

Proxy Group of Fourteen Electric Companies	[1] Value Line Adjusted Beta	[2] Unadjusted Beta	[3] Residual Standard Error of the Regression	[4] Standard Deviation of Beta
ALLETE	0.85	0.72	2.5517	0.0644
Alliant Energy	0.80	0.69	2.7475	0.0694
Ameren Corp.	0.80	0.66	2.6493	0.0669
Duke Energy	0.85	0.75	2.7615	0.0697
Edison Int'l	0.90	0.82	3.2630	0.0824
Entergy Corp.	0.95	0.86	2.6168	0.0661
IDACORP, Inc.	0.80	0.64	2.5630	0.0647
NorthWestern Corp.	0.90	0.79	2.7647	0.0698
OGE Energy	1.05	1.05	2.6291	0.0664
Otter Tail Corp.	0.85	0.75	2.4932	0.0630
Pinnacle West Capital	0.85	0.75	2.6801	0.0677
PNM Resources	0.90	0.84	3.0989	0.0782
Portland General	0.85	0.75	2.6422	0.0667
Xcel Energy Inc.	0.75	0.61	2.6583	0.0671
Average	0.86	0.76	2.7228	0.0688

Beta Range (+/- 2 std. Devs. of Beta)	0.62	0.90
2 std. Devs. of Beta	0.14	
Residual Std. Err. Range (+/- 2 std. Devs. of the Residual Std. Err.)	2.4836	2.9620
Std. dev. of the Res. Std. Err.	0.1196	
2 std. devs. of the Res. Std. Err.	0.2392	

Source of Information: Valueline Proprietary Database, June 2020

Southwestern Electric Power Company
Proxy Group of Non-Price Regulated Companies
Comparable in Total Risk to the
Proxy Group of Fourteen Electric Companies

Proxy Group of Forty-Five Non-Price Regulated Companies	[1] VL Adjusted Beta	[2] Unadjusted Beta	[3] Residual Standard Error of the Regression	[4] Standard Deviation of Beta
Apple Inc	0 95	0 89	2.8953	0.0731
Analog Devices	0.95	0 90	2 7284	0 0689
Assurant Inc	0.90	0 79	2 7586	0.0697
Amgen	0.85	0 74	2.6870	0 0678
Amer Tower 'A'	0.95	0 85	2 8552	0 0721
ANSYS, Inc	0.90	0.79	2 7316	0 0690
Smith (A O.)	0 95	0.86	2.7319	0.0690
Becton, Dickinson	0 80	0.68	2 6431	0 0667
Brown-Forman 'B'	0.90	0.79	2 6084	0 0659
Bio-Rad Labs. 'A'	0.80	0.67	2 8493	0.0719
Black Knight, Inc.	0 85	0.73	2.6526	0.0670
Broadridge Fin'l	0 85	0.73	2.7938	0.0705
Cboe Global Markets	0 90	0 83	2 8940	0 0731
Cadence Design Sys.	0 95	0.88	2.8991	0 0732
Cerner Corp.	0 90	0 84	2.8660	0.0724
Chemed Corp	0.85	0.77	2 5217	0.0637
CME Group	0 90	0.83	2.6022	0.0657
Cooper Cos.	0 95	0 89	2 6587	0 0671
Dolby Labs	0 95	0.85	2.6147	0.0660
Lauder (Estee)	0 90	0 82	2 6597	0 0672
ESCO Technologies	0 95	0.88	2.5170	0.0636
Exponent, Inc.	0 85	0.75	2.8247	0 0713
Forward Air	0.95	0 89	2 7021	0 0682
Alphabet Inc.	0 90	0.83	2 7286	0.0689
Hershey Co.	0 85	0 73	2 6704	0 0674
Ingredion Inc	0 90	0 78	2 8600	0 0722
Hunt (J B)	0.95	0.89	2.7263	0.0688
J&J Snack Foods	0 85	0 76	2 7347	0 0691
McCormick & Co	0.85	0.76	2 6762	0.0676
Altria Group	0 85	0 72	2.9098	0 0735
Motorola Solutions	0.85	0.75	2.6058	0.0658
NewMarket Corp	0 85	0.70	2.5462	0 0643
Northrop Grumman	0 85	0 71	2 8334	0 0715
Pool Corp.	0 90	0 82	2.5263	0 0638
Rollins, Inc.	0 85	0 72	2 8610	0 0722
Selective Ins. Group	0 85	0 70	2.6898	0.0679
Sirius XM Holdings	0.95	0.87	2.5986	0.0656
Bio-Techne Corp	0.85	0.72	2 8139	0 0711
Tetra Tech	0 90	0.78	2 8216	0 0712
Texas Instruments	0 85	0.75	2 6653	0.0673
AMERCO	0 90	0.80	2.6496	0.0669
VeriSign Inc	0 95	0 90	2 5465	0 0643
Waters Corp.	0 90	0.83	2.4871	0.0628
West Pharmac. Svcs	0 85	0 70	2 8223	0 0713
Western Union	0.80	0.63	2 5724	0 0650
Average	0 89	0.79	2 7100	0 0700
Proxy Group of Fourteen Electric Companies	0.86	0.76	2 7228	0.0688

Source of Information Valueline Proprietary Database, June 2020

Southwestern Electric Power Company
Summary of Cost of Equity Models Applied to
Proxy Group of Forty-Five Non-Price Regulated Companies
Comparable in Total Risk to the
Proxy Group of Fourteen Electric Companies

Principal Methods	Proxy Group of Forty-Five Non-Price Regulated Companies
Discounted Cash Flow Model (DCF) (1)	11.50 %
Risk Premium Model (RPM) (2)	12.86
Capital Asset Pricing Model (CAPM) (3)	12.09
	12.15 %
	12.09 %
	12.12 %

Notes:
(1) From page 2 of this Schedule.
(2) From page 3 of this Schedule.
(3) From page 6 of this Schedule.

Southwestern Electric Power Company
DCF Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the
Proxy Group of Fourteen Electric Companies

	[1]	[2]	[3]		[4]	[5]	[6]	[7]
Proxy Group of Forty-Five Non-Price Regulated Companies	Average Dividend Yield	Value Line Projected Five Year Growth in EPS	Zack's Five Year Projected Growth Rate in EPS	Bloomberg's Five Year Projected Growth Rate in EPS	Yahoo! Finance Projected Five Year Growth in EPS	Average Projected Five Year Growth Rate in EPS	Adjusted Dividend Yield	Indicated Common Equity Cost Rate (1)
Apple Inc	0 94 %	14 00 %	11 00 %	11 55 %	10 99 %	11 89 %	1 00 %	12 89 %
Analog Devices	2 13	7 00	13 30	12 18	8 19	10 17	2 24	12 41
Assurant Inc	2 44	6 50	NA	NA	19 40	12 95	2 60	15 55
Amgen	2 69	6 50	7 50	7 67	6 87	7 14	2 79	9 93
Amer Tower 'A'	1 72	7 50	14 50	15 32	15 05	13 09	1 83	14 92
ANSYS, Inc	-	9 50	NA	11 30	7 10	9 30	-	NA
Smith (A O)	2 03	5 00	8 00	8 00	8 00	7 25	2 10	9 35
Becton, Dickinson	1 26	9 00	7 30	8 14	4 60	7 26	1 31	8 57
Brown-Forman 'B'	1 06	11 00	NA	4 23	(0 60)	7 62	1 10	8 72
Bio-Rad Labs 'A'	-	11 50	NA	4 00	17 80	11 10	-	NA
Black Knight, Inc	-	9 50	15 00	10 00	10 79	11 32	-	NA
Broadridge Fin'l	1 74	9 00	NA	6 50	10 00	8 50	1 81	10 31
Cboe Global Markets	1 49	12 50	3 20	6 40	3 37	6 37	1 54	7 91
Cadence Design Sys	-	10 00	13 70	10 89	13 70	12 07	-	NA
Cerner Corp	1 03	9 00	12 70	11 76	11 63	11 27	1 09	12 36
Chemed Corp	0 28	11 50	9 80	9 64	9 65	10 15	0 29	10 44
CME Group	1 95	2 50	4 60	8 07	4 55	4 93	2 00	6 93
Cooper Cos	-	14 50	11 00	8 45	10 00	10 99	-	NA
Dolby Labs	1 38	9 50	13 00	16 00	16 00	13 63	1 47	15 10
Lauder (Estee)	-	14 00	9 50	20 37	5 42	12 32	-	NA
ESCO Technologies	0 39	11 00	NA	15 50	15 00	13 83	0 42	14 25
Exponent, Inc	1 00	11 50	NA	17 05	15 00	14 52	1 07	15 59
Forward Air	1 47	12 00	NA	NA	13 16	12 58	1 56	14 14
Alphabet Inc	-	14 50	15 60	15 83	6 09	13 00	-	NA
Hershey Co.	2 41	5 00	7 70	7 50	7 24	6 86	2 49	9 35
Ingredion Inc	3 01	6 00	NA	9 50	1 90	5 80	3 10	8 90
Hunt (J B)	0 91	6 50	15 00	13 30	10 09	11 22	0 96	12 18
J&J Snack Foods	1 81	6 00	NA	10 00	6 00	7 33	1 88	9 21
McCormick & Co	1 39	6 50	5 80	10 13	5 00	6 86	1 44	8 30
Altria Group	8 66	6 00	5 00	5 05	3 70	4 94	8 87	13 81
Motorola Solutions	1 85	9 50	9 00	8 50	10 32	9 33	1 94	11 27
NewMarket Corp	1 83	2 00	NA	NA	7 70	4 85	1 87	6 72
Northrop Grumman	1 83	10 50	NA	19 56	8 67	12 91	1 95	14 86
Pool Corp	0 87	9 00	NA	19 85	17 00	15 28	0 94	16 22
Rollins, Inc	0 73	12 00	NA	NA	8 20	10 10	0 77	10 87
Selective Ins Group	1 75	6 50	1 90	1 86	(2 69)	3 42	1 78	5 20
Sirius XM Holdings	0 91	24 50	14 70	13 94	15 02	17 04	0 99	18 03
Bio-Techne Corp	0 48	14 00	6 00	7 67	6 00	8 42	0 50	8 92
Tetra Tech	0 87	11 00	15 00	15 50	15 00	14 13	0 93	15 06
Texas Instruments	2 89	2 50	9 30	10 00	10 00	7 95	3 00	10 95
AMERCO	-	7 50	NA	NA	15 00	11 25	-	NA
VeriSign Inc	-	9 50	NA	10 30	8 00	9 27	-	NA
Waters Corp	-	6 00	3 80	3 13	7 65	5 15	-	NA
West Pharmac Svcs	0 29	14 00	17 40	14 94	15 00	15 33	0 31	15 64
Western Union	4 19	5 00	25 80	5 30	8 09	11 05	4 42	15 47
							Mean	11 72 %
							Median	11 27 %
							Average of Mean and Median	11 50 %

NA= Not Available
NMF= Not Meaningful Figure

(1) The application of the DCF model to the domestic, non-price regluated comparable risk companies is identical to the application of the DCF to the Utility Proxy Group The dividend yield is derived by using the 60 day average price and the spot indicated dividend as of July 31, 2020 The dividend yield is then adjusted by 1/2 the average projected growth rate in EPS, which is calculated by averaging the 5 year projected growth in EPS provided by Value Line, www zacks com, Bloomberg Professional Services, and www yahoo com (excluding any negative growth rates) and then adding that growth rate to the adjusted dividend yield

Source of Information
Value Line Investment Survey
www zacks com Downloaded on 07/31/2020
www yahoo com Downloaded on 07/31/2020
Bloomberg Professional Services

Southwestern Electric Power Company
Indicated Common Equity Cost Rate
Through Use of a Risk Premium Model
Using an Adjusted Total Market Approach

Line No.		Proxy Group of Forty-Five Non-Price Regulated Companies
1.	Prospective Yield on Baa Rated Corporate Bonds (1)	4.18 %
2.	Adjustment to Reflect Proxy Group Bond Rating (2)	(0.35)
3.	Prospective Bond Rating	3.83
4	Equity Risk Premium (3)	9.03
5	Risk Premium Derived Common Equity Cost Rate	12.86 %

Notes: (1) Average forecast of Baa corporate bonds based upon the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts dated June 1, 2020 and July 31, 2020 (see pages 10-11 of Schedule DWD-4). The estimates are detailed below.

Third Quarter 2020	3.60 %
Fourth Quarter 2020	3.70
First Quarter 2021	3.80
Second Quarter 2021	3.80
Third Quarter 2021	3.90
Fourth Quarter 2021	3.90
2022-2026	5.00
2027-2031	5.70
Average	4.18 %

(2) To reflect the A3/Baa1 average rating of the non-utility proxy group, the prosepctive yield on Baa corporate bonds must be adjusted downward by 1/2 of the spread between A and Baa corporate bond yields as shown below:

	A Corp. Bond Yield	Baa Corp. Bond Yield	Spread
Jul-2020	2.52 %	3.15 %	0.63 %
Jun-2020	3.02	3.65	0.63
May-2020	3.12	3.95	0.83
	Average yield spread		0.70 %
		1/2 of spread	0.35 %

(3) From page 5 of this Schedule.

Southwestern Electric Power Company
Comparison of Long-Term Issuer Ratings for the
Proxy Group of Forty-Five Non-Price Regulated Companies of Comparable risk to the
Proxy Group of Fourteen Electric Companies

	Moody's Long-Term Issuer Rating July 2020		Standard & Poor's Long-Term Issuer Rating July 2020	
Proxy Group of Forty-Five Non-Price Regulated Companies	Long-Term Issuer Rating	Numerical Weighting (1)	Long-Term Issuer Rating	Numerical Weighting (1)
Apple Inc	Aa1	2.0	AA+	2.0
Analog Devices	Baa1	8.0	BBB+	8.0
Assurant Inc	Baa3	10.0	BBB	9.0
Amgen	Baa1	8.0	A-	7.0
Amer Tower 'A'	Baa3	10.0	BBB-	10.0
ANSYS, Inc.	NR	--	NR	--
Smith (A O)	NR	--	NR	--
Becton, Dickinson	Ba1	11.0	BBB	9.0
Brown-Forman 'B'	A1	5.0	A-	7.0
Bio-Rad Labs 'A'	Baa2	9.0	BBB	9.0
Black Knight, Inc	NR	--	BB	12.0
Broadridge Fin'l	Baa1	8.0	BBB+	8.0
Cboe Global Markets	A3	7.0	A-	7.0
Cadence Design Sys	Baa2	9.0	BBB+	8.0
Cerner Corp	NR	--	NR	--
Chemed Corp	WR	--	NR	--
CME Group	Aa3	4.0	AA-	4.0
Cooper Cos.	WR	--	NR	--
Dolby Labs	NR	--	NR	--
Lauder (Estee)	A1	5.0	A+	5.0
ESCO Technologies	NR	--	NR	--
Exponent, Inc	NR	--	NR	--
Forward Air	NR	--	NR	--
Alphabet Inc	Aa2	3.0	AA+	2.0
Hershey Co	A1	5.0	A	6.0
Ingredion Inc	Baa1	8.0	BBB	9.0
Hunt (J B)	Baa1	8.0	BBB+	8.0
J&J Snack Foods	NR	--	NR	--
McCormick & Co	Baa2	9.0	BBB	9.0
Altria Group	A3	7.0	BBB	9.0
Motorola Solutions	Baa3	10.0	BBB-	10.0
NewMarket Corp	Baa2	9.0	BBB+	8.0
Northrop Grumman	Baa2	9.0	BBB	9.0
Pool Corp	NR	--	NR	--
Rollins, Inc	NR	--	NR	--
Selective Ins Group	Baa2	9.0	BBB	9.0
Sirius XM Holdings	NR	--	NR	--
Bio-Techne Corp.	NR	--	NR	--
Tetra Tech	NR	--	NR	--
Texas Instruments	A1	5.0	A+	5.0
AMERCO	WR	--	NR	--
VeriSign Inc	Ba1	11.0	BBB-	10.0
Waters Corp	NR	--	NR	--
West Pharmac. Svcs	NR	--	NR	--
Western Union	Baa2	9.0	BBB	9.0
Average	A3/Baa1	7.6	A-/BBB+	7.7

Notes
(1) From page 6 of Schedule DWD-4

Source of Information
Bloomberg Professional Services

Southwestern Electric Power Company
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for
Proxy Group of Forty-Five Non-Price Regulated Companies of Comparable risk to the
Proxy Group of Fourteen Electric Companies

Line No.	Equity Risk Premium Measure	Proxy Group of Forty-Five Non-Price Regulated Companies
	Ibbotson-Based Equity Risk Premiums:	
1.	Ibbotson Equity Risk Premium (1)	5.78 %
2.	Regression on Ibbotson Risk Premium Data (2)	9.34
3.	Ibbotson Equity Risk Premium based on PRPM (3)	9.55
4.	Equity Risk Premium Based on Value Line Summary and Index (4)	13.50
5	Equity Risk Premium Based on Value Line S&P 500 Companies (5)	10.63
6.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	10.72
7.	Conclusion of Equity Risk Premium	9.92 %
8.	Adjusted Beta (7)	0.91
9.	Forecasted Equity Risk Premium	9.03 %

Notes:
(1) From note 1 of page 9 of Schedule DWD-4.
(2) From note 2 of page 9 of Schedule DWD-4.
(3) From note 3 of page 9 of Schedule DWD-4.
(4) From note 4 of page 9 of Schedule DWD-4.
(5) From note 5 of page 9 of Schedule DWD-4.
(6) From note 6 of page 9 of Schedule DWD-4.
(7) Average of mean and median beta from page 6 of this Schedule.

Sources of Information:
Stocks, Bonds, Bills, and Inflation - 2020 SBBI Yearbook, John Wiley & Sons, Inc.
Value Line Summary and Index
Blue Chip Financial Forecasts, June 1, 2020 and July 31, 2020
Bloomberg Professional Services

Southwestern Electric Power Company
Traditional CAPM and ECAPM Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the
Proxy Group of Fourteen Electric Companies

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Forty-Five Non-Price Regulated Companies	Value Line Adjusted Beta	Bloomberg Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (3)
Apple Inc	0 95	0 99	0 97	10 92 %	2 09 %	12 69 %	12 77 %	12 73 %
Analog Devices	0 95	1 04	0 99	10 92	2 09	12 90	12 93	12 92
Assurant Inc	0 85	1 05	0 95	10 92	2 09	12 47	12 60	12 54
Amgen	0 85	0 80	0 82	10 92	2 09	11 05	11 54	11 29
Amer Tower 'A'	0 95	0 90	0 92	10 92	2 09	12 14	12 36	12 25
ANSYS, Inc	1 05	0 96	1 00	10 92	2 09	13 01	13 01	13 01
Smith (A O)	0 95	1 03	0 99	10 92	2 09	12 90	12 93	12 92
Becton, Dickinson	0 80	0 70	0 75	10 92	2 09	10 28	10 97	10 62
Brown-Forman 'B'	0 90	0 93	0 92	10 92	2 09	12 14	12 36	12 25
Bio-Rad Labs 'A'	0 80	0 73	0 76	10 92	2 09	10 39	11 05	10 72
Black Knight, Inc	0 85	0 86	0 85	10 92	2 09	11 38	11 79	11 58
Broadridge Fin'l	0 85	0 83	0 84	10 92	2 09	11 27	11 70	11 48
Cboe Global Markets	0 90	0 79	0 85	10 92	2 09	11 38	11 79	11 58
Cadence Design Sys	1 05	0 95	1 00	10 92	2 09	13 01	13 01	13 01
Cerner Corp	0 90	0 97	0 93	10 92	2 09	12 25	12 44	12 34
Chemed Corp	0 85	0 97	0 91	10 92	2 09	12 03	12 28	12 15
CME Group	0 90	0 80	0 85	10 92	2 09	11 38	11 79	11 58
Cooper Cos	0 95	0 94	0 94	10 92	2 09	12 36	12 52	12 44
Dolby Labs	0 95	0 96	0 95	10 92	2 09	12 47	12 60	12 54
Lauder (Estee)	0 90	0 95	0 93	10 92	2 09	12 25	12 44	12 34
ESCO Technologies	0 95	0 94	0 95	10 92	2 09	12 47	12 60	12 54
Exponent, Inc	0 85	0 90	0 88	10 92	2 09	11 70	12 03	11 87
Forward Air	0 95	1 10	1 02	10 92	2 09	13 23	13 18	13 21
Alphabet Inc	1 05	0 88	0 96	10 92	2 09	12 58	12 69	12 63
Hershey Co	0 85	0 78	0 81	10 92	2 09	10 94	11 46	11 20
Ingredion Inc	0 90	0 95	0 93	10 92	2 09	12 25	12 44	12 34
Hunt (J B)	0 95	0 93	0 94	10 92	2 09	12 36	12 52	12 44
J&J Snack Foods	0 85	0 76	0 81	10 92	2 09	10 94	11 46	11 20
McCormick & Co	0 85	0 69	0 77	10 92	2 09	10 50	11 13	10 82
Altria Group	0 85	0 84	0 85	10 92	2 09	11 38	11 79	11 58
Motorola Solutions	0 85	0 96	0 90	10 92	2 09	11 92	12 19	12 06
NewMarket Corp	0 85	0 61	0 73	10 92	2 09	10 06	10 80	10 43
Northrop Grumman	0 85	0 84	0 84	10 92	2 09	11 27	11 70	11 48
Pool Corp	0 90	0 93	0 92	10 92	2 09	12 14	12 36	12 25
Rollins, Inc	0 85	0 69	0 77	10 92	2 09	10 50	11 13	10 82
Selective Ins Group	0 85	0 92	0 89	10 92	2 09	11 81	12 11	11 96
Sirius XM Holdings	0 95	1 14	1 04	10 92	2 09	13 45	13 34	13 40
Bio-Techne Corp	0 85	0 82	0 84	10 92	2 09	11 27	11 70	11 48
Tetra Tech	0 90	1 01	0 95	10 92	2 09	12 47	12 60	12 54
Texas Instruments	0 85	0 90	0 88	10 92	2 09	11 70	12 03	11 87
AMERCO	0 90	1 03	0 96	10 92	2 09	12 58	12 69	12 63
VeriSign Inc	0 95	0 85	0 90	10 92	2 09	11 92	12 19	12 06
Waters Corp	0 90	0 89	0 90	10 92	2 09	11 92	12 19	12 06
West Pharmac Svcs	0 85	0 83	0 84	10 92	2 09	11 27	11 70	11 48
Western Union	0 95	1 00	0 98	10 92	2 09	12 80	12 85	12 82
Mean			0 90			11 89 %	12 17 %	12 03 %
Median			0 91			12 03 %	12 28 %	12 15 %
Average of Mean and Median			0 91			11 96 %	12 23 %	12 09 %

Notes
(1) From note 1 of page 2 of Schedule DWD-5
(2) From note 2 of page 2 of Schedule DWD-5
(3) Average of CAPM and ECAPM cost rates

Southwestern Electric Power Company
Derivation of Investment Risk Adjustment Based upon
Ibbotson Associates' Size Premia for the Decile Portfolios of the NYSE/AMEX/NASDAQ

Line No.		[1] Market Capitalization on July 31, 2020 (1) (millions)	(times larger)	[2] Applicable Decile of the NYSE/AMEX/ NASDAQ (2)	[3] Applicable Size Premium (3)	[4] Spread from Applicable Size Premium (4)
1.	Southwestern Electric Power Company	$ 1,708.868		6	1 34%	
2.	Proxy Group of Fourteen Electric Companies	$ 14,860.101	8.7 x	2	0.50%	0.84%
			[A]	[B]	[C]	[D]

	Decile	Market Capitalization of Smallest Company (millions)	Market Capitalization of Largest Company (millions)	Size Premium (Return in Excess of CAPM)*
Largest	1	$ 31,090.379	$ 1,061,355.011	-0.28%
	2	13,142.606	30,542.936	0 50%
	3	6,618.604	13,100.225	0.73%
	4	4,312.546	6,614.962	0 79%
	5	2,688.889	4,311.252	1.10%
	6	1,669.856	2,685.865	1 34%
	7	993.855	1,668.282	1 47%
	8	515.621	993.847	1.59%
	9	230.024	515.603	2.22%
Smallest	10	1.973	229.748	4.99%

*From 2020 Duff & Phelps Cost of Capital Navigator

Notes:

(1) From page 2 of this Schedule.

(2) Gleaned from Columns [B] and [C] on the bottom of this page. The appropriate decile (Column [A]) corresponds to the market capitalization of the proxy group, which is found in Column [1].

(3) Corresponding risk premium to the decile is provided in Column [D] on the bottom of this page.

(4) Line No. 1 Column [3] – Line No. 2 Column [3]. For example, the 0.84% in Column [4], Line No. 2 is derived as follows 0.84% = 1.34% - 0.50%.

Southwestern Electric Power Company
Market Capitalization of Southwestern Electric Power Company and the
Proxy Group of Fourteen Electric Companies

Company	Exchange	[1] Common Stock Shares Outstanding at Fiscal Year End 2019 (millions)	[2] Book Value per Share at Fiscal Year End 2019 (1)	[3] Total Common Equity at Fiscal Year End 2019 (millions)	[4] Closing Stock Market Price on July 31, 2020	[5] Market-to-Book Ratio on July 31, 2020 (2)	[6] Market Capitalization on July 31, 2020 (3) (millions)
Southwestern Electric Power Company		NA	NA	913 35 (4)	NA		
Based upon Proxy Group of Fourteen Electric Companies						187 1 (5)	$ 1,708 868 (6)
Proxy Group of Fourteen Electric Companies							
ALLETE	NYSE	51 696	$ 43.173	$ 2,231.900	$ 59 300	137 4 %	$ 3,065 602
Alliant Energy	NASDAQ	245 023	21 243	5,205 100	53 850	253 5	13,194 478
Ameren Corp	NYSE	246 232	32 729	8,059 000	80 240	245 2	19,757.633
Duke Energy	NYSE	733 322	63 849	46,822 000	84 740	132 7	62,141.703
Edison Int'l	NYSE	361 985	36 750	13,303 000	55.670	151.5	20,151 712
Entergy Corp	NYSE	199 727	51.188	10,223 675	105 130	205 4	20,997 272
IDACORP, Inc	NYSE	50 410	48 892	2,464 628	93.250	190.7	4,700 723
NorthWestern Corp	NYSE	53 999	37 762	2,039.094	56.260	149 0	3,037 994
OGE Energy	NYSE	200 177	20 679	4,139 500	32 900	159 1	6,585.835
Otter Tail Corp.	NASDAQ	40 158	19 460	781.482	38.250	196 6	1,536 028
Pinnacle West Capital	NYSE	112 540	48 255	5,430.648	83.080	172.2	9,349 834
PNM Resources	NYSE	79 654	21 075	1,678 698	42 230	200.4	3,363 773
Portland General	NYSE	89 387	28.986	2,591 000	44 130	152 2	3,944 654
Xcel Energy Inc	NASDAQ	524 539	25.239	13,239 000	69 040	273 5	36,214 173
Average		213.489	$ 35 663	$ 8,443 480	$ 64 148	187 1 %	$ 14,860.101

NA= Not Available

Notes· (1) Column 3 / Column 1
(2) Column 4 / Column 2
(3) Column 1 * Column 4
(4) Requested rate base multiplied by Company actual equity ratio
(5) The market-to-book ratio of Southwestern Electric Power Company on July 31, 2020 is assumed to be equal to the market-to-book ratio of Proxy Group of Fourteen Electric Companies on July 31, 2020 as appropriate
(6) Column [3] multiplied by Column [5]

Source of Information 2019 Annual Forms 10K
yahoo finance com
Bloomberg Professional

EXECUTIVE SUMMARY OF RENEE V. HAWKINS

Renee V. Hawkins is Assistant Treasurer and Managing Director, Corporate Finance for American Electric Power Service Corporation. Ms. Hawkins' testimony addresses two main topics: 1) a discussion of Southwestern Electric Power Company's (SWEPCO) proposed cost of capital, including its cost of debt and recommended capital structure; and 2) a discussion of SWEPCO's credit profile.

Ms. Hawkins, who sponsors all elements of the capital structure except the cost of equity, presents the various components of capital, their cost, and the overall weighted average cost of capital, which is 7.22%.

Ms. Hawkins' discussion of SWEPCO's credit ratings begins with a description of the ratings from Moody's, S&P, and Fitch. She describes their most recent ratings actions and the factors the rating agencies considered in determining SWEPCO's ratings. Ms. Hawkins explains the relationship between SWEPCO's credit ratings and its access to debt. She further describes SWEPCO's position within the AEP corporate structure and the benefits that provides, including lower short-term borrowing costs and liquidity.

PUBLIC UTILITY COMMISSION OF TEXAS

APPLICATION OF

SOUTHWESTERN ELECTRIC POWER COMPANY

FOR AUTHORITY TO CHANGE RATES

DIRECT TESTIMONY OF

RENEE V. HAWKINS

FOR

SOUTHWESTERN ELECTRIC POWER COMPANY

OCTOBER 2020

TESTIMONY INDEX

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION IN THE COMPANY.

A. My name is Renee V. Hawkins. My business address is One Riverside Plaza, Columbus, Ohio 43215. I am employed by American Electric Power Service Corporation (AEPSC) as Assistant Treasurer and Managing Director of Corporate Finance. AEPSC, a wholly owned subsidiary of American Electric Power Company, Inc. (AEP), provides centralized professional and other services to subsidiaries of AEP, including Southwestern Electric Power Company (SWEPCO or the Company).

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I received a Bachelor's Degree in Finance and International Business from The Ohio State University in Columbus, Ohio in 1987, and a Master's Degree in Business Administration with a Finance concentration from the Simon School at the University of Rochester in Rochester, New York in 1991.

Q. PLEASE DESCRIBE YOUR PROFESSIONAL BACKGROUND.

A. I was first employed by State Teachers Retirement System of Ohio in 1987 in the real estate section where I was assigned to asset management. In June 1991, I was employed by General Motors as an analyst for AC Delco, which is now a subsidiary of Delphi East. In June 1993, I was hired by Cablevision Systems Corporation, first as a Senior Financial Analyst and then promoted to Treasury Manager. My responsibilities included managing capitalization and liquidity for a number of subsidiaries.

1 In 1996, I joined AEPSC as a Corporate Finance Senior Analyst supporting
2 financing activity for the AEP operating companies. In 1999, I was named Manager,
3 Corporate Finance. In 2000, I was named Director, Corporate Finance, a position that
4 was renamed Director, Regulated Finance, in 2001. In 2003, I was promoted to
5 Managing Director, Corporate Finance, with the responsibility for capital markets
6 activity for the regulated utilities, and activities such as making dividend
7 recommendations and capitalization targets, supporting the rating agency
8 relationships in order to maintain credit ratings, and assisting in the management of
9 liquidity for the overall AEP system. In 2008, I was named Assistant Treasurer of
10 AEP.
11 Q. HAVE YOU PREVIOUSLY TESTIFIED?
12 Yes, most recently in Texas, I presented testimony on behalf of AEP Texas in that
13 company's base rate proceeding, Public Utility Commission of Texas (PUC or
14 Commission) Docket No. 49494. I have also testified or presented testimony on
15 SWEPCO's behalf in Texas in their most recent rate case, Docket No. 46449. I have
16 also presented testimony or testified on financial matters such as financial integrity
17 and cost of capital on behalf of: Appalachian Power Company before the Public
18 Service Commission of West Virginia and the Virginia State Corporation
19 Commission; Indiana Michigan Power Company before the Indiana Utility
20 Regulatory Commission and the Michigan Public Service Commission; Public
21 Service Company of Oklahoma before the Oklahoma Corporation Commission; and
22 Columbus Southern Power and Ohio Power before the Public Utilities Commission of
23 Ohio.

II. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to discuss the capital structure and cost of capital for ratemaking purposes, employing the cost of common equity supported by Company Witness Dylan D'Ascendis. In addition, I will discuss the benefits of the Company's participation in the Corporate Borrowing Program.

Q. ARE YOU SPONSORING OR CO-SPONSORING ANY SCHEDULES OR EXHIBITS INCLUDED IN THE COMPANY'S FILING?

A. Yes. I am sponsoring Schedules K- 1 through K-9.

III. PROPOSED COST OF CAPITAL

Q. PLEASE SUMMARIZE THE COMPANY'S CAPITAL STRUCTURE AND PROPOSED WEIGHTED AVERAGE COST OF CAPITAL.

A. The following table summarizes the Company's capital structure and proposed cost of capital, incorporating the Company's cost of debt together with Company Witness Dylan D'Ascendis recommended return on equity, to arrive at SWEPCO's overall weighted average cost of capital (WACC):

SWEPCO	% of Total Capitalization	Cost of Capital Rate	WACC (%)
Long-term Debt	50.63%	4.18%	2.11%
Common Equity	49.37%	10.35%	5.11%
Total	100.00%		7.22%

1 Please see Schedule K-3 and its accompanying attachments for further information
2 regarding SWEPCO's cost of debt.
3 Q. PLEASE EXPLAIN HOW THE PROPOSED WACC OF 7.22% WAS
4 CALCULATED.
5 A. The overall cost of capital is based on a weighting of the costs for the Company's
6 sources of capital, including long-term debt and common equity. The derivation of
7 the Company's WACC of 7.22% is illustrated on Schedule K-1 and shown above.
8 The Company's WACC is calculated by dividing the dollar amount of each
9 component of capital by the Company's total dollar amount of capital to derive the
10 percentage of the Company's total capital each component represents.
11 Q. PLEASE EXPLAIN WHAT RATES WERE USED IN CALCULATING THE
12 COMPANY'S PER BOOKS WACC AS OF THE END OF THE TEST YEAR.[1]
13 A. The cost of the debt shown on Schedule K-3 is determined in accordance with
14 Commission practices and is consistent with prior Texas filings. The issue and
15 maturity date, par value outstanding, and bond interest rate are used to determine the
16 yield-to-maturity rate for each debt series. The cost of each series is weighted by the
17 amount outstanding as of the end of the Test Year to yield an overall cost of debt,
18 which is 4.18%. To allow for recovery of all debt costs, the expense of unamortized
19 loss on reacquired debt is also added to the debt cost. The net bond proceeds are
20 reduced by the unamortized loss on reacquired debt in determining the net long term
21 debt (LTD) outstanding. The total debt requirement is then divided by the net LTD

[1] The Test Year is the twelve-month period ending March 31, 2020.

1 outstanding to determine the debt cost. Schedule K-3 shows the calculation of the
2 4.18% debt cost as of the end of the Test Year.
3 The cost of common equity used in the calculation is the amount
4 recommended by Company Witness Dylan D'Ascendis.
5 Q. DID THE COMPANY INCLUDE ANY KNOWN CHANGES TO THE DEBT
6 COMPONENT OF THE COMPANY'S PER BOOKS CAPITAL STRUCTURE AS
7 OF THE END OF THE TEST YEAR?
8 A. Yes. On May 12, 2020, the company refinanced the bank term loan and reduced the
9 amount to $100 million from $115 million. The change is reflected in the debt
10 schedule.
11
12 IV. CREDIT RATINGS
13 Q. PLEASE DISCUSS SWEPCO'S CREDIT RATINGS.
14 A. SWEPCO is currently rated Baa2 (stable outlook), A- (stable outlook), and BBB+ by
15 Moody's, S&P Global (S&P) and Fitch Ratings, respectively. The rating agencies use
16 a number of factors to determine the credit ratings of utilities that include both the
17 regulatory recovery mechanisms and quantitative factors, such as debt to
18 capitalization, cash flow interest coverage, and cash flow generated as a percentage of
19 the debt obligations. Moody's most recent report provides the following metrics:

Southwestern Electric Power Company [1]

	Dec-15	Dec-16	Dec-17	Dec-18	LTM Jun-19
CFO Pre-W/C + Interest / Interest	3.7x	4.6x	4.6x	4.1x	3.8x
CFO Pre-W/C / Debt	14.5%	16.1%	15.9%	14.0%	12.1%
CFO Pre-W/C – Dividends / Debt	9.8%	11.9%	11.6%	11.7%	9.8%
Debt / Capitalization	42 7%	43.7%	47.5%	48.4%	48.3%

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations
Source· Moody's Financial Metrics

1 S&P uses a group methodology where all the subsidiary ratings are currently based
2 on the consolidated rating of AEP. Fitch Ratings states that Fitch views the
3 regulatory construct for integrated utilities in Louisiana as balanced, while Texas and
4 Arkansas are more challenging. Various recovery mechanisms are in place to improve
5 earnings stability.

6 Q. WHAT IS THE RELATIONSHIP BETWEEN A UTILITY'S CREDIT RATING
7 AND ITS COST OF DEBT?

8 A. Credit ratings and cost of debt have an inverse relationship. This means the lower the
9 credit rating of the utility, the higher its cost of debt becomes. Therefore, utilities with
10 lower credit ratings than SWEPCO's Baa2 raise debt capital at costs that are higher
11 and utilities with higher credit ratings raise debt at lower costs, directly impacting the
12 cost of service to their customers. Credit ratings are also important when capital
13 markets cycle into a period of distress. Maintaining higher investment grade credit
14 ratings when markets are constrained allows companies to fund with less resistance
15 than peers with sub-investment grade ratings.

16 For example, when the markets experience a period of turmoil, it is possible
17 that access to capital may not be readily available or the price may be prohibitive for
18 lower rated companies since some investors may be unwilling to purchase risky

assets. The last year has seen the return of volatility to the bond markets and there is now a possibility that reasonably-priced debt may not be available to a lower-rated utility. This resulted in a decision in March to withdraw a marketed deal for SWEPCO's sister company, Appalachian Power Company (APCo), due to lack of demand. APCo is higher rated than SWEPCO at Baa1, A-, and A- from Moody's, S&P, and Fitch Ratings respectively.

Q. ARE ANY COMMISSION-IMPOSED PROTECTIONS NECESSARY TO SAFEGUARD SWEPCO'S FINANCIAL INTEGRITY AND ABILITY TO PROVIDE RELIABLE SERVICE AT REASONABLE RATES?

A. No. The following segregation between SWEPCO and its AEP affiliates already occurs:

- SWEPCO does not share its credit facility with any unregulated affiliates;
- SWEPCO debt is not secured by non-SWEPCO assets;
- SWEPCO assets do not secure the debt of AEP or its non-SWEPCO affiliates; and
- SWEPCO has no assets pledged for any other entity.

Q. PLEASE DISCUSS SWEPCO'S STAND-ALONE CREDIT RATINGS.

A. As previously mentioned, SWEPCO has stand-alone credit ratings from Moody's, S&P and Fitch Ratings. To date, S&P has published the stand-alone credit profile with the credit rating based on the AEP family rating.

Q. ARE THERE OTHER ADVANTAGES ASSOCIATED WITH SWEPCO'S RELATIONSHIP WITH AEP?

A. Yes. There is a corporate borrowing program for regulated utilities in place, referred to as a Utility Money Pool.

Q. WHAT ARE THE BENEFITS OF A CORPORATE BORROWING PROGRAM (MONEY POOL)?

A. The benefits of the program have been addressed in prior rate proceedings and include the following:

- Allows each participant to minimize the cost of its short-term borrowings and maximize the returns from its short-term investments.
- Provides the ability of AEP to pool funds and maintain credit lines for its subsidiaries, which results in more efficient funding and lower borrowing rates.
- Provides the ability to pool investment funds resulting in the maximum amount being invested at more favorable investment rates.

The use of the Utility Money Pool benefits the participants in several ways as compared to each subsidiary managing its short-term funding requirements independently. First, each subsidiary does not have to obtain and maintain a short-term credit rating from a rating agency, as would be required if that subsidiary were to operate a separate money pool and use it to issue commercial paper. The fees to maintain these ratings depend on the amount of commercial paper issued, but in any case, this represents a significant cost. Secondly, in order to issue commercial paper, each subsidiary would need to obtain its own credit facility to act as a "backstop" for the issuance. The Utility Money Pool allows the participants to use the AEP credit facility as the backstop, thereby eliminating the upfront and ongoing costs associated with obtaining a separate credit facility. And finally, the system-wide approach reduces overhead costs to its participants, as they benefit from the economies of scale associated with the program.

1 Still another benefit is that the Utility Money Pool is used to fund any inter-
2 company transactions, thereby reducing bank charges and minimizing the amount of
3 cash required to be on hand. By settling the inter-company transactions through this
4 internal mechanism, the number of transactions with external banks is reduced
5 thereby reducing the transaction fees paid to banks.
6 The Utility Money Pool provides a further benefit by allowing SWEPCO to
7 fully invest any available funds on a daily basis and earn better rates. Without the
8 Utility Money Pool, SWEPCO would have to invest funds externally. A minimum
9 initial investment amount ranging from $1 million to $10 million is required to
10 participate in the institutional investment funds used by AEP. As a result, SWEPCO
11 might not be able to externally invest all available funds each day and any funds not
12 able to be invested externally would remain in SWEPCO's bank account and earn a
13 lower return from the bank. However, because the Utility Money Pool has no
14 minimum requirements, it allows SWEPCO to invest all available cash on a daily
15 basis and earn the average interest rate on the full amount regardless of the level of its
16 cash-on-hand. Therefore, SWEPCO is earning a higher return on the total amount of
17 excess funds.
18 Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?
19 A. Yes, it does.

EXECUTIVE SUMMARY OF DREW W. SEIDEL

Drew W. Seidel, SWEPCO's Vice President of Distribution Region Operations, is responsible for overseeing the planning, construction, operation and maintenance of the distribution system. His testimony (1) provides an overview of Southwestern Electric Power Company's (SWEPCO) service territory and the distribution organization; (2) discusses distribution performance; (3) discusses the benefits of SWEPCO's proposal for an increase in the base level of vegetation management funds; (4) addresses the reasonableness of SWEPCO's test year operation and maintenance (O&M) expenses, including service company affiliate expenses; and (5) supports the distribution capital additions placed in service since the close of the test year in SWEPCO's last rate case.

Mr. Seidel first summarizes the characteristics and composition of SWEPCO's service territory, including the areas in which SWEPCO serves Texas customers. He explains that SWEPCO's Texas service territory presents operating challenges in that the majority of its Texas overhead distribution lines are located in rural areas with heavy vegetation, high precipitation, and low customer density.

Mr. Seidel describes SWEPCO's distribution organization and how its responsibilities are divided among SWEPCO's service areas. He describes the programs SWEPCO uses to maintain the reliability of its distribution system.

Mr. Seidel discusses the need for increased levels of vegetation management to promote service reliability, and SWEPCO's proposal to increase the level of vegetation management expense included in base rates from the $9.57 million current test year level, to an annual level of $14.57 million total. He testifies that one of the top causes of outages within SWEPCO's Texas service territory continues to be vegetation, and that increased vegetation management will lead to further improvements in service reliability. Consequently, Mr. Seidel supports SWEPCO's

proposal to increase base level spending on this program by $5.0 million. He notes that SWEPCO is open to continuing periodic reporting to the Commission and interested parties with regard to this program.

Mr. Seidel also testifies how SWEPCO measures the performance of its distribution system. He summarizes the SAIFI and SAIDI indices for the test year ending March 31, 2020. Mr. Seidel describes the results of SWEPCO's customer satisfaction surveys and how SWEPCO compares favorably to the national residential averages.

Mr. Seidel explains that SWEPCO's total distribution O&M expenses for the test year were $93,656,735. Of this amount, only $1,301,448, approximately 1.39%, was affiliate costs. Mr. Seidel describes the processes SWEPCO and American Electric Power Service Corporation (AEPSC) employ to keep both affiliate and non-affiliate distribution costs reasonable. He describes the formulation of an annual budget and the monitoring of monthly variance reports. He also explains how AEPSC enables SWEPCO to benefit from economies of scale. Mr. Seidel further explains how SWEPCO supplements its work force by outsourcing to achieve the best overall long-term cost profile.

Mr. Seidel testifies that he performed benchmarking studies to help assess the reasonableness of SWEPCO's distribution expenses, which show that SWEPCO's capital expenditures and O&M expenses compare reasonably to all three-peer groups studied (Texas, south central, and national). Mr. Seidel testifies that SWEPCO's results are reasonable, particularly given the challenges posed by its service area and SWEPCO's efforts to balance the objectives of cost control and reliable distribution service. Mr. Seidel also discusses cost trends, budgets, and cost control processes that support the reasonableness of test year distribution costs.

Mr. Seidel also discusses SWEPCO's affiliate costs for distribution O&M. He describes the services provided by AEPSC Distribution Services and why they are necessary. He explains

that AEPSC provides distribution services in a centralized manner because the services generally provided are not unique to local areas, and centralized services avoid the duplication of expertise and resources. He explains that this system reduces costs for customers. Mr. Seidel testifies that SWEPCO provides input and direction to the AEPSC distribution services organization, and that AEPSC's services do not duplicate any provided by SWEPCO personnel or any other entity.

Mr. Seidel explains how AEPSC sets and controls its budget, and is able to provide services and materials at reasonable prices. He explains the trends in AEPSC costs charged to SWEPCO for distribution-related services. Mr. Seidel testifies that the benchmarking studies performed comparing SWEPCO's overall distribution O&M costs to other utilities' support the reasonableness of SWEPCO's affiliate O&M distribution charges.

Finally, Mr. Seidel supports the prudence and reasonableness of approximately $143.5 million in distribution capital booked to plant in service since the end of the test year in SWEPCO's last base rate case. He describes the nature of SWEPCO's major distribution capital additions since the last test year. He notes that the described capital additions include some affiliate charges, most of which are distribution capitalized software and overheads associated with AEPSC distribution planning, design, and construction management. He also notes that distribution substation design work is completed by AEPSC as an affiliate cost. Mr. Seidel describes processes SWEPCO uses to ensure that capital projects are prudently constructed at a reasonable cost, and confirms that SWEPCO's distribution capital expenditures are reasonable.

PUBLIC UTILITY COMMISSION OF TEXAS

APPLICATION OF

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FOR AUTHORITY TO CHANGE RATES

DIRECT TESTIMONY OF

DREW W. SEIDEL

FOR

SOUTHWESTERN ELECTRIC POWER COMPANY

OCTOBER 2020

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Drew W. Seidel. My business address is 428 Travis Street, Shreveport, Louisiana, 71101.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Southwestern Electric Power Company (SWEPCO or Company) as Vice President of Distribution Region Operations. SWEPCO is an operating company of American Electric Power Company, Inc. (AEP).

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE?

A. I hold a Bachelor of Science degree in Mechanical Engineering from Texas A&M University and a Master of Business Administration from the University of Texas of the Permian Basin. I also completed the AEP Strategic Leadership Program at The Ohio State University's Fisher College of Business.

I first joined West Texas Utilities Co. (WTU) in 1992 and later served as plant manager at Central Power and Light Co.'s (CPL) Victoria Power Station in Victoria, Texas. WTU and CPL were sister companies of SWEPCO in the Central and South West system prior to its merger with American Electric Power in 2000. After the merger, I served as plant manager of SWEPCO's Knox Lee Power Plant and H.W. Pirkey Power Plant in Longview and Hallsville, Texas; respectively, and energy production superintendent and plant manager at Welsh Plant in Pittsburg, Texas. I assumed my current position as Vice President of Distribution Region Operations in 2018.

1 Q. WHAT ARE YOUR RESPONSIBILITIES AS VICE PRESIDENT OF
2 DISTRIBUTION REGION OPERATIONS FOR SWEPCO?
3 A. I am responsible for overseeing the planning, construction, operation, and
4 maintenance of the distribution system. My duties include the oversight and
5 management of service extensions to new customers, the safe and reliable delivery of
6 service to our customers, and the restoration of service when outages occur. My
7 responsibilities also include overseeing SWEPCO's distribution system asset
8 management programs, reliability programs, and the vegetation management
9 program.
10
11 II. PURPOSE OF TESTIMONY
12 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?
13 A. The purpose of my testimony is to: 1) provide an overview of SWEPCO's service
14 territory and the distribution organization; 2) discuss distribution performance;
15 3) discuss the benefits of SWEPCO's proposal for an increase in the test year level
16 of vegetation management funds; 4) address the reasonableness of test year operation
17 and maintenance (O&M) expenses, including affiliate expenses; and 5) support the
18 distribution capital additions placed in service since the last rate case.

Q. DO YOU SPONSOR ANY RATE FILING PACKAGE SCHEDULES?

A. Yes. I sponsor the following schedules:

- H-13.1 Quality of Service
- H-13.1a Voltage Surveys
- H-13.2 IE-24 Reports (Form 417R)
- H-13.3 Continuity of Service

I co-sponsor the following schedules:

- H-13.1b Circuit Breaker Lockouts (with Daniel R Boezio)
- H-13.1d Tree Trimming Program (with Mr. Boezio)
- H-13.1e Quality of Service Improvements (with Paul Pratt and Mr. Boezio)

III. OVERVIEW OF SWEPCO'S SERVICE TERRITORY

Q. PLEASE BRIEFLY DESCRIBE SWEPCO'S SERVICE TERRITORY.

A. SWEPCO's service territory spans sections of Texas, Arkansas, and Louisiana as shown in EXHIBIT DWS-1. SWEPCO's Texas service territory (SWEPCO Texas) is in northeast Texas and the Panhandle of Texas. SWEPCO's distribution system in Texas encompasses 9,960 square miles and includes approximately 8,679 miles of overhead conductor and 832 miles of underground conductor.

SWEPCO Texas serves approximately 152,600 residential, 30,400 commercial, and 4,400 industrial customers. A substantial portion of the distribution system in the northeast Texas area was built in the late 1920's and 1930's to serve the electrification of the northeast Texas oil fields. That construction was often from Point A to Point B, across country and through heavy vegetation and rolling terrain.

The northeast Texas service territory is an area of rolling hills, heavy timber with tall pines and hardwood, heavy vegetation, lakes, rivers, and streams. It is not subject to direct landfall and storm surges of hurricanes, but it is subject to impacts from hurricanes and tropical storms that move inland, such as Rita, Ike, Gustav, and most recently Laura. Both the northeast Texas and Panhandle territories are subject to tornadoes, straight-line wind damage, and severe winter weather including ice storms.

Q. DOES SWEPCO TEXAS EXHIBIT CHARACTERISTICS THAT PRESENT OPERATING CHALLENGES?

A. Yes. SWEPCO Texas has a low customer density, as SWEPCO customers are widely distributed over a large area, which complicates providing service. As a result, it takes more line-miles to serve end-use customers in SWEPCO Texas than it does in more densely populated service territories.

In addition, the majority of SWEPCO's overhead distribution lines are located in rural areas with heavy vegetation and some of the heaviest levels of precipitation in the state. For example, average annual rainfall in Longview, Texas, is 48.1 inches[1] over the last 30 years, which is 19.2 inches more than the Texas annual average of 28.90 inches.[2] Rainfall levels have a dramatic impact on vegetation growth rates, which ultimately affects reliability.

In summary, hilly terrain, heavy vegetation, and the high amount of annual rainfall make vegetation management highly challenging in SWEPCO's northeast Texas service territory.

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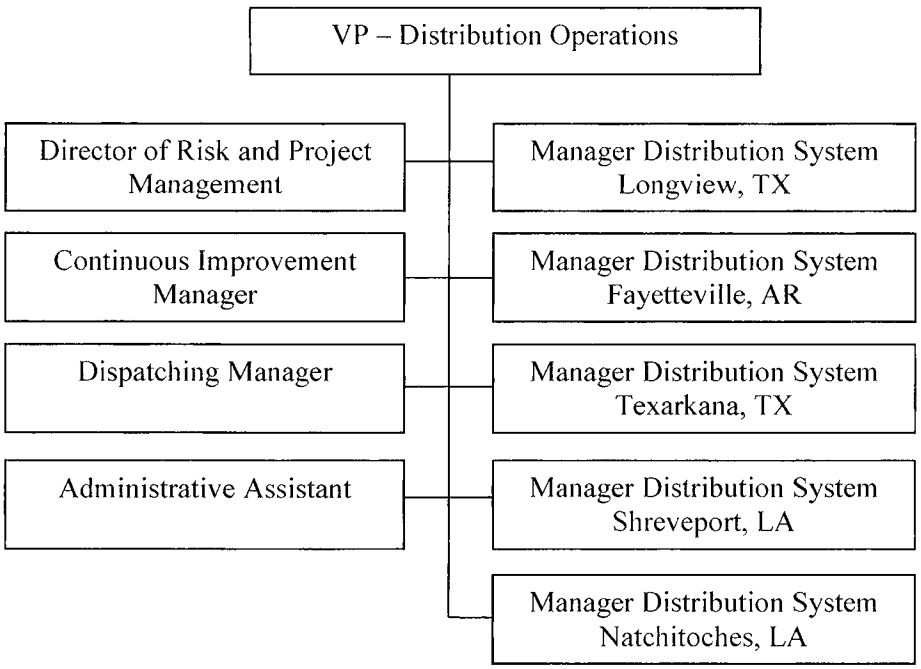
[1] https://www.currentresults.com/Weather/Texas/average-yearly-precipitation.php
[2] https://www.currentresults.com/Weather/US/average-annual-state-precipitation.php

IV. SWEPCO DISTRIBUTION ORGANIZATION

Q. PLEASE DESCRIBE SWEPCO'S DISTRIBUTION ORGANIZATION.

A. SWEPCO's Distribution Operations organization includes four functional support departments: Risk and Project Management (which includes distribution automation design and installation), Distribution Systems, Continuous Improvement, and Distribution Dispatch. These departments are responsible for distribution system engineering and design activities, resource planning and contracting activities, vegetation management, construction and maintenance, and the operation of the distribution electrical system for the entire SWEPCO service territory. Figure 1 shows the current SWEPCO Distribution Operations organizational structure.

Figure 1 – SWEPCO Distribution Operations Organization



SWEPCO's Texas distribution operations are divided into two operating areas: northeast Texas and a small portion of the Panhandle. Each operating area is dedicated to overseeing the safe and reliable delivery of electrical service to homes, businesses, and industries across its service territory. Distribution managers in Longview and Texarkana are responsible for the day-to-day operation of the distribution system in their respective areas, including the construction of new facilities, maintenance of existing facilities, and restoration of service.

Q. PLEASE DESCRIBE SWEPCO'S PROGRAMS USED TO MAINTAIN THE RELIABILITY OF ITS DISTRIBUTION SYSTEM.

A. Programs to maintain and improve reliability by minimizing service interruptions on the Company's distribution system can be divided into three categories: 1) Distribution Asset Management; 2) Distribution Reliability; and 3) Distribution Vegetation Management.

Q. PLEASE DESCRIBE THE DISTRIBUTION ASSET MANAGEMENT PROGRAMS IN TEXAS.

A. SWEPCO has implemented proactive asset management programs whereby it inspects distribution facilities to identify and correct potential problems before they cause service interruptions. SWEPCO inspects and repairs equipment and material such as poles, transformers, reclosers, conductors, pedestals, and switchgear to avoid outages. SWEPCO has the following ongoing Distribution Asset Management programs, which serve to prolong the useful life of the distribution assets and enhance the Company's distribution system reliability:

- Overhead Circuit Facilities Inspection and Maintenance;
- Animal Mitigation;
- Underground Facilities Inspection and Maintenance;
- Pole Inspection and Maintenance/Replacement;
- Recloser Maintenance/ Replacement;
- Overhead Conductor;
- Underground Cable;
- Lightning Mitigation; and
- Sectionalizing.

A description of these programs and their roles with respect to distribution system reliability is provided in EXHIBIT DWS-2.

Q. PLEASE DESCRIBE WHAT IS INCLUDED IN THE DISTRIBUTION RELIABILITY PROGRAM IN TEXAS.

A. Each year, SWEPCO undertakes various major distribution reliability improvements in addition to those included in the Asset Management Programs described previously. The improvements range from the simple construction of new distribution feeder ties to the complex additions of new substations with new distribution feeders to better serve our customers.

SWEPCO's proactive planning efforts identify areas where the expected demand for electricity is approaching the limit of the distribution system's current capacity. The reliability improvement projects necessary to serve this load growth also upgrade, improve, or effectively maintain SWEPCO's distribution system. These projects either re-conductor the existing feeders or allow portions of the existing distribution system to be reconfigured. The expansion of the distribution system to

1 serve new customers can also result in the upgrade or replacement of distribution
2 facilities to maintain and enhance reliable service to SWEPCO's customers.
3 Q. PLEASE DESCRIBE SWEPCO'S VEGETATION MANAGEMENT PROGRAM
4 IN TEXAS.
5 A. SWEPCO's existing vegetation management program in Texas includes pruning and
6 clearing vegetation along distribution circuits to protect its lines. SWEPCO uses
7 vegetation management practices such as mechanized clearing, mechanized and
8 manual trimming, manual clearing, and herbicide applications. SWEPCO currently
9 uses a reactive performance-based approach for vegetation management in Texas,
10 which means that SWEPCO uses an integrated vegetation management and asset
11 improvement approach to address the worst performing circuits. Each year, SWEPCO
12 develops vegetation management plans based on the prior year's system performance
13 to address during the current year as well as well as in the following year. The annual
14 vegetation management work plans are flexible and dynamic. Inputs into the work plan
15 include historical reliability data, line inspections, customer density, circuit
16 performance, weather, and customer complaints.
17
18 V. DISTRIBUTION PERFORMANCE
19 Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?
20 A. In this section, I will discuss how SWEPCO measures the performance of its
21 distribution system. More specifically, I will discuss: 1) the System Average
22 Interruption Frequency Index (SAIFI) and System Average Interruption Duration
23 Index (SAIDI); 2) Feeder Performance; and 3) Customer Satisfaction.

1 A. SAIFI AND SAIDI

2 Q. PLEASE DESCRIBE HOW SYSTEM PERFORMANCE IS MEASURED.

3 A. Overall distribution system performance is measured by the annual frequency and
4 duration of interruptions. SAIFI indicates how often the average customer
5 experiences a sustained interruption, calculated by dividing the total number of
6 customers who experienced interruptions for outage events in the year by the total
7 number of customers served. SAIDI indicates the total time the average customer is
8 without service, calculated by dividing the total number of customer minutes
9 interrupted during outage events by the total number of customers served.

10 SAIFI and SAIDI calculations exclude major events, scheduled outages, and
11 outside causes. Major events are interruptions that result from a catastrophic event
12 that exceeds the design limits of the electric power system, such as an earthquake or
13 extreme storm. Major events include outages where there is a loss of power to 10%
14 or more of the customers in a region and with all customers not restored within 24
15 hours. Scheduled outages are those planned for by either SWEPCO or an outside
16 party. Outside causes are defined as any generation, transmission, transmission
17 station outage, or any distribution outage caused by blast/explosion, customer
18 equipment, fire, other utility, dig-ins, or vandalism.

19 Although outages obviously drive the values for SAIFI and SAIDI, the
20 number of outages does not figure into the calculations. Instead, the number of
21 customers interrupted is used to help distinguish the severity of the outage. In this
22 manner, an outage affecting 1,000 customers has a ten times greater impact than a
23 similar outage to 100 customers.

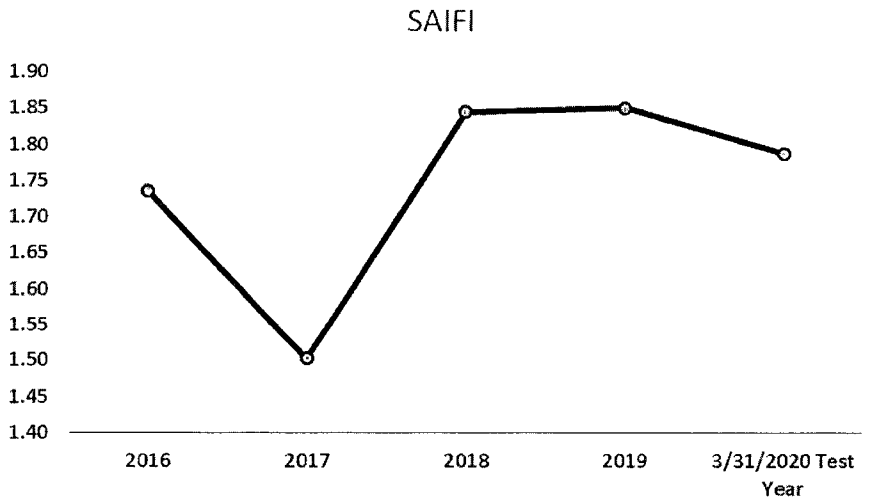
Q. PLEASE DISCUSS SWEPCO'S RELIABILITY PERFORMANCE DURING THE TEST YEAR.

A. SWEPCO's Texas SAIFI and SAIDI for the Test Year ending March 31, 2020, was 1.79 and 252.61, respectively. In other words, the average SWEPCO customer in Texas experienced 1.79 outages and 252.61 minutes of interruption in the Test Year.

Q. PLEASE DESCRIBE THE RELIABILITY PERFORMANCE FOR SWEPCO'S TEXAS SERVICE AREA IN RECENT YEARS.

A. SWEPCO's Texas annual SAIFI and SAIDI indices for the years 2016 through 2019 and the Test Year are shown in Figures 2 and 3, respectively.

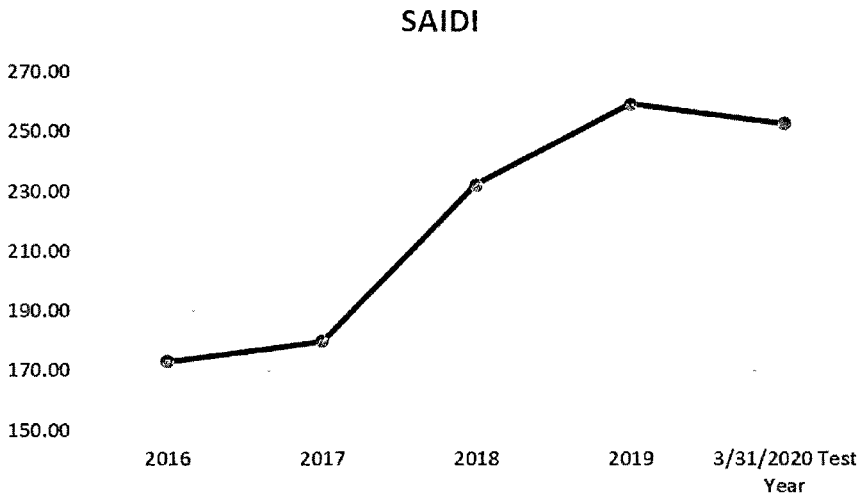
Figure 2 – SAIFI Indices*



*Excluding major events, scheduled outages, and outside causes.

SWEPCO's Test Year SAIFI of 1.79 was slightly above SWEPCO's PUC SAIFI performance target of 1.77 interruptions for the year. However, the average SAIFI since 2016 is 1.73, which is just below the 1.77 target.

Figure 3– SAIDI Indices*



*Excluding major events, scheduled outages, and outside causes.

The 2016 through 2019 SWEPCO SAIDI average is 211.05. SWEPCO's SAIDI peaked in 2019 at 259.12.

Q. PLEASE EXPLAIN WHAT IS CONTRIBUTING TO THE INCREASE IN SAIDI SINCE 2016.

A. SAIDI's increasing pattern for the 2016-2019 period does not mirror that of the SAIFI values. The increase in restoration time is primarily caused by an increase in tree-related outages and the implementation of new safety protocols that require specialized crews, such as a forestry or line crew. System restoration is requiring more multi-person crews which take additional time to dispatch after the fault is identified.

Vegetation remains a major source of outages with both tree in right-of-way (ROW) and tree outside ROW increasing from 2017 through 2019 as a total percentage of outage causes. Over the last 20 years, the SWEPCO Texas territory

1 experienced an average of 44 inches of rain annually. Since 2017, SWEPCO
2 experienced 44.83 inches in 2017, 58.89 inches in 2018, and 48.28 in 2019
3 respectively. The higher than average precipitation rates over the past 3 years were
4 a contributing factor to increased vegetation growth and weather-related outages.
5 Trees from outside of the ROW are typically known to cause larger outages due to
6 the significant damage they cause from both entire tree or large portion of tree failure.
7 New safety policies implemented since 2017 have also resulted in an increase
8 in restoration duration. In particular, SWEPCO has implemented a safety rule
9 allowing a single person to cut a tree or limb up to 5 inches in diameter, but requiring
10 two or more employees for limbs between 5 and 10 inches. Under the new policy,
11 any limb greater than 10 inches in diameter requires a tree crew. Additional safety
12 policies related to unpredictable small wire has partly contributed to the increase in
13 SAIDI, the portion of planned outages or Facilitation of Work increased from 0.05%
14 in 2017 to 1.49% in 2018 and 1.03% in 2019 respectively as a total percentage of
15 customers interrupted as a result of outages taken to facilitate work.
16 Q. HOW HAS THE ADDITIONAL VEGETATION MANAGEMENT SPEND
17 APPROVED IN DOCKET NO. 46449 AFFECTED RELIABILITY?
18 A. The Vegetation Management Compliance Report filed on May 1, 2020, demonstrates
19 SWEPCO is spending the additional amount authorized in Docket No. 46449,[3] and
20 that the additional vegetation management is having a significant, positive effect on

[3] *Application of Southwestern Electric Power Company for Authority to Change Rates*, Docket No. 46449, Order on Rehearing at Finding of Fact No. 207 (Mar. 19, 2018) ("The additional amount of distribution O&M expense in the amount of $2 million is reasonable and necessary to carry forward SWEPCO's vegetation-management program to improve overall reliability on targeted circuits and decrease outages caused by trees.").

1 the SAIDI and SAIFI for the cleared circuits.[4] This is discussed in more detail later
2 in my testimony.

3 B. Feeder Performance

4 Q. DESCRIBE THE COMMISSION'S METHOD UTILIZED TO DETERMINE
5 INDIVIDUAL FEEDER PERFORMANCE.

6 A. Feeder performance is the measure of how individual feeders perform. Under 16 TAC
7 § 25.52(g)(2), a utility's distribution system must operate in a manner such that no
8 distribution feeder serving ten or more customers sustains a SAIFI or SAIDI value for
9 a reporting year that is more than 300 percent greater than the system average of all
10 feeders during any two consecutive reporting years. There are two lists: one for SAIFI
11 and one for SAIDI. Details of individual feeder performance and the number of
12 customers on each feeder are provided in SWEPCO's 2019 Service Quality Report,
13 filed in accordance with 16 TAC § 25.81.[5]

14 Q. ARE THERE CONSEQUENCES FOR A FEEDER HAVING SAIDI OR SAIFI
15 VALUES MORE THAN 300 PERCENT GREATER THAN SYSTEM AVERAGES?

16 A. Yes, the Commission may take appropriate enforcement action, including financial
17 penalties, if the system and feeder performance is not operated and maintained in
18 accordance with Commission rules.

19 Q. DOES SWEPCO LIST ANY FEEDERS THAT REPEAT FOR TWO
20 CONSECUTIVE YEARS?

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[4] *See Compliance Report of Southwestern Electric Power Company in Accordance with the Order on Rehearing,* Project No. 50052, Vegetation Management Compliance Report (May 1, 2020).
[5] *See 2019 Service Quality Reports in Accordance with 16 TAC § 25.81,* Project No. 50413, SWEPCO's Service Quality Report (Feb. 14, 2020).

1 A. Yes, as shown in Figure 4 below, SWEPCO has had feeders that repeat on either the
2 SAIFI or SAIDI feeder list for two consecutive years. Repeat feeders appearing on the
3 lists for the past three years is shown below in Figure 4:

Figure 4 – SWEPCO Repeat Feeders on SAIDI/SAIFI List

SWEPCO Texas	2017	2018	2019
No. of Feeders	276	276	276
No. of Feeders on SAIFI List	1	0	0
Percent of Total Feeders	0.36%	0.0%	0.0%
No. of Feeders on SAIDI List	3	5	0
Percent of Total Feeders	1.09%	1.81%	0.0%

4 Q. WHAT IS SWEPCO DOING TO IMPROVE ITS FEEDER PERFORMANCES?
5 A. SWEPCO has initiated a plan to systematically improve its worst performing feeders.
6 Specifically, in addition to the Distribution Asset Management programs, the Company
7 has begun installing automatic sectionalizing devices. These devices allow for the
8 automated isolation of faulted circuits from the remainder of the distribution system,
9 which reduces the duration of outages as well as the number of affected customers.
10 Q. IS SAIDI MORE OF AN ISSUE THAN SAIFI WITH RESPECT TO FEEDER
11 PERFORMANCE?
12 A. Yes. The feeders that repeat on the SAIDI list are typically lengthy, extremely rural
13 circuits with low customer counts. For those that repeated in 2018, the customer counts
14 ranged from 10 to 287 with feeder lengths ranging from approximately 14 to 62 miles.
15 The total number of customers served by the five feeders that repeated on the SAIDI
16 list in 2018 is 682 or about 0.4% of the total number of customers at SWEPCO.
17 SWEPCO will continue to make improvements to affect feeder performance
18 while exercising efforts to balance the Company's objectives of controlling costs and
19 providing reliable distribution service. As seen in the table above, in 2019 none of the

1 Company's feeders exceeded 300 percent greater than system average SAIDI or SAIFI
2 for a second consecutive year. However, the balancing of costs and reliability are
3 particularly important in investing in these types of reliability improvements because
4 feeders in this category often extend for miles in rural areas of the service territory,
5 which significantly exposes the feeder to disruptive events. Significant investment in
6 the performance improvement of a long, rural feeder results in a relatively small
7 difference in reliability at the system level.

8 C. Customer Satisfaction

9 Q. WHAT OTHER MEASURES DOES SWEPCO TRACK TO GAUGE ITS
10 DISTRIBUTION SYSTEM PERFORMANCE?

11 A. JD Power conducts nationwide customer satisfaction surveys with residential
12 customers. Using a nationwide independent survey research firm helped ensure the
13 integrity and quality of the data and provided comparative national benchmarking data
14 on standardized survey questions. Examples of question topics include providing
15 electricity without interruption, restoration of service when power outages occur,
16 reasonable rates of electricity, communicating changes affecting account or service,
17 and involvement in the community. This survey is also discussed by Company
18 witness Pratt with respect to the SWEPCO customer services organization.

19 Q. HOW IS THE CUSTOMER SATISFACTION SURVEY ADMINISTERED?

20 A. The JD Power Electric Utility Residential Customer Satisfaction Survey is a national
21 benchmarking study conducted via online survey panels. The study examines
22 satisfaction across six factors: (i) Power Quality and Reliability; (ii) Price; (iii) Billing
23 and Payment; (iv) Communications; (v) Corporate Citizenship; and (vi) Customer

Care, with the Customer Satisfaction Index (CSI) score as the primary Index Score. The six factors and the CSI is based on a 1,000-point scale. JD Power groups Investor-Owned Utilities (IOU) according to customer size and geographic location. SWEPCO is in the South Midsize (100,000 – 499,999 customers) region amongst 19 other peers. Nationally there are about 142 other IOUs with varying number of customers and in various regions of the country.

Q. WHAT WERE THE RESULTS OF THE SURVEY FOR THE 2019 STUDY?

A. During 2019, SWEPCO's customer satisfaction with power quality and reliability was 771, just two points below the industry average of 773. Power quality and reliability is defined in the surveys as the quality of electric power, avoiding brief and lengthy power outages, promptly restoring power after an outage, keeping customers informed about an outage and supplying electricity during extreme temperatures.

VI. DISTRIBUTION VEGETATION MANAGEMENT

Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. In this section, I will describe SWEPCO's test year level of vegetation management, and discuss the need for increased levels of distribution vegetation management. A robust vegetation management program is critical to maintaining the reliability of SWEPCO's distribution system and serving our customers.

Q. PLEASE DESCRIBE THE BASE LEVEL VEGETATION O&M EXPENSE THE COMMISSION AUTHORIZED IN DOCKET NO. 46449.

A. In Docket No. 46449, the Commission approved recovery of $9.93 million in base rates expenses for distribution vegetation management, which consisted of the 2016 test-year

amount of $7.3 million and $0.63 million of converted capitalized vegetation management costs, plus an additional amount of $2.0 million.

Q. WHY DID THE COMMISSION AUTHORIZE AN ADDITIONAL $2.0 MILLION OVER THE ACTUAL TEST YEAR EXPENSE IN DOCKET NO. 46449?

A. The Commission found the additional $2.0 million of distribution O&M expense to be reasonable and necessary to carry forward SWEPCO's vegetation management program to improve overall reliability on targeted circuits and decrease outages caused by trees.[6] As it committed to do, SWEPCO has spent the entirety of the additional $2 million for distribution O&M expense solely on vegetation management.[7] Further, as ordered by the Commission, SWEPCO has filed regular reports indicating how it has spent the additional vegetation management expense and describing the effect such additional spending is having on its distribution outage rates.[8]

Q. HAS THE INCREASED AMOUNT OF DISTRIBUTION VEGETATION MANAGEMENT O&M IMPROVED THE RELIABILITY FOR SWEPCO'S CUSTOMERS ON THE TARGETED CIRCUITS?

A. Yes, it has. As displayed in Figure 5 below, there has been a significant improvement in the performance of targeted distribution circuits that were trimmed in 2018 and 2019. There has been significant improvement in overall reliability on these circuits and a decrease in the number of outages attributed to trees inside the ROW. This represents

[6] Docket No. 46449, Order on Rehearing at Finding of Fact No. 207.
[7] *See id* at Finding of Fact No. 208.
[8] *See id* at Finding of Fact No. 209; *see also generally* Project No. 50052 for SWEPCO's vegetation management compliance reports.

11 circuits with approximately 283 circuit miles that were fully cleared, representing approximately 3.3% of SWEPCO Texas's overhead distribution circuits.

The number of outages from trees in the ROW on circuits that were trimmed completely was reduced by as much as 90% in the years following the trimming, the number of total customers affected was reduced by as much as 99%, and the customer minutes of interruption (CMI) was reduced by as much as 99% through the end of the Test Year, as shown in Figure 5.

Figure 5 - Customer Experience Improvements Due to Distribution Vegetation Management

Circuits Trimmed in 2018

	Twelve Months Ending December 2017	Twelve Months Ending March 2020	Difference	% Reduction
No. of Interruptions	47	7	40	85%
Customers Affected	1,334	53	1,281	96%
CMI	248,308	7,572	240,736	97%

Circuits Trimmed in 2019

	Twelve Months Ending December 2018	Twelve Months Ending March 2020	Difference	% Reduction
No. of Interruptions	30	3	27	90%
Customers Affected	4,452	24	4,428	99%
CMI	730,148	5,728	724,420	99%

Q. WHAT IS SWEPCO PROPOSING IN REGARDS TO DISTRIBUTION VEGETATION MANAGEMENT IN THIS PROCEEDING?

A. SWEPCO is proposing a total annual vegetation management spend of $14.57 million. This is an increase of $5.0 million over the $9.57 million in vegetation management

expenses incurred in the Test Year. A total annual spend of $14.57 million is estimated to be approximately 38 percent of the spend needed to implement a four-year vegetation management cycle (i.e., to address all of SWEPCO's distribution circuits within a four-year period).

Q. WHY IS SWEPCO PROPOSING AN INCREASE IN VEGETATION MANAGEMENT SPENDING TO BE INCLUDED IN BASE RATES?

A. One of the top causes of outages within SWEPCO's Texas service territory continues to be vegetation, both inside and outside of the ROW. Despite increased spending on trimming and significant improvement on circuits that have been trimmed, overall system SAIDI and SAIFI have increased from 2016 through 2019 and remain highly susceptible to weather-related events and increasing resource costs. During the test year, vegetation accounted for 2,641 customer interruptions[9] in SWEPCO's Texas service territory, representing 40.1% and 49.1% of the Company's overall SAIFI and SAIDI, respectively. The requested increase will be used solely for increased vegetation management.

Q. DO YOU BELIEVE THAT THE INCREASED LEVEL OF DISTRIBUTION VEGETATION MANAGEMENT SPENDING THAT SWEPCO IS REQUESTING IN THIS PROCEEDING WILL PRODUCE CUSTOMER EXPERIENCE BENEFITS SIMILAR TO THOSE IDENTIFIED IN FIGURE 5 ABOVE?

A. Yes, I do. SWEPCO has demonstrated that customers on the targeted circuits trimmed experienced approximately 85 to 90% reduction in tree-caused outages in the ROW.

[9] Sustained, non-major event customer service outages.

1 I expect the increased level of spending to produce similar results as shown in Figure
2 5 above.
3 Q. WHAT IS SWEPCO'S ULTIMATE GOAL IN TERMS OF A VEGETATION
4 MANAGEMENT PROGRAM?
5 A. SWEPCO believes that the best long-term solution for its vegetation management
6 program is to implement a four-year vegetation management cycle. SWEPCO has been
7 able to address more of its vegetation management needs on its Texas distribution
8 system through use of an increased level of spending, but continuing only at the Test
9 Year level is not enough. However, because the full expense of implementing a four-
10 year vegetation management cycle is approximately $38.35 million annually,
11 SWEPCO is not proposing such an extensive program at this time.
12 Q. WHY DOES SWEPCO THINK A FOUR-YEAR DISTRIBUTION VEGETATION
13 MANAGEMENT PROGRAM WILL BE THE BEST LONG-TERM SOLUTION
14 FOR ITS CUSTOMERS?
15 A. A four-year cycle for vegetation management would be the best solution for our
16 customers because SWEPCO trims for four years of growth in its program. After four
17 years, trees and vegetation have grown back and begin touching the conductor again,
18 making it susceptible to outages occurring from weather-related events. In addition,
19 SWEPCO would be able to move from a reactive vegetation management program that
20 is based on specific historical performance of a given line, to a more proactive
21 vegetation management program. SWEPCO would evaluate and trim every mile of its
22 Texas distribution system once every four years under such a program. Evaluating and

trimming every line mile would allow a more systematic proactive approach to maintaining the system.

Q. PLEASE SUMMARIZE WHY SWEPCO'S ADDITIONAL LEVEL OF DISTRIBUTION VEGETATION MANAGEMENT SPEND SHOULD BE APPROVED BY THIS COMMISSION.

A. A vegetation management program is critical to maintaining the reliability of SWEPCO's distribution system and serving our customers. SWEPCO's proposal for an increased level of vegetation management funds, focused exclusively on the Company's Texas distribution system, will improve reliability on targeted circuits as demonstrated by the reduction in the number of tree-related outages on the circuits that were trimmed in 2018 and 2019. Given SWEPCO's heavily forested service area, which requires substantial amounts of tree trimming and removal to prevent outages, it should be recognized that this program will require increased vegetation management funding in order for SWEPCO to achieve improved reliability for customers.

SWEPCO is also open to continuing the periodic reporting to this Commission and interested parties showing such information as the trimming completed and the funds spent.

VII. OVERALL DISTRIBUTION O&M COSTS

Q. WHAT LEVEL OF O&M EXPENSES DID SWEPCO DISTRIBUTION INCUR IN THE TEST YEAR?

A. SWEPCO's total company adjusted test year O&M expenses, including SWEPCO's own costs plus American Electric Power Service Corporation (AEPSC) charges, for

distribution activities necessary to provide safe, reliable distribution services were $93,656,735. The Test Year level of distribution O&M is summarized by Federal Energy Regulatory Commission (FERC) account in Figure 6.

Figure 6

SWEPCO's Adjusted Distribution O&M Expenses by FERC Account

5800000	Operation Supervision & Engineering	$2,465,468
5810000	Load Dispatching	$61,500
5820000	Station Expenses	$727,287
5830000	Overhead Line Expenses	$1,528,571
5840000	Underground Line Expenses	$1,336,900
5850000	Street Lighting & Signal System Expenses	$158,158
5860000	Meter Expenses	$3,517,283
5870000	Customer Installations Expenses	$390,026
5880000	Miscellaneous Distribution Expenses	$22,105,298
5890001	Rents	$889,843
5900000	Maintenance Supervision & Engineering	$152,972
5910000	Maintenance of Structures	$39,282
5920000	Maintenance of Station Equipment	$1,994,384
5930000	Maintenance of Overhead Lines	$56,457,194
5940000	Maintenance of Underground Lines	$644,709
5950000	Maintenance of Line Transformers	$132,635
5960000	Maintenance of Street Lightning & Signal Systems	$284,603
5970000	Maintenance of Meters	$414,790
5980000	Maintenance of Miscellaneous Distribution Plant	$355,833
Total Adjusted Test Year		**$93,656,736**

Q. HOW DOES SWEPCO'S TEST YEAR DISTRIBUTION O&M COMPARE HISTORICALLY?

A. Figure 7 shows SWEPCO's total company distribution O&M expenditures for the Test Year in this case and the last three calendar years (unadjusted).

Figure 7

Distribution O&M Costs by Year

Year	Amount
2017	$85,912,772
2018	$83,799,260
2019	$90,316,729
Adjusted Test Year	$93,656,736

Q. PLEASE EXPLAIN THE PRIMARY REASON FOR O&M COST CHANGES OVER THIS PERIOD.

A. The annual variability in distribution O&M for SWEPCO can be primarily attributed to and follow charges in maintenance of overhead lines expense, in which costs associated with storms are included. Distribution O&M costs are highly dependent on weather-related events, which vary on a year-to-year basis.

Q. DO YOU SUPPORT ANY OF THE ADJUSTMENTS INCLUDED IN THE TEST YEAR DISTRIBUTION O&M?

A. Yes, I do. As I described earlier in my testimony, I support a $5.0 million incremental increase to the distribution O&M Test Year level for vegetation management activities. Additional adjustments to Test Year level distribution O&M are supported by Company witness Michael Baird.

A. Budget Controls and Cost Control Initiatives

Q. PLEASE DESCRIBE ANY PROCESSES, SUCH AS BUDGETING, PLANNING, AND COST REVIEW, WHICH ARE USED TO CONTROL BOTH AFFILIATE AND NON-AFFILIATE DISTRIBUTION COSTS.

A. SWEPCO and AEPSC employ ongoing rigorous internal budgeting and cost control processes to ensure costs are kept to the minimum reasonable level. During the annual

budgeting process, every project is evaluated and expenses are scrutinized to ensure they are in line with the budget target.

The budget process requires each department to estimate all transactions they anticipate making for the budget year. During the course of the year, each department manager receives a monthly budget variance report. It is the responsibility of that department manager to analyze charges against the approved budget for the department and to explain material variances either over or under the budget. The manager is then responsible for re-projecting the amount of expenditures the department is expected to incur for the remainder of the year, if that estimate differs from the budget.

Q. PLEASE EXPLAIN THE PROCESSES SWEPCO HAS IN PLACE TO KEEP THE COST OF DISTRIBUTION PROJECTS REASONABLE.

A. SWEPCO keeps the cost of distribution projects reasonable through proper control of project scope and efficient engineering, procurement, and construction practices. The annual SWEPCO distribution blanket work is competitively bid for both overhead and underground work. Procurement continually analyzes these bids to minimize cost and identify potential opportunities. This outsourcing is discussed in the next section.

Furthermore, SWEPCO maintains a highly qualified staff of engineers and designers to produce the designs for both distribution investments and improvements. Projects are designed based on AEP standards using engineering design criteria. SWEPCO uses materials that are standard across the AEP System. The AEP Supply Chain organization (Supply Chain) is responsible for the purchasing of the materials for SWEPCO and leverages its buying power to get the lowest reasonable cost. The efforts of the Supply Chain organization to acquire materials are described by Company

1 witness Brian Frantz. An annual plan is developed for the completion of major
2 distribution projects. SWEPCO crews or contractors complete the projects according
3 to the plan.

4 As opportunities are identified to improve system performance and reliability,
5 operating personnel are consulted to define the proper scope of the project. This action
6 results in cost-saving efficiencies, such as routing distribution feeders in conjunction
7 with area residential and commercial development, rebuilding of older lines as part of
8 the project, or combining with a system improvement project. Likewise, distribution
9 substation improvement projects are scoped to include needed equipment replacement
10 to lower overall O&M costs.

11 B. Outsourcing

12 Q. DOES SWEPCO MAKE USE OF OUTSOURCING IN CONNECTION WITH THE
13 CONSTRUCTION, OPERATION, AND MAINTENANCE OF THE SWEPCO
14 DISTRIBUTION SYSTEM IN ORDER TO CONTROL COSTS?

15 A. Yes. AEP's philosophy is to staff certain functions of its business with internal
16 employees and to supplement that work force by outsourcing. Distribution functions
17 that SWEPCO does not outsource include distribution dispatch. These functions
18 involve the exercise of judgment and discretion based on experience and expertise that
19 is unique to distribution utility operations.

20 SWEPCO augments internal staffing with third-party contract resources for
21 other functions, although the management of such activities remains the responsibility
22 of Company employees. For example, SWEPCO has third-party contracts for tree-
23 trimming crews, construction crews for overhead and underground facilities, and

engineering services. Further, SWEPCO balances contracting and self-provisioning within certain functions, such as overhead and underground line construction, in order to keep adequate resources and to ensure the best value is provided at a reasonable cost. The objective is to achieve the best overall long-term cost profile. SWEPCO is more likely to outsource for:

- High volume, non-electrical work requiring focused effort and/or specialized skills (e.g., vegetation management and joint-use inventory);
- Unique low-volume work (e.g., landscaping and concrete repair); and
- Unique/extraordinary resource requirements (e.g., fill in during the peaks).

Q. HOW DOES SWEPCO OBTAIN CONTRACTOR RESOURCES WHEN NEEDED?

A. SWEPCO obtains contractor resources by competitively bidding base work or specific projects using qualified contractors. This is accomplished with the help of two AEPSC groups, Supply Chain and Distribution Contract Management.

Supply Chain sends out a bid package to bidders along with the contractual information, supplemental terms, and conditions within a Request for Quotes. The Supply Chain group also provides oversight of the bidding process. Distribution Contract Management qualifies contractors by reviewing their safety records, financial records, management philosophies, and references. Distribution Contract Management maintains a list of contractors that are capable of meeting SWEPCO's needs.

When SWEPCO needs contractor resources for basework or specific projects, Supply Chain sends out notices of a pre-bid meeting to discuss the project. Distribution Contract Management facilitates the pre-bid meetings. The projects are presented and questions that the contractors may have are answered. Bids are typically due back two weeks following the pre-bid meeting. Bids are received by Supply Chain, reviewed by

Distribution Contract Management, and evaluated by SWEPCO. Distribution Contract Management notifies the successful and unsuccessful bidders, and Supply Chain executes a contract with the successful bidder. SWEPCO then coordinates the construction oversight of the project and payment to the contractor.

C. Benchmarking

Q. HAVE YOU PERFORMED ANY STUDIES THAT FURTHER SUPPORT THE REASONABLENESS OF SWEPCO'S DISTRIBUTION EXPENSES?

A. Yes. SWEPCO's distribution costs are comparable to its peers in benchmarking studies using FERC Form 1 data from 2017-2019. The studies compare SWEPCO's total company distribution O&M and capital costs to three peer groups. The three peer groups were a Texas peer group, a south central regional peer group, and a national peer group. These studies provide the minimum, maximum, and median values for each metric and the relative position of the corresponding SWEPCO metric for comparison.

Q. WHAT ARE THE RESULTS OF THE BENCHMARKING STUDIES?

A. As shown in EXHIBITS DWS-3 through DWS-5, the benchmarking studies demonstrate that SWEPCO's average total company distribution O&M and Capital costs compare favorably to the medium level of expenditures are well below the maximum amount of expenditures in each peer group for each year studied. Overall, the benchmarking results are reasonable given the particular challenges posed by SWEPCO's service area (examples: hilly terrain, heavy vegetation, and the high amount of annual rainfall, which make vegetation management highly challenging in

the SWEPCO northeast Texas service territory), and given SWEPCO's efforts to balance the objectives of cost control and reliable distribution service.

Although, comparisons alone cannot prove that a utility's costs are reasonable because each company faces different circumstances, the benchmarking studies provide support for the conclusion that SWEPCO's distribution costs are reasonable.

VIII. SWEPCO AFFILIATE COSTS

A. O&M Costs

Q. WHAT IS THE TOTAL AMOUNT OF THE AEPSC DISTRIBUTION O&M AFFILIATE CHARGES THAT YOU SUPPORT IN THIS PROCEEDING?

A. I support total adjusted affiliate costs of $1,301,449, during the Test Year ending March 31, 2020. The affiliate costs were included in the Test Year overall distribution O&M expenses mentioned earlier. Affiliate distribution costs constitute approximately 1.39% of SWEPCO's overall total distribution O&M costs.

Q. WHAT HAS BEEN THE COST TREND FOR SWEPCO DISTRIBUTION AFFILIATE COSTS SINCE 2017?

A. SWEPCO's overall distribution O&M affiliate costs have decreased since 2017. Figure 8 shows the distribution affiliate costs for SWEPCO for the last three calendar years and the Test Year.

Figure 8 –Affiliate O&M Costs

Year	Amount
2017	$ 1,519,520
2018	$ 1,185,801
2019	$ 1,303,581
Test Year	$ 1,301,449

The cost trend in Figure 8 has been largely consistent over the last three calendar years, as well as the Test Year.

Q. PLEASE PROVIDE A BREAKDOWN OF THE AEPSC O&M CHARGES TO SWEPCO BY MAJOR COST CATEGORY.

A. The affiliate service charges fall into the following major categories:

Figure 9 – Test Year Affiliate Expense Categories

	Amount	% of Total
Labor / Benefits	$1,117,495	85.9%
Outside Services (Contracting)	$ 98,784	7.6%
Materials and Supplies	$ 17,406	1.3%
Travel and Entertainment	$ 56,877	4.4%
Other	$ 10,887	0.8%
Total	$1,301,449	100%

In addition to my testimony, the reasonableness of employee compensation and benefits is supported by Company witnesses Andrew R. Carlin.

B. AEPSC Distribution Services

Q. PLEASE SUMMARIZE THE SERVICES PROVIDED BY AEPSC AND WHY THESE SERVICES ARE NECESSARY.

A. AEPSC Distribution Services focuses on functions tied to system reliability and performance in AEP's 11-state service territory. This organization provides overall coordination for distribution standards, system capacity planning, network engineering, reliability planning, and emergency restoration planning activities. While each operating company has command and control of the day-to-day functions they are supported by Performance Management, including the Utilities Group. The Utilities Group focuses on process improvements, best practices, hardware and

system development, and contract negotiations in order to improve overall operating efficiencies.

Performance Management supports two major functions: Distribution Line Training, which provides AEP with safe and effective employees through education and the promotion of consistent practices and procedures, and Human Performance Improvement, which uses well founded principles in error reduction to improve employee safety and health. There are five sections in Utilities Group:

- Distribution Services Support – The Distribution Services Support group manages the development, enhancement, support, and maintenance of distribution information technology systems for the AEP Utilities Organization. The Utilities Organization is made up of the operating companies of American Electric Power Company, Inc. The systems supported by the Distribution Services Support organization include the Outage Management System, Distribution Work Management System, and the GIS Mapping System. These information technology systems are integral to the efficient operation of the AEP operating companies. Research and Development is primarily supported through the evaluation of new technologies at AEP's Dolan Lab. Geographic Information System (GIS) mapping group leverages GIS expertise and system support from across the AEP system to support SWEPCO's operations.

- Distribution Engineering Services – The Distribution Engineering Services group supports evaluation and implementation of AEP's reliability programs and focuses on developing and maintaining engineering standards.

- Distribution Planning – The Distribution Planning group conducts and implements system improvement planning across AEP and provides distribution capacity planning efficiencies.

- Emergency Preparedness and Resiliency – The Emergency Preparedness and Resiliency group ensures identification of and readiness to respond to business continuity interruptions, recovers critical business processes following an event, and coordinates mutual assistance during major storm response.

- Distribution Analytics – The Distribution Analytics group uses data from operations and advanced metering to develop models and algorithms to provide analyses which are used to improve operations or reduce costs.

1 Q. WHY DOES AEPSC PROVIDE THE ABOVE-DESCRIBED DISTRIBUTION
2 SERVICES IN THIS CENTRALIZED MANNER?
3 A. The services provided by AEPSC are required by each operating company and
4 generally are not unique to local areas. It thus makes sense to avoid duplicating the
5 expertise and resources required to provide these services. This reduces costs for
6 customers and allows SWEPCO to leverage the entire AEP system in the provision of
7 electric services through standardization of systems and processes as well as sharing of
8 employees with specialized skills and expertise.
9 Q. HOW DOES SWEPCO PROVIDE INPUT AND DIRECTION TO THE AEPSC
10 DISTRIBUTION ORGANIZATION?
11 A. SWEPCO provides direction and input to the AEPSC Distribution Organization in several
12 ways. The AEPSC asset planning employees regularly attend SWEPCO staff meetings
13 and conference calls and function as integral parts of the team. During regularly scheduled
14 meetings and conference calls among the operating company vice presidents and the
15 service company distribution services organization leadership, service issues are
16 discussed and resolved. Additionally, the central organization's leadership team travels
17 to each operating company periodically to discuss operating company-specific issues or
18 problems and to obtain feedback on the quality of service being provided to the operating
19 company.
20 Q. DO THESE SERVICES DUPLICATE SERVICES PROVIDED BY PERSONNEL
21 WITHIN SWEPCO OR BY ANY OTHER ENTITY?

1 A. No, none of the services I describe above are provided by SWEPCO. These services
2 require specialized expertise that is best provided within a structure that allows for
3 sharing of experience and knowledge across all operating companies.
4 Q. HAS THE NUMBER OF FULL-TIME EMPLOYEES WITHIN THE AEPSC
5 DISTRIBUTION SERVICES ORGANIZATION CHANGED SINCE THE END OF
6 THE LAST RATE CASE?
7 A. The AEPSC Distribution Services organization had approximately 139, 148, and 160
8 employees at the end of 2017, 2018, and 2019, respectively. At the end of the Test
9 Year, the AEPSC Distribution Services organization had 167 employees.
10 C. AEPSC Distribution Services Budget Controls and Cost Control Initiatives
11 Q. WHAT PLANNING, BUDGETING, COST REPORTING, AND OTHER COST
12 CONTROL MEASURES DOES THE AEPSC UTILITIES GROUP HAVE IN PLACE
13 TO CONTROL COSTS?
14 A. AEPSC Distribution Services employees follow rigorous internal budgeting and cost
15 control processes similar to those employed by SWEPCO employees. Each year,
16 budgets are developed for each business unit based on current and planned activity
17 levels. O&M budget increases are generally limited to cost of living increases and
18 capital budgets are project specific. Throughout the year, costs are tracked on a
19 monthly basis, and any variances to the planned budgets must be explained.
20 Distribution Services also employs strict employee and management approval levels to
21 ensure the reasonableness of all expenditures.
22 Q. HOW DOES THE AEPSC DISTRIBUTION SERVICES PROCURE MATERIALS
23 AND SERVICES AT REASONABLE PRICES?

1 A. The AEPSC Distribution Services works with the Procurement Organization when it
2 needs to enter into contracts and obtain services. The Distribution Services organization
3 follows competitive bidding procedures to obtain contracts and services at a reasonable
4 price for equipment purchases, engineering services, and forestry activities, to name a few.
5 It is able to leverage the buying power of multiple companies in order to achieve volume
6 discounts that reduce the overall unit prices. Even when specific products or services are
7 required for SWEPCO, AEPSC Distribution Services is able to provide technical support
8 at a lower cost than SWEPCO would incur independently, due to the economies of scale
9 provided by a centralized organization.

10 D. Benchmarking

11 Q. IS THE BENCHMARKING YOU DESCRIBED EARLIER CONCERNING THE
12 OVERALL DISTRIBUTION COSTS RELEVANT TO THE REASONABLENESS
13 OF AFFILIATE DISTRIBUTION CHARGES?

14 A. Yes. The benchmarking studies I discussed above comparing SWEPCO's overall
15 distribution O&M costs to those of other electric utilities also support the
16 reasonableness of SWEPCO's affiliate O&M distribution charges. FERC Form 1
17 data does not separately record affiliate charges. Accordingly, it is not possible to
18 directly benchmark affiliated distribution services costs using FERC Form 1 data.
19 However, affiliate charges represent a portion of the overall O&M costs provided in
20 FERC Form 1 filings. Moreover, the distribution services I have described are
21 provided to the overall distribution operation using a combination of service company
22 employees, SWEPCO employees, and contractors. Consequently, benchmarking at
23 the overall cost level is consistent with the manner in which the services are provided

1 and managed, and supports the conclusion that the affiliate portion of those costs is
2 also the product of effective management and contributes to an overall reasonable
3 level of costs.

4 Q. PLEASE SUMMARIZE THE EVIDENCE YOU HAVE OFFERED REGARDING
5 THE REASONABLENESS OF AFFILIATE COSTS.

6 A. In my testimony regarding both total costs and affiliate costs, I have demonstrated that
7 distribution cost from AEPSC has been generally consistent with past expenses and
8 that the AEPSC Distribution Services and SWEPCO distribution organizations have a
9 rigorous budgeting and cost control process; that outsourcing is used on a prudent basis
10 to hold down costs; that there is no duplication of services by SWEPCO Distribution
11 and the AEPSC Distribution Services; and that when benchmarked against other
12 utilities, SWEPCO's distribution costs are comparable.

13

14 IX. CAPITAL COSTS

15 Q. WHAT IS THE VALUE OF SWEPCO'S DISTRIBUTION CAPITAL ADDITIONS
16 PLACED IN SERVICE SINCE THE END OF THE TEST YEAR IN PUC DOCKET
17 NO. 46449?

18 A. A total of approximately $143.5 million in distribution capital additions[10] were booked
19 to plant in service between July 1, 2016 and March 31, 2020.

20 Q. PLEASE DESCRIBE THE NATURE OF SWEPCO'S MAJOR DISTRIBUTION
21 CAPITAL ADDITIONS.

[10] Includes FERC accounts 360 through 373.

A. Capital Additions represent the annual investment in infrastructure needed to provide reliable electric service to new and existing customers. The following descriptions are for the major capital project types:

- Asset Improvement – Asset improvement is largely the replacement of aging infrastructure that is approaching the end of its useful life. Replacing infrastructure before it fails helps to reduce outages and improve reliability.
- Customer Service – Customer service capital work is related to the installation of service to new residential and commercial customers. This work is required to connect new customers to the distribution system as well as the costs of the necessary transformers and meters.
- Reliability - Reliability programs are specific capital programs that target known reliability issues affecting groups of customers or whole circuits experiencing reliability issues.
- System Restoration – System restoration is capital work related to the restoration of the distribution electrical system.

Q. CAN YOU PROVIDE ADDITIONAL INFORMATION ON THE NATURE OF THE DISTRIBUTION PLANT CAPITAL ADDITIONS?

A. Yes. A breakdown of the capital additions costs by year is as follows:

Figure 10 – Capital Additions by Year

Category	2016*	2017	2018	2019	2020**
Asset Improvement	$8,004,785	$13,516,141	$13,553,688	$13,776,066	$4,606,645
Customer Service	$7,247,682	$12,004,568	$18,419,589	$14,209,517	$3,940,907
Reliability	$1,895,919	$4,241,588	$4,679,166	$11,367,138	$2,957,998
System Restoration	$1,022,422	$3,082,061	$1,419,156	$3,156,639	$408,848
Grand Total	$18,170,808	$32,844,358	$38,071,599	$42,509,360	$11,914,398

*July 1, 2016 through December 31, 2016
** January 1, 2020 through March 31, 2020

Q. DO THE CAPITAL ADDITIONS INCLUDE ANY AFFILIATE CHARGES?

A. Yes. During the period from July 1, 2016 through March 31, 2020, $23.6 million of the distribution capital invested was comprised of affiliate costs. These affiliate charges are detailed in Exhibit BJF-5 sponsored by Company witness Brian J. Frantz.

1 Mr. Frantz's testimony also explains the billing and allocation of these charges by
2 AEPSC.
3 Q. WHAT TYPES OF COSTS ARE REFLECTED IN THE AFFILIATE PORTION OF
4 THE CAPITAL PROJECTS?
5 A. Most of the costs reflected in the affiliate portion of the capital projects are distribution
6 capitalized software and overheads associated with AEPSC distribution planning, design,
7 and construction management.
8 Additionally, the distribution substation design work is completed by AEPSC
9 and billed to SWEPCO as an affiliate cost. For example, when a new distribution
10 substation is needed, Station Projects Engineering will prepare the design and
11 Construction Management will manage the physical construction, both of which are
12 affiliate costs.
13 Q. WHAT PROCESSES DOES SWEPCO EMPLOY TO ENSURE THAT CAPITAL
14 PROJECTS ARE PRUDENTLY CONSTRUCTED AT A REASONABLE COST?
15 A. Large projects and blanket work are competitively bid following AEP's Corporate
16 Guidelines administered by the Contract Administration Group. Project Management
17 oversees and monitors expenditures during construction to ensure that the costs are
18 reasonable and that the project scope is achieved.
19 As previously discussed, SWEPCO conducts benchmarking studies that include
20 other utilities. The benchmarking analyses provided earlier in my testimony support
21 the reasonableness of the overall level of distribution capital costs including the affiliate
22 portion. In addition, my discussion of SWEPCO's budgeting, contracting, and
23 materials acquisition processes and procedures as well as AEPSC Distribution Services

budgeting and cost control procedures presented earlier in my testimony applies equally to capital costs, and further illustrates the measures in place whereby SWEPCO ensures that its capital expenditures are reasonable. Finally, my earlier discussion of the efficiencies resulting from the provision by AEPSC of centralized distribution support services also supports the reasonableness of the affiliate capital costs.

X. CONCLUSION

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. My testimony has described the performance of the SWEPCO Texas distribution organization, and the high customer satisfaction it has produced. I have demonstrated the need for increased spending beyond the test year level expenditures on vegetation management. The proposal for an increased level of vegetation management O&M will provide an improved level of reliability for SWEPCO's Texas customers. Additionally, my testimony has demonstrated that the overall distribution capital investment and O&M expense, inclusive of the costs for distribution services provided to SWEPCO by its service company affiliate, AEPSC, are reasonable and necessary to provide reliable electric service to SWEPCO's Texas customers. This conclusion is supported by industry benchmarking as well as by discussion of SWEPCO's extensive programs to maintain and enhance the reliability of the distribution system. Finally, AEPSC's charges to SWEPCO for distribution services comply with the Commission's standards for inclusion of affiliate costs in rates.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

Exhibit DWS – 1: Map of SWEPCO Service Territory

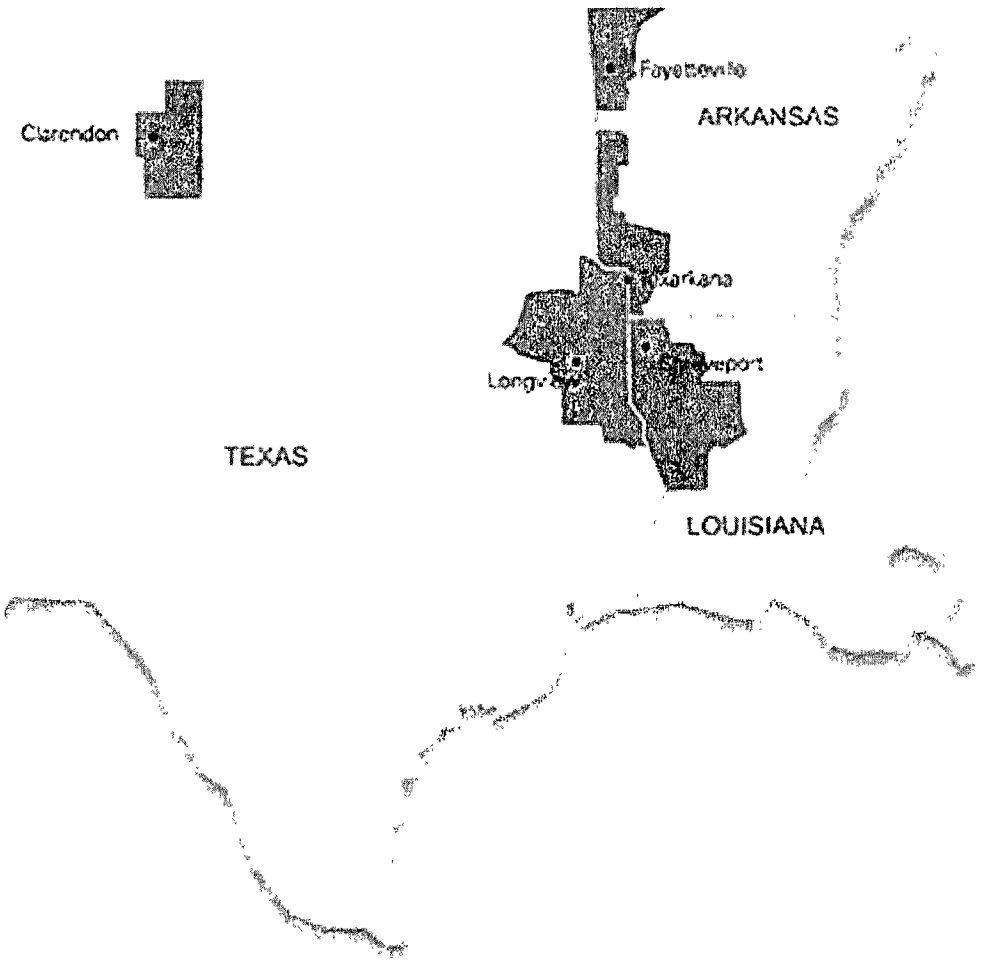


Exhibit DWS – 2: Distribution Asset Management Programs

Overhead Circuit Facilities Inspection and Maintenance Program

Under this Asset Management Program, SWEPCO visually inspects its overhead facilities to identify and correct potential problems before they cause service interruptions. Through these inspections, SWEPCO can identify and repair such things as broken insulators, failing crossarms, conductors out of sag, and blown lightning arresters. Because of identifying and repairing such problems before they cause an outage, customers experience fewer service interruptions.

Animal Mitigation Program

The objective of this Asset Management Program is to reduce the number of animal-caused outages by installing animal guards on line transformers and other line equipment at locations that have, or potentially have, a high risk of animal-caused outages.

Underground Facilities Inspection and Maintenance Program

Under this Asset Management Program, SWEPCO visually inspects the external, aboveground portions of underground distribution facilities to identify and correct problems before they happen. Through these inspections, SWEPCO identifies and repairs equipment such as transformers, pedestals, and switchgear to avoid outages.

Pole Inspection and Maintenance/Replacement Program

The primary objective of this Asset Management Program is to maintain and prolong the structural integrity of SWEPCO's wood poles. As necessary, poles are tested and reinforced or replaced. This program helps SWEPCO identify and replace poles that might otherwise fail and cause power interruptions.

Recloser Maintenance/Replacement Program

The objective of this Asset Management Program is to identify the need to perform preventive maintenance, or to replace, as needed, recloser units that are not operating properly. A recloser that does not operate properly can turn a momentary interruption into a sustained service interruption.

Overhead Conductor Program

This Asset Management Program minimizes primary and secondary conductor failures by replacing overhead conductors that have reached the end of their useful life. This program focuses on areas that are experiencing above-average interruptions due to conductor failure.

Underground Cable Program

The objective of this Asset Management Program is to correct primary cable deficiencies by replacing the cable. As is the case with SWEPCO's Overhead Conductor Program, this program targets areas experiencing above-average interruptions due to conductor failure and lessens the likelihood of future interruptions to SWEPCO's customers.

Lightning Mitigation Program

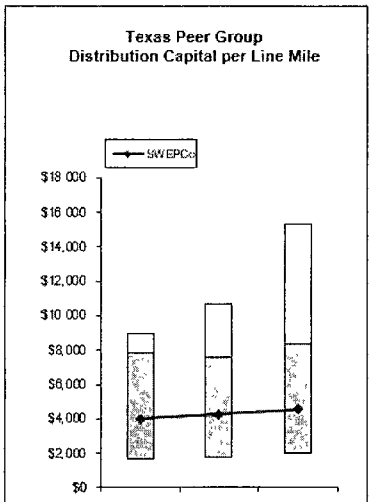
The objective of this Asset Management Program is to mitigate the damage from lightning-caused outages through the installation of new lightning arresters at locations within areas known to be prone to lightning-caused outages.

Sectionalizing Program

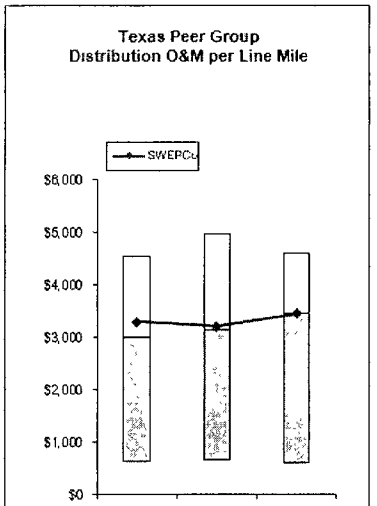
This Asset Management Program improves the reliability of SWEPCO's distribution circuits by adding new sectionalizing devices, or by modifying or replacing existing sectionalizing devices. These sectionalizing devices may be manual pole top switches or automatic devices such as reclosers or fused cutouts. The addition of manual switches where warranted allows

the duration of an outage to be mitigated for some of the customers because the unaffected portions of the circuit can be reenergized from adjacent circuits through switching. Fused cutouts or automatic sectionalizing devices, such as reclosers, work to remove a faulted section of the circuit from service and prevent the entire circuit from experiencing an outage. This enhanced sectionalizing capability enables smaller circuit segments and fewer customers to be interrupted due to faults that may occur on distribution circuits.

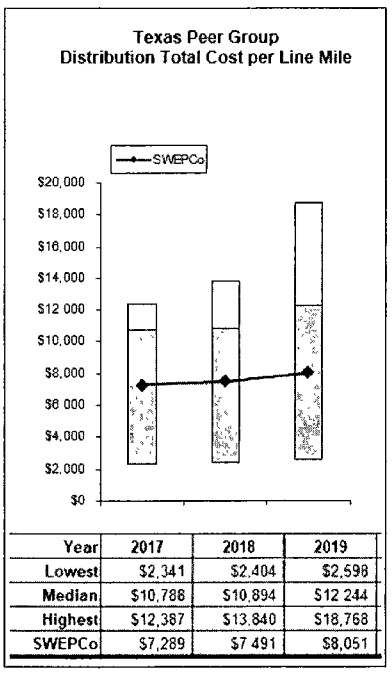
Exhibit DWS – 3: Texas Peer Group Benchmarking



Year	2017	2018	2019
Lowest	$1,701	$1,748	$1,993
Median	$7,847	$7,587	$8,366
Highest	$8,979	$10,692	$15,299
SWEPCo	$3,992	$4,279	$4,590



Year	2017	2018	2019
Lowest	$640	$656	$604
Median	$3,000	$3,148	$3,461
Highest	$4,540	$4,973	$4,603
SWEPCo	$3,298	$3,212	$3,461

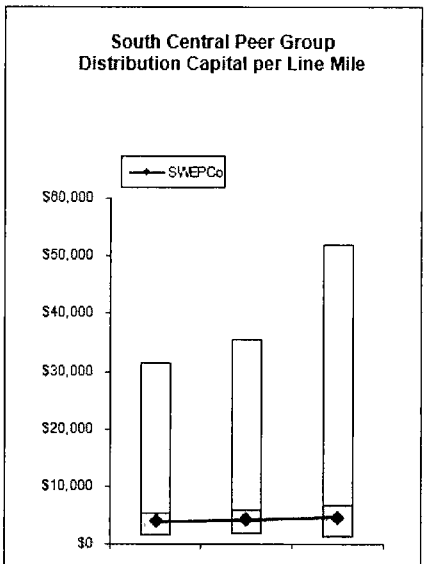


Year	2017	2018	2019
Lowest	$2,341	$2,404	$2,598
Median	$10,788	$10,894	$12,244
Highest	$12,387	$13,840	$18,768
SWEPCo	$7,289	$7,491	$8,051

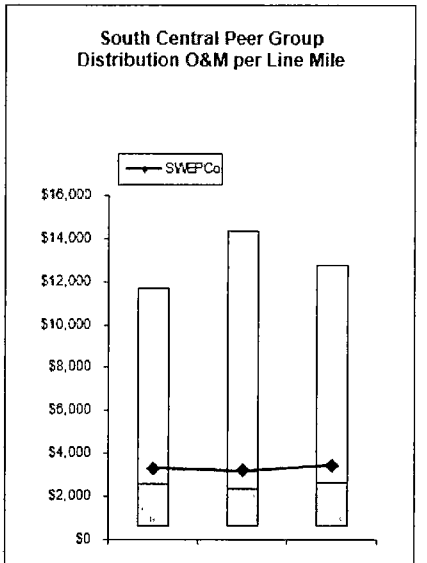
Texas Peer Group

AEP Texas Inc.
CenterPoint Energy Houston Electric LLC.
El Paso Electric Co.
Entergy Texas Inc.
Oncor Electric Delivery
Southwestern Electric Power Co
Southwestern Public Service Co

Exhibit DWS – 4: South Central Peer Group Benchmarking



Year	2017	2018	2019
Lowest	$1,701	$1,748	$1 422
Median	$5,457	$6,043	$6,645
Highest	$31 485	$35,582	$52,055
SWEPCo	$3,992	$4,279	$4,590

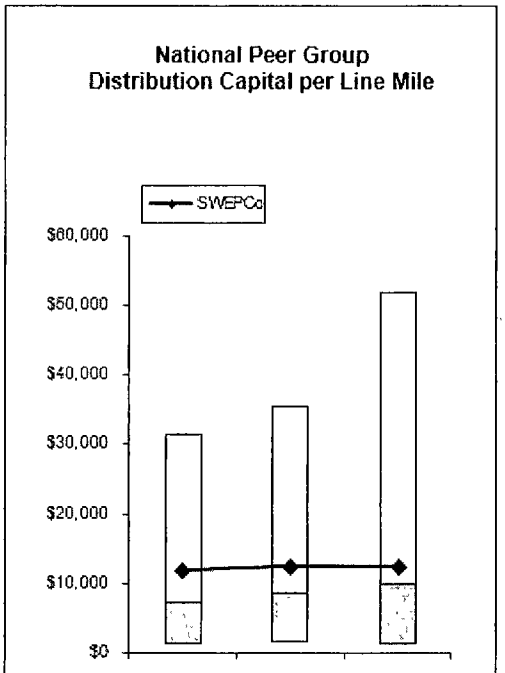


Year	2017	2018	2019
Lowest	$640	$656	$604
Median	$2 566	$2,353	$2,659
Highest	$11 664	$14,372	$12,767
SWEPCo	$3,298	$3,212	$3,461

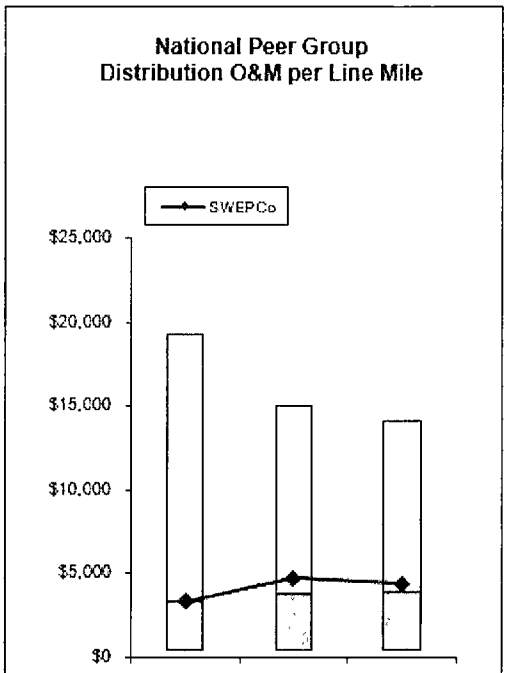
South Central Peer Group

AEP Texas Inc.
CenterPoint Energy Houston Electric LLC
CLECO Power LLC
El Paso Electric Co.
Entergy Arkansas LLC
Entergy New Orleans Inc.
Entergy Texas Inc.
Evergy Kansas Central Inc.
Evergy Metro Inc.
Oklahoma Gas & Electric Co.
Oncor Electric Delivery
Public Service Co of New Mexico
Public Service Co of Oklahoma
Southwestern Electric Power Co.
Southwestern Public Service Co.

Exhibit DWS – 5: National Peer Group Benchmarking



Year	2017	2018	2019
Lowest	$1,398	$1,661	$1,422
Median	$7,159	$8,483	$9,881
Highest	$31,485	$35,582	$52,055
SWEPCo	$11,864	$12,357	$12,446



Year	2017	2018	2019
Lowest	$434	$404	$425
Median	$3,343	$3,794	$3,881
Highest	$19,291	$14,982	$14,144
SWEPCo	$3,338	$4,748	$4,399

National Peer Group

AEP Texas Inc.
Alabama Power Co.
Ameren Illinois
Ameren Missouri
Appalachian Power Co.
Arizona Public Service Co.
Baltimore Gas & Electric Co.
CenterPoint Energy Houston Electric LLC
CLECO Power LLC
Cleveland Electric Illuminating Co.
Commonwealth Edison Co.
Connecticut Light & Power Co.
Consolidated Edison Co of New York Inc.
Consumers Energy Co.
Dayton Power & Light Co.
Delmarva Power & Light Co.
DTE Electric Co.
Duke Energy Carolinas
Duke Energy Florida
Duke Energy Indiana
Duke Energy Kentucky
Duke Energy Ohio
Duke Energy Progress
El Paso Electric Co.
Entergy Arkansas LLC
Entergy Mississippi LLC
Entergy New Orleans Inc.
Entergy Texas Inc.
Evergy Kansas Central Inc.
Evergy Metro Inc.
Florida Power & Light Co.
Georgia Power Co.
Gulf Power Co.
Indiana Michigan Power Co.
Indianapolis Power & Light
Jersey Central Power & Light Co.
Kentucky Power Co.
Kentucky Utilities Co.
Kingsport Power Co.
Louisville Gas & Electric Co.
Metropolitan Edison Co.
Mississippi Power Co.
Wisconsin Public Service Corp
Monongahela Power Co.
Nevada Power Co.
New York State Electric & Gas Corp
Northern Indiana Public Service Co.
Northern States Power Co (Minnesota)
Northern States Power Co (Wisconsin)
NSTAR Co d/b/a Eversource Energy
Ohio Edison Co.
Ohio Power Co.
Oklahoma Gas & Electric Co.
Oncor Electric Delivery
Orange & Rockland Utilities Inc.
Pacific Gas & Electric Co.
PacifiCorp
PECO Energy Co.
Pennsylvania Electric Co.
Portland General Electric Co.
Potomac Edison Co.
Potomac Electric Power Co.
PPL Electric Utilities Corp
Public Service Co of Colorado
Public Service Co of New Mexico
Public Service Co of Oklahoma
Public Service Electric & Gas Co.
Puget Sound Energy Inc.
Rockland Electric Co.
San Diego Gas & Electric Co.
Southern California Edison Co.
Southern Indiana Gas & Electric Co.
Southwestern Electric Power Co.
Southwestern Public Service Co.
Tampa Electric Co.
Toledo Edison Co.
Virginia Electric & Power Co.
West Penn Power Co.
Wheeling Power Co.
Wisconsin Electric Power Co.
Wisconsin Power & Light Co.

EXECUTIVE SUMMARY OF DANIEL R. BOEZIO

Daniel R. Boezio, Vice President, Transmission Field Services for American Electric Power Service Corporation (AEPSC), presents testimony supporting the test year operations and maintenance (O&M) expense required for Southwestern Electric Power Company (SWEPCO) to provide safe and reliable transmission service.

Mr. Boezio first summarizes the physical configuration and manner of planning and operation of both AEP's and SWEPCO's transmission systems. He testifies that AEPSC and SWEPCO coordinate with respect to planning, construction, operations and maintenance, and that AEP's Transmission organization enables SWEPCO to benefit from economies of scale. He describes SWEPCO's programs to maintain the reliability of its transmission system. Mr. Boezio explains the overall organizational structure of the AEP Transmission organization and describes the services performed by each of the four primary functional units of the AEP Transmission organization. He testifies that each of the services provided to SWEPCO by that organization is essential to ensure the system is well maintained, in good working order, and provides reliable electric service.

Mr. Boezio describes SWEPCO's programs to operate and maintain the reliability of its transmission system, which are divided into two major categories – Transmission Asset Management and Transmission Vegetation Management. He discusses the three broad functional areas within Transmission Asset Management – Station Programs, Transmission Line Programs, and Protection and Control – as well as the operation of the Transmission Vegetation Management Program.

Mr. Boezio provides an overview of test year transmission operations and maintenance expenses incurred by SWEPCO. SWEPCO's test year transmission O&M expenses were

$46,683,319, of which $8,636,052 were affiliate expenses. He explains cost and staffing level trends and their significant underlying drivers, as well as the Company's use of contractors to supplement the Company's own workforce to respond to fluctuations in workload.

Mr. Boezio explains three benchmarking studies done under his supervision comparing SWEPCO's transmission O&M expenditures to others in the industry. He explains how the three peer groups – Texas, south central, and national – were selected. He testifies that the studies indicate that SWEPCO transmission O&M expenses are near or at the median values for each of the three peer groups. He concludes that SWEPCO's overall transmission O&M expenses are reasonable and necessary.

Mr. Boezio also addresses the affiliate component of SWEPCO's O&M transmission expenses. He confirms that the services do not duplicate those provided by personnel within SWEPCO or any other entity. He describes recent trends in AEPSC billings to SWEPCO and in AEPSC's workforce and workload. He testifies that his benchmarking studies support the reasonableness of SWEPCO's affiliate O&M transmission charges for the test year.

PUBLIC UTILITY COMMISSION OF TEXAS

APPLICATION OF

SOUTHWESTERN ELECTRIC POWER COMPANY

FOR AUTHORITY TO CHANGE RATES

DIRECT TESTIMONY OF

DANIEL R. BOEZIO

FOR

SOUTHWESTERN ELECTRIC POWER COMPANY

OCTOBER 2020

TESTIMONY INDEX

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EXHIBITS

EXHIBIT	DESCRIPTION
EXHIBIT DRB-1	Map of AEP Transmission System
EXHIBIT DRB-2	Map of AEP Service Territory
EXHIBIT DRB-3	Map of the SWEPCO's Transmission System
EXHIBIT DRB-4	AEP Transmission Organization Chart
EXHIBIT DRB-5	O&M Benchmarking

I. INTRODUCTION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND POSITION.

A. My name is Daniel R. Boezio. My business address is 539 North Carancahua, Corpus Christi, Texas 78401. I am Vice President, Transmission Field Services for American Electric Power Service Corporation (AEPSC), a subsidiary of American Electric Power Company, Inc. (AEP).

Q. PLEASE DESCRIBE YOUR RESPONSIBILITIES AS VICE PRESIDENT, TRANSMISSION FIELD SERVICES FOR THE WESTERN AEP FOOTPRINT.

A. I am responsible for the safe and reliable operation, storm recovery, and maintenance activities of the AEP western transmission system, including that of Southwestern Electric Power Company (SWEPCO or Company), which operates in portions of Texas, Louisiana, and Arkansas; Public Service Company of Oklahoma (PSO); AEP Texas Inc. (AEP Texas); and Electric Transmission Texas, LLC. (ETT). My responsibilities also include coordinating with SWEPCO and other departments of AEP Transmission related to the transmission operations, construction, maintenance, and budgeting for the AEP western transmission system.

Q. PLEASE DESCRIBE YOUR EDUCATIONAL QUALIFICATIONS AND PROFESSIONAL BUSINESS EXPERIENCE.

A. I earned a Bachelor of Electrical Engineering degree from the University of Dayton in 1985. My electric utility and transmission career spans nearly 35 years. In December 1985, I began my career as a station engineer with Columbus and Southern Ohio Electric, a unit of AEP. From 1985 to 1996, I held a variety of engineering and supervisory positions with Columbus and Southern Ohio Electric. In 1996, I joined

AEPSC, as the Manager of Operations Engineering. In 2004, I was promoted to Director, Transmission Reliability in the Transmission Operations organization, with responsibility for the operations of the AEP System Control Center, Transmission Operations Engineering, and the Transmission Operations Training & Development functions. I led the Transmission Asset Engineering organization from 2007-2009, and from 2009-2013, the Columbus Region of Transmission Region Operations, which was later named Transmission Field Services. In 2013, I became Director, Technical Support for Transmission Field Services, followed by a promotion to my current role as Vice President, Transmission Field Services for the AEP western transmission system in September of 2018.

Q. WHAT EXHIBITS DO YOU SPONSOR IN THIS PROCEEDING?

A. I sponsor the exhibits listed in the table of contents to my testimony.

II. PURPOSE AND BACKGROUND

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to support the reasonableness of the Company's test year operations and maintenance (O&M) expense required to provide safe and reliable transmission service to customers in the SWEPCO transmission service area. Specifically, my testimony will cover the following topics:

- The AEP and SWEPCO transmission systems;
- The AEP Transmission organization and how the functions provided by its AEPSC transmission employees complement the functions provided by SWEPCO employees, so that there is no duplication of functions between AEPSC and SWEPCO employees;

- The SWEPCO O&M programs, including those in areas of reliability, asset management, vegetation management, and safety; and

- The Company's transmission–related test year O&M expenses, including the cost of services provided by AEPSC, and the following topics that support the reasonableness and necessity of those expenses:
    - Cost Trends,
    - Benchmarking Studies,
    - Staff Level Trends, and
    - Outsourcing.

III. AEP AND SWEPCO TRANSMISSION SYSTEMS

Q. PLEASE PROVIDE AN OVERVIEW OF THE AEP TRANSMISSION SYSTEM.

A. The AEP transmission system is an expansive system spanning AEP's eleven-state service territory and three North American Electric Reliability Corporation (NERC) Regional Entities, including Texas Reliability Entity (TRE), SPP Midwest Reliability Organization (MRO), and Reliability First (RF). Additionally, the AEP transmission system is part of three regional transmission organizations: the Southwest Power Pool (SPP) regional transmission organization (RTO); the Electric Reliability Council of Texas (ERCOT) independent system operator; and the PJM RTO. AEP's transmission system encompasses facilities operating at voltages from 23 kV to 765 kV, and consists of approximately 38,000 miles of circuitry. Of this total, approximately 8,100 miles operate at Extra High Voltage -- 345 kV, 500 kV or 765 kV. The AEP transmission system is also highly interconnected with its neighboring utility transmission systems at numerous interconnection points.

1 Q. PLEASE DESCRIBE THE SWEPCO TRANSMISSION SYSTEM.

2 A. The SWEPCO transmission system delivers power and energy from generators
3 throughout the SPP RTO footprint to loads served by the SWEPCO distribution system
4 and loads served by other utilities, cooperatives, and municipalities within the
5 SWEPCO service area. It also delivers power and energy through an asynchronous
6 interconnection with ERCOT and through other synchronous interconnections with
7 other NERC regions to loads within those regions. The voltage levels of the SWEPCO
8 transmission facilities range from 69 kV to 345 kV. There are approximately 4,138
9 circuit miles of transmission lines in the SWEPCO system, stretching from near Grand
10 Saline, Texas east to Haughton, Louisiana and from the northern Arkansas border with
11 Missouri to near Crockett, Texas. SWEPCO also owns transmission facilities in the
12 Texas Panhandle area from Shamrock, Texas to Vernon, Texas.

13 SWEPCO, in partnership with Oncor and CenterPoint, also owns one High
14 Voltage Direct Current (HVDC) interconnection with ERCOT. This East HVDC Tie
15 (Welsh) in northeastern Texas connects ERCOT to SPP.

16 SWEPCO is interconnected with the following utilities: The Empire District
17 Electric Company; Associated Electric Cooperative, Inc.; Oklahoma Gas and Electric
18 Company; Grand River Dam Authority; Southwestern Public Service Company;
19 Southwestern Power Administration; Western Farmers Electric Cooperative; PSO;
20 CLECO Power, LLC; Entergy Arkansas, LLC; Entergy Louisiana, LLC; Entergy
21 Texas, LLC; Arkansas Electric Cooperative Corporation; East Texas Electric
22 Cooperative, Inc.; and Tex-La Electric Cooperative of Texas, Inc.

SWEPCO has transferred functional control of its transmission facilities to the SPP RTO. SWEPCO purchases Network Integration Transmission Service under the SPP Open Access Transmission Tariff (OATT) to serve its retail and wholesale customers. SWEPCO facilities also help facilitate the delivery of energy in the SPP Energy market.

Q. PLEASE DESCRIBE HOW THE SWEPCO TRANSMISSION SYSTEM IS PLANNED, CONSTRUCTED, OPERATED, AND MAINTAINED.

A. The SWEPCO transmission system is planned, constructed, operated, and maintained through the coordinated efforts of the AEP Transmission Organization (described more fully in Section IV of my testimony) and SWEPCO, with the overall objective to serve the present and future electrical transmission requirements in SWEPCO's transmission service area in an economic, safe, reliable, and environmentally compatible manner. SWEPCO witness Wayman L. Smith addresses the planning and construction of the Company's transmission system. The AEP Transmission Organization provides economies of scale by enabling affiliate companies to share common support staff and resources that help provide cost and operational efficiencies.

SWEPCO is interconnected to several of the other transmission owners in SPP, therefore, SWEPCO works closely with neighboring transmission providers to plan and operate the transmission grid. SPP's transmission planning and operational requirements are set out in the SPP Tariff and the SPP Membership Agreement[1].

[1] https://www.spp.org/documents/13272/current%20bylaws%20and%20membership%20agreement%20tariff.pdf

1 Q. PLEASE PROVIDE AN OVERVIEW OF THE RELIABILITY OF THE SWEPCO
2 TRANSMISSION SYSTEM IN RECENT YEARS.
3 A. Reliable electric service requires an adequate and well-maintained transmission system
4 that meets applicable state and federal standards. SWEPCO has ongoing programs for
5 refurbishing the existing transmission infrastructure, replacing equipment, and
6 rebuilding lines based upon their condition and performance. Routine evaluations of
7 the transmission system coupled with network considerations are used to determine the
8 priority and schedule for the most effective implementation of the refurbishment plan.
9 This plan has helped ensure reliable service to both power producers and end users.
10 Q. WHY IS IT IMPORTANT TO MAINTAIN A RELIABLE TRANSMISSION
11 SYSTEM?
12 A. A reliable transmission system that is well-maintained and meets applicable state and
13 federal standards ensures the delivery of safe and reliable electric service to SWEPCO
14 customers. The transmission system provides a highly efficient, complex network of
15 high voltage lines and substations to connect multiple types of generation resources
16 and other interconnected transmission networks to move electricity across America.
17 Industrial, commercial and residential customers depend on the transmission system
18 for reliable energy that is affordable with flexible and open access to meet the demands
19 of an ever changing mix of generation resources and customer preferences. Due to the
20 complexity of the transmission system, it requires a highly skilled workforce to plan,
21 operate and maintain all aspects of the transmission system requirements.
22

IV. AEP TRANSMISSION ORGANIZATION

Q. WHAT GROUP IS RESPONSIBLE FOR OPERATING AND MANAGING THE SWEPCO TRANSMISSION SYSTEM?

A. The AEP Transmission Organization, in conjunction with SWEPCO leadership, plans, constructs, operates and manages the SWEPCO transmission system as part of its responsibility through a coordinated effort with SWEPCO leadership and the SPP. This organization is comprised of AEPSC employees, SWEPCO employees, and contractors.

Q. PLEASE DESCRIBE THE PRIMARY FUNCTIONAL DEPARTMENTS WITHIN THE AEP TRANSMISSION ORGANIZATION THAT SUPPORT SWEPCO'S TRANSMISSION NEEDS.

A. The AEP Transmission organization consists of four primary functional departments that support SWEPCO's transmission needs. These four functional departments that report directly to the Executive Vice President – Transmission are as follows: Transmission Grid Development, Transmission Controls and Field Services, Corporate Safety and Health, and Transmission Ventures Strategy and Policy. The AEP Transmission System assets are planned, engineered, constructed, operated and maintained through the coordinated efforts of the AEP Transmission organization. AEP Transmission organization structure is shown in EXHIBIT DRB-4.

Q. PLEASE DESCRIBE THE SERVICES PERFORMED BY EACH OF THE FOUR FUNCTIONAL DEPARTMENTS OF THE AEP TRANSMISSION ORGANIZATION THAT SUPPORTED SWEPCO TRANSMISSION DURING THE TEST YEAR.

A. During the test year, the services provided by the four departments within the AEP Transmission organization that support SWEPCO Transmission are as follows:

- Transmission Grid Development is charged with improving Transmission's efficiency, containing the costs of projects, and supporting commitments to NERC Compliance and capital excellence. The organization is responsible for transmission planning, engineering, project management, operations, technology development, and providing support to the AEP Transmission organization by ensuring compliance with reliability standards and requirements established by NERC, RTO/ISOs, regional reliability organizations, and state regulatory agencies.

- The Transmission Controls and Field Services (TFS) organization is the service provider for field operations, maintenance, and emergency restoration of the AEP transmission system. Transmission Field Services is charged with constructing, upgrading and maintaining over 3,500 substations and approximately 38,000 circuit miles of transmission lines in the AEP System. TFS performs switching operations, inspections, maintenance, and service restoration of transmission system facilities. TFS also provides the "boots on the ground" that help restore service after major storms and other outages. The Transmission Forestry organization that oversees the Transmission Vegetation Management Program is also a part of TFS. Some 50% of AEP Transmission employees work in Field Services.

- Corporate Safety and Health (S&H) is the organization responsible for strengthening AEP's safety culture and improving safety performance for AEP employees, contractors and members of the public. S&H collaborates with business units focusing on communication, training and standardization of processes and systems to provide clear and consistent safety expectations. S&H partners with operating companies to increase the education and awareness of the public on how to stay safe around AEP facilities and building effective partnerships with emergency responders. AEP has implemented a safety management system to improve programs that encourage hazard recognition and risk mitigation. S&H is responsible for overseeing and reviewing enterprise-wide programs, policies, goals, risks and compliance relating to occupational health and safety. This includes monitoring the impact of changes in laws and regulations affecting safety. Analytics and data systems are used to identify risks and trends with useful and actionable information to improve safety performance across AEP's workforce.

- The Transmission Ventures, Strategy, and Policy (TVSP) organization is responsible for Transmission asset strategy and policy, for Transmission financial oversight and reporting, and oversight of all transmission policy and regulatory matters involving RTOs, the Federal Energy Regulatory

Commission (FERC), and state regulations affecting transmission. TVSP also provides regulatory support for the AEP transmission-only companies, and is responsible for siting new transmission facilities, providing outreach and information regarding transmission projects to the public, and Right-of-Way (ROW) acquisition for transmission projects.

Q. HOW ARE THE PERSONNEL WHO PERFORM TRANSMISSION ORGANIZATION ACTIVITIES CLASSIFIED?

A. There are three categories of AEP Transmission employees that support SWEPCO's transmission system:

1. AEPSC employees (affiliate) work on assignments for more than one of the AEP operating or transmission companies. AEP Transmission employees are AEPSC employees who work on projects for multiple operating companies. To the extent AEPSC employees work on projects that are specific to the facilities of other affiliate companies, those associated costs are not allocated to or incurred by SWEPCO.

2. SWEPCO employees work primarily on SWEPCO projects and assets. All SWEPCO employees who are part of the Transmission Organization are stationed in SWEPCO's transmission service area. Functional responsibilities of AEPSC and SWEPCO employees are clearly delineated and divided so there is no duplication of responsibilities between AEPSC employees and SWEPCO employees.

3. Third-party contractors are also used to support SWEPCO and AEPSC. Contractor services are an important aspect in work force planning as they can be used to respond to changes in workload related to construction activities and service restoration.

Q. IS THERE DUPLICATION OF RESPONSIBILITIES BETWEEN AEPSC EMPLOYEES AND SWEPCO EMPLOYEES?

A. No. Functional responsibilities of AEPSC and SWEPCO transmission employees are clearly delineated and divided so there is no duplication of responsibilities between AEPSC employees and SWEPCO employees.

1 Q. ARE EACH OF THE SERVICES PROVIDED TO SWEPCO BY AEP
2 TRANSMISSION ORGANIZATION NECESSARY TO PROVIDE RELIABLE
3 ELECTRIC SERVICE?
4 A. Yes. Reliable electric service requires an adequate and well-maintained transmission
5 system that meets applicable state and federal standards. Each of the services is
6 necessary in order to operate a large transmission system like SWEPCO's and keep it
7 well maintained and in good working order. Without the constant monitoring of
8 performance and identification of future needs; engineering and design improvements;
9 procuring, constructing, and installing new facilities or rehabilitating existing facilities;
10 coordinating with other transmission providers as well as SPP, NERC, and customers;
11 and ensuring compliance with state, federal, and other regulatory requirements, the
12 transmission system would ultimately fail to be adequate for its purpose, and it would
13 no longer be reliable. Thus, each service provided by AEP Transmission to SWEPCO
14 is essential to the SWEPCO mission of providing safe and reliable utility service to
15 customers in a cost effective manner.
16
17 V. SWEPCO TRANSMISSION O&M PROGRAMS
18 Q. PLEASE DESCRIBE THE COMPANY'S PROGRAMS IN PLACE TO OPERATE
19 AND MAINTAIN THE RELIABILITY OF ITS TRANSMISSION SYSTEM.
20 A. First and foremost, safety is at the core of every Company program. The safety of our
21 employees and contractors, as well as the general public is paramount. In the pursuit
22 of safety excellence, the Company invests a significant amount of training in our
23 employees, to ensure they have the skills to both recognize and take appropriate action

1 to mitigate job site hazards. The foundation of a safe and reliable electric system is
2 having a culture that values safety above all else.
3 The SWEPCO O&M programs in place to maintain and strive to improve
4 reliability by minimizing service interruptions on the transmission system can be
5 divided into two major categories: 1) Transmission Asset Management and 2)
6 Transmission Vegetation Management. A general discussion of each of these
7 programs are described below. Please see the direct testimony of SWEPCO witness
8 Smith, who addresses the Company's programs in support of SWEPCO's transmission
9 capital investment.
10 Q. PLEASE DESCRIBE THE TRANSMISSION ASSET MANAGEMENT
11 PROGRAMS.
12 A. The Transmission Asset Management Programs fall into three broad functional areas:
13 Station Programs, Transmission Line Programs, and Protection System Maintenance
14 Programs. The objective of these programs is to identify potential problems with
15 existing transmission facilities that could cause an interruption of service and to
16 implement proactive corrective actions to maintain the reliable operation of those
17 facilities.
18 Q. PLEASE DESCRIBE THE STATION PROGRAMS.
19 A. The Station Programs include the inspection and maintenance of the Company's station
20 equipment such as circuit breakers, transformers, switches, reactive power devices,
21 station batteries, control buildings, structural steel, and associated facilities. These
22 programs include both time-based maintenance activities as well as condition-based
23 maintenance activities that are determined by diagnostic tests such as dissolved gas

analysis, oil analysis, infrared inspections, sweep frequency response analysis and partial discharge monitoring. A key component of the Station Program for Extra High Voltage assets is the Asset Health Center software application, which is used to prevent equipment failures and prioritize replacements. This application analyzes data from real time health monitors, offline testing, and routine inspections. These analyses can provide diagnostic predictive messaging, estimate the remaining useful life of the asset, and provide an overall risk of failure, when compared to the fleet of similar equipment.

Q. PLEASE DESCRIBE THE TRANSMISSION LINE PROGRAMS.

A. The Transmission Line Programs include the inspection and maintenance of line equipment, which includes structures, conductors, switches, insulators, hardware, and ROW. These periodic line inspections are performed to observe and report the present physical condition of the transmission line and ROW. Transmission line routine inspection activities include those done by walking, climbing, helicopters and drones. Emergency inspections are also performed as needed. Inspections conducted over time can also reveal trends such as increasing structure or hardware deterioration. The information provided during these inspections assists with future planning, budgeting and resource scheduling. These inspection programs, combined with follow-up corrective maintenance, provide for a safe environment for both the public and Company personnel, as well as continued system reliability.

Q. PLEASE DESCRIBE THE PROTECTION SYSTEM MAINTENANCE PROGRAM.

A. The Protection System Maintenance Program is an ongoing program through which preventive and corrective maintenance is performed to ensure the proper operation of protective relays, protective communication systems, current and voltage sensing

1 devices, Bulk Electric System (BES) station, Direct Current (DC) supply, control
2 circuitry, distributed under-frequency load shedding (UFLS)/ under-voltage load
3 shedding (UVLS) systems, automatic reclosing components, and sudden pressure
4 relaying. Maintenance of a specific component in the Program includes one or more
5 of the following five activities: 1) Verification – determine that the component is
6 functioning correctly; 2) Monitoring – observe the routine in-service operation of the
7 component; 3) Testing – apply signals to a component to observe functional
8 performance or output behavior, or to diagnose problems; 4) Inspection – examine for
9 signs of component failure, reduced performance or degradation; and 5) Calibration –
10 adjust the operating threshold or measurement accuracy of a measuring element to meet
11 the intended performance requirement.
12 Q. PLEASE DESCRIBE THE SWEPCO O&M TRANSMISSION VEGETATION
13 MANAGEMENT PROGRAM.
14 A. The objective of SWEPCO's O&M Transmission Vegetation Management Program
15 (TVMP) is to provide for the safe and reliable operation of the SWEPCO transmission
16 system. For circuits greater than 200 kV, SWEPCO maintains the ROW to the
17 maximum appropriate width, periodically removing all woody-stemmed vegetation
18 within the ROW to comply with NERC Standards. AEP conducts aerial and ground
19 inspections and develops annual vegetation management work plans to ensure this
20 program objective is achieved in the most efficient, environmentally sound, and
21 economical manner, while complying with applicable laws and regulations.
22 Vegetation on the SWEPCO transmission system is managed on a prescriptive
23 basis for all transmission voltage levels. Ongoing evaluation of the system through

ground and aerial inspections performed by AEP Transmission personnel, in both the Transmission Field Services Transmission Line and the Transmission Forestry (AEP Forestry) departments, in concert with the vegetation program objectives, provides the basic information used by AEP Forestry to develop its annual work plan (annual plan). Circuit criticality, historical data, circuit voltage, location, vegetative inventory information, and land use are among the items considered when developing the annual plan. These plans are dynamic during the year and adjusted for changing conditions.

As new plant growth occurs along the ROW, the annual plans will be adjusted based on the size and type of vegetation present. AEP Forestry personnel and their contractors continuously evaluate the annual plan to ensure appropriate actions are taken to maximize results in the most efficient and cost effective manner.

VI. SWEPCO TRANSMISSION TEST YEAR O&M EXPENSES

Q. WHAT PERIOD WAS USED TO DEVELOP THE TRANSMISSION TEST YEAR O&M EXPENSES FOR THE COMPANY?

A. The test year is defined as the year ending March 31, 2020.

Q. PLEASE PROVIDE AN OVERVIEW OF THE TEST YEAR TRANSMISSION O&M EXPENSES.

A. The Company seeks to recover adjusted test year transmission O&M expenses of $46.7 million[2]. This includes costs recorded in FERC Accounts 560 through 564 and FERC Accounts 566 through 573, as shown in Figure 1. Figure 1 also provides a

[2] Please see the testimonies of Company witnesses Baird and Frantz for test year adjustments support.

description of these FERC Accounts, and the corresponding test year O&M expense. Effective management and control of these costs are primary objectives of the Company's Transmission management team, and the organizations that provide support for these activities.

Figure 1
FERC Accounts Included in O&M Expenses

FERC Account	Description	Adjusted Test Year Amount
560	Operations Supervision & Engineering	$9,981,072
561*	Load Dispatching	$13,732,279
562	Station Expenses	$1,212,128
563	Overhead Line Expenses	$428,155
564	Underground Line Expense	$1,592
566	Miscellaneous Transmission Expenses	$3,377,716
567	Rents	$25,507
568	Maintenance Supervision & Engineering	$14,838
569	Maintenance of Structures	$739,219
570	Maintenance of Station Equipment	$2,572,641
571	Maintenance of Overhead Lines	$14,505,611
572	Maintenance of Underground Lines	$11,350
573	Maintenance of Miscellaneous Transmission Plant	$81,211
Total Adjusted Transmission Test Year O&M		**$46,683,319**

*Includes FERC Accounts 561.1, 561.2, 561.3, 561.4, 561.5, 561.6, and 561.8.

FERC Account 565 (Transmission of Electricity for Others), is not included in Figure 1, as these are O&M expenses associated with the SPP. In addition, Account 561.2, 561.4, and 561.8 are included in the Account 561 total in Figure 1, but are also external RTO expenses incurred by SWEPCO for services provided by SPP.

Q. PLEASE DESCRIBE THE TREND IN SWEPCO TRANSMISSION O&M EXPENSES OVER THE PAST FEW YEARS.

A. Figure 2 shows the SWEPCO Transmission O&M expenses for the period 2017 – 2019, and the test year. These costs include both those incurred by SWEPCO directly and also those charged to SWEPCO by AEPSC.

Figure 2 – SWEPCO Transmission O&M Expense

2017	2018	2019	Test Year
$36,235,316	$40,095,055	$44,758,447	$46,683,319

Q. WHAT ARE THE PRIMARY ACTIVITIES CONTRIBUTING TO THE INCREASED LEVEL OF TEST YEAR O&M EXPENSE?

A. The overall increase in test year O&M expense is primarily attributable to increased levels of operations and maintenance support for new construction and vegetation management activities that are necessary to maintain the reliability of the Company's transmission system. These activities are necessary to ensure adherence to mandated NERC reliability standards that continue to evolve. Additionally, vegetation management O&M activities increased in the test year to support substantial increased levels of construction activity related to upgrades and rebuilds on the SWEPCO transmission system.

Q. WHAT IS DRIVING THE INCREASE IN TEST YEAR OPERATIONS AND MAINTENANCE SUPPORT EXPENSE?

A. As SWEPCO's transmission system facilities continue to age, additional maintenance repair, and replacement of an increasing population of aging equipment is necessary to maintain safe and reliable transmission service. Additionally, the NERC reliability standards, including electric grid physical and cyber security standards, continue to impact maintenance of the Company's transmission system. As these NERC reliability standards are revised and new standards and requirements become effective, new

1 demands are placed on the Company to ensure that its transmission system is in
2 compliance with those standards. This compliance activity requires increased levels of
3 O&M spending.

4 Q. WHAT IS DRIVING THE INCREASE IN TEST YEAR VEGETATION
5 MANAGEMENT EXPENSE?

6 A. One primary driver for the increase in test year vegetation management O&M spending
7 is the incremental cost associated with an increase in the Company's transmission line
8 rebuild and upgrade capital projects. The transmission system's aging infrastructure
9 requires the Company to make these capital investments to ensure safe and reliable
10 transmission service to its customers, which in turn requires O&M vegetation
11 management to support the construction activity relative to these investments. The
12 O&M costs associated with these projects had a significant impact on the increase in
13 test year transmission expenses. As with the maintenance activity I address previously,
14 the Company's ongoing O&M expenses additionally are impacted by continued
15 vegetation management activities to adhere to evolving NERC vegetation management
16 reliability standards.

17 Also driving the increase in test year vegetation management expenses are
18 increases in base contract tree trimming rates for new five-year vegetation management
19 agreements with outside vendors and contractors that went into effect since the last
20 base case in 2017. These increasing expenses are necessary to accomplish the goals
21 and requirements I discuss above.

1 Q. DOES THE TEST YEAR LEVEL OF TRANSMISSION EXPENSE REPRESENT
2 AN ONGOING LEVEL OF O&M THAT MUST BE SPENT TO OPERATE AND
3 MAINTAIN THE COMPANY'S TRANSMISSION SYSTEM?
4 A. Yes. Comparing the relative levels of O&M expenses in Figure 2 above and absent the
5 test year increase in the charged O&M vegetation management expense, the test year
6 O&M expense is comparable to the Company's ongoing O&M expense levels in 2017,
7 2018, and 2019. The increased levels of the Company's test year vegetation
8 management and NERC related compliance activities I previously discussed are
9 recurring in nature. SWEPCO conducts its Vegetation Management Program year
10 round, and develops an annual work plan, which contains activities such as those I
11 describe earlier in my testimony. It is expected that the Company's level of vegetation
12 management and NERC related compliance spend to conduct those activities in the
13 future will be at a minimum equal to, and quite possibly higher than, the level expended
14 during the test year.
15 Q. WHAT PROCESSES ARE IN PLACE TO ENSURE THAT THE COMPANY'S
16 TRANSMISSION O&M EXPENSES ARE PRUDENT AND REASONABLE?
17 A. In addition to the use of the cost trend information I discuss above, the Company also
18 uses other methods to evaluate the prudence and reasonableness of its transmission-
19 related O&M Expenses including: 1) Staffing Level Trends and 2) Benchmarking
20 Studies.
21 Staffing Level Trends
22 Q. PLEASE DISCUSS THE TRENDS IN THE TOTAL NUMBER OF SWEPCO
23 TRANSMISSION EMPLOYEES SINCE 2017.