

Attachment A

Summary of SILF equation coefficients- 2020

Texas Central Company (AEP-TCC)

a	b	c	d	e	f	g	h	i	J
SERV LEVL	DLF	ENERGY	ENERGY	Average		No-Load			
CODE	CODE	SYSTEM	DISTRIB	Dist	Load Loss	Loss			
		LOSS	LOSS	Losses	Factor	Factor	F1	F2	F3
(Formula)		Divide by							
		transmission loss		(d-1)/d	(Att C)	(Att C)	e*f		e*g
Secondary	A	1.075980	1.058088	0.054899	0.4557	0.5443	0.02502	0	0.02988
Primary	B	1.046620	1.029216	0.028387	0.6596	0.3404	0.01872	0	0.00966
Transmission	T	1.016910	1.000000						

* From TCC 2017 System Loss Study

Texas North Company (AEP-TNC)

a	b	c	d	e	f	g	h	i	J
SERV LEVL	DLF	ENERGY	ENERGY	Average		No-Load			
CODE	CODE	SYSTEM	DISTRIB	Dist	Load Loss	Loss			
		LOSS	LOSS	Losses	Factor	Factor	F1	F2	F3
(Formula)									
				(d-1)/d	(Att C)	(Att C)	e*f		e*g
Secondary	A	1.100140	1.063903	0.060065	0.3973	0.6027	0.02386	0	0.0362
Primary	B	1.057180	1.022358	0.021870	0.2843	0.7157	0.00622	0	0.01565
Transmission	T	1.034060	1.000000						

* From TNC 2017 System Loss Study

Attachment B

Calculation of AEP TCC Electric Distribution Loss Factors- 2020 Ratio of No-Load and Load losses on primary and secondary systems

	Energy Losses, MWh *		
	Load	No-Load	Total
Dist. Substation	52,202	110,694	162,896
Primary Feeders	439,206	12,610	451,816
Line Transformers	34,968	377,357	412,325
Residential Sec. Lines	76,748	14,684	91,432
Total Primary & Sec	603,124	515,345	1,118,469

Distribution System

Primary	491,408	123,304	614,712
Secondary	111,716	392,041	503,757
Total Primary & Sec	603,124	515,345	1,118,469

Primary ratio	0.79941	0.20059
Secondary ratio	0.22177	0.77823

* From Summary of Sales and Calculated Losses in 2017 Loss Analysis for TCC

Calculation of AEP TNC Electric Distribution Loss Factors- 2020 Ratio of No-Load and Load losses on primary and secondary systems

	Energy Losses, MWh *		
	Load	No-Load	Total
Dist. Substation	10,589	35,934	46,523
Primary Feeders	75,882	4,242	80,124
Line Transformers	5,046	108,733	113,779
Residential Sec. Lines	12,899	3,322	16,221
Total Primary & Sec	104,416	152,231	256,647

Distribution System

Primary	86,471	40,176	126,647
Secondary	17,945	112,055	130,000
Total Primary & Sec	104,416	152,231	256,647

Primary ratio	0.68277	0.31723
Secondary ratio	0.13804	0.86196

* From Summary of Sales and Calculated Losses in 2017 Loss Analysis for TNC

Attachment C

AEP TCC- Calculation of Electric Distribution Loss Factors- 2020
 Portion of Loss Factor Not Sensitive to Load

Voltage Level	At	Input Reqmt. Responsibility Factor	Energy Loss Fraction		Energy, kWh			
			Load	No-Load	Sales*	Load Losses	No-Load Losses	Total
Secondary	Sec. Sales @ Meter Input to Sec. Level Losses due to Sec. Sales	1.028052	0.2218	0.7782	17,974,330,000	111,818,591	392,401,019	504,219,611
					18,478,549,611			
Primary	Output (=Sec. Input) Input to Pri. Level due to Sec. Losses due to Sec. Sales Pri. Sales	1.029216	0.7994	0.2006	18,478,549,611	431,577,252	108,291,280	539,868,532
					19,018,418,143			
	Losses due to Pri. Sales Total Input	1.029216	0.7994	0.2006	2,579,078,000	60,235,864	15,114,371	75,350,235
					2,654,428,235			
					21,672,846,378			

* Deliveries at the distribution primary
and secondary level are from calendar 2017

Distribution System

Losses due to:	Losses, kWh		
	Load	No-Load	Total
Secondary Sales	543,395,843	500,692,300	1,044,088,143
Primary Sales	60,235,864	15,114,371	75,350,235
Total	603,631,707	515,806,671	1,119,438,378

Distribution System

	Fraction of Total Loss	
	Load	No-Load
Secondary Sales	0.5205	0.4795
Primary Sales	0.7994	0.2006

AEP TNC- Calculation of Electric Distribution Loss Factors- 2020
Portion of Loss Factor Not Sensitive to Load

Voltage Level	At	Input Reqmt. Responsibility Factor	Energy Loss Fraction		Energy, kWh			
			Load	No-Load	Sales*	Load Losses	No-Load Losses	Total
Secondary	Sec. Sales @ Meter Input to Sec. Level Losses due to Sec. Sales	1.040636	0.6828	0.3172	3,745,165,000	103,911,082	48,278,979	152,190,061
					3,897,355,061			
Primary	Output (=Sec. Input) Input to Pri. Level due to Sec. Losses due to Sec. Sales Pri. Sales	1.022358	0.1380	0.8620	3,897,355,061	12,028,519	75,110,379	87,138,898
					3,984,493,959			
	Losses due to Pri. Sales Total Input	1.022358	0.1380	0.8620	1,689,055,000	5,212,979	32,551,707	37,764,686
					1,726,819,686			
					5,711,313,645			

* Deliveries at the distribution primary
and secondary level are from calendar 2017

Distribution System

Losses due to:	Losses, kWh		
	Load	No-Load	Total
Secondary Sales	115,939,601	123,389,358	239,328,959
Primary Sales	5,212,979	32,551,707	37,764,686
Total	121,152,580	155,941,065	277,093,645

Distribution System

	Fraction of Total Loss	
	Load	No-Load
Secondary Sales	0.4844	0.5156
Primary Sales	0.1380	0.8620