



August 1, 2012

BY ELECTRONIC MAIL

OATT Network Integration Transmission Service Customers
OATT Long-Term Firm Point-to-Point Transmission Customers
OATT Conditional Long-Term Firm Point-to-Point Transmission Customers

Re: Updated OATT Transmission Losses Analysis and CBM Usage Analysis

Dear OATT Customers:

Southern Company Services, Inc. (“SCS”), acting as agent for Alabama Power Company, Georgia Power Company, Gulf Power Company, and Mississippi Power Company (collectively, “Southern Companies”), provides this updated transmission losses analysis (“Transmission Losses Analysis”) in accordance with the settlement approved by the Federal Energy Regulatory Commission (“FERC” or “Commission”) in Docket No. ER02-851 and Southern Companies’ Open Access Transmission Tariff (“OATT”), Attachment M, Section 7.1. Specifically, the following materials are enclosed:

- 1) ATTACHMENT A: Analysis of Losses
- 2) ATTACHMENT B: Cost of Service Load Flow Study
- 3) ATTACHMENT C: Supporting Documents
- 4) ATTACHMENT D: List of Load Flow Base Cases used to determine inputs to Bulk Transmission Loss Calculations (“Load Flow Base Cases”)

These materials are being provided electronically and will be posted on the Southern Company OASIS. However, because the Load Flow Base Cases listed in Attachment D contain specific engineering, vulnerability, and detailed design information about existing critical infrastructure, such information constitutes Critical Energy Infrastructure Information (“CEII”) subject to Southern Companies’ CEII protection measures and, thus, is not being provided as part of this Transmission Losses Analysis. Rather, Southern Companies will provide the load Flow Base Cases listed in Attachment D only to those OATT customers that both request such information and comply with Southern Companies’ CEII protection measures, which require the requesting party to consent to a background check and execute a non-disclosure agreement, among other measures. In this regard, OATT customers that would like the Load Flow Base Cases listed in Attachment D should contact Mr. Wes Barber, SCS Transmission Policy &

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Services, by phone at (205) 257-6108 or by email at wpbarber@southernco.com in order to begin the necessary processes for obtaining such CEII from Southern Companies.

On October 11, 2007, in Docket No. OA07-42, Southern Companies revised OATT Attachment M, Section 7.1 to reflect Southern Companies' commitment to provide an analysis of the instances over the previous two calendar years in which transmission capacity set aside as Capacity Benefit Margin ("CBM") was called upon to meet emergency generation deficits, including OASIS reference numbers and the duration and amount of CBM that was used for such purpose. In accordance with this commitment, Southern Companies confirm that for years 2010 and 2011 there were no instances in which transmission capacity set aside as CBM was used to meet emergency generation deficits. As such further analysis of CBM usage over the previous two years is unnecessary.

Any questions regarding the information contained in this letter or the attached materials should be sent in both electronic and paper format to the undersigned attorney.

Sincerely,

Drew W. Johnson
Attorney for Southern Company Services, Inc.

Enclosures (as stated above)

cc:

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ATTACHMENT A

**SOUTHERN COMPANY
DEMAND AND ENERGY LOSS CALCULATIONS**

**Bulk Transmission System
Based on PSSE analyses for 2012-2016 period**

	<u>Demand Losses</u>	<u>Energy Losses</u>
Cost of Service Load Flows	2.5%	2.0%
Transmission Planning Analysis	2.4%	2.2%

**Sub-Transmission System
Based on Estimated 2012 Summer Peak Loads**

	<u>Demand Losses</u>	<u>Energy Losses</u>
Cost of Service Load Flows	3.7%	2.9%
Operating Company Planning Analysis	2.0%	1.7%

ATTACHMENT B

Attachment B

Southern Companies Open Access Transmission Tariff
Alabama Power Company Cost-of-Service Load Flow
12 MONTHS ENDING DECEMBER 31, 2010

LINE NO.	DESCRIPTION (7)	ENERGY BALANCE		DEMAND BALANCE	
		LOSS/BYPASS FACTORS (8)	TOTAL ELECTRIC SYSTEM (9)	LOSS/BYPASS FACTORS	TOTAL ELECTRIC SYSTEM
1	SALES		35,879,465		6,119,836
2	LOSSES	2.00774456%	720,368	2.66193388%	162,906
3	INTO 5		36,599,833		6,282,742
4	OUT OF 4		36,599,833		6,282,742
5	SALES		2,900,222		387,142
6	LOSSES	2.71872281%	1,073,897	3.58327052%	239,000
7	INTO 4		40,573,952		6,908,884
8	OUT OF 3		40,573,952		6,908,884
9	SALES		9,094,816		1,163,205
10	LOSSES	0.46698562%	231,946	0.61223306%	49,420
11	INTO 3		49,900,713		8,121,509
12	OUT OF 2		49,900,713		8,121,509
13	SALES		12,668,646		1,580,432
14	LOSSES	2.18582984%	1,367,660	2.89452683%	280,825
15	INTO 2		63,937,019		9,982,767
16	GENERATION		63,937,019		9,982,767
	BREAKDOWN OF LEVEL 2				
17	OUT OF 44		12,161,694		2,001,600
18	SALES		1,346,138		166,778
19	LOSSES	2.28508171%	308,665	2.99265230%	64,892
20	INTO 44		13,816,497		2,233,270
21	FROM GSU		0		0
22	FROM BULK		13,816,497		2,233,270
23	OUT OF BULK		13,816,497		2,233,270
24	TO LEVEL 3		37,739,020		6,119,910
25	SALES		11,322,508		1,413,655
26	LOSSES	1.45050041%	912,046	1.90473500%	186,032
27	INTO BULK		63,790,070		9,952,866
28	FROM GENERATION		0		0
29	FROM GSU		63,790,070		9,952,866
30	OUT OF GSU		63,790,070		9,952,866
31	TO 44		0		0
32	SALES		0		0
33	LOSSES	0.23036301%	146,949	0.30042911%	29,901
34	INTO GSU		63,937,019		9,982,767
35	TO GSU		63,937,019		9,982,767
36	TO BULK		0		0
37	INTO LEVEL 2		63,937,019		9,982,767

Attachment B

**Georgia Power Company Cost-of-Service Load Flow
12 MONTHS ENDING SEPTEMBER 31, 2011**

LINE NO.	DESCRIPTION (7)	ENERGY BALANCE		DEMAND BALANCE	
		LOSS/BYPASS FACTORS (8)	TOTAL ELECTRIC SYSTEM (9)	LOSS/BYPASS FACTORS	TOTAL ELECTRIC SYSTEM
1	SALES		58,127,191		9,982,193
2	LOSSES	1.00639476%	584,989	1.39509424%	139,261
3	INTO 5		58,712,180		10,121,454
4	OUT OF 4		58,712,180		10,121,454
5	SALES		8,901,329		1,230,174
6	LOSSES	1.60594093%	1,085,833	2.18813548%	248,389
7	INTO 4		68,699,341		11,600,017
8	OUT OF 3		68,699,341		11,600,017
9	SALES		17,437,632		2,069,412
10	LOSSES	0.38269790%	329,644	0.49155115%	67,192
11	INTO 3		86,466,617		13,736,621
12	OUT OF 2		86,466,617		13,736,621
13	SALES		1,069,752		123,651
14	LOSSES	2.41704748%	2,115,796	3.20852835%	444,711
15	INTO 2		89,652,165		14,304,983
16	GENERATION		89,652,165		14,304,983
BREAKDOWN OF LEVEL 2					
17	OUT OF 44		6,227,289		1,138,924
18	SALES		615,803		79,951
19	LOSSES	1.66832482%	114,165	2.24083684%	27,313
20	INTO 44		6,957,257		1,246,188
21	FROM GSU	0	0		0
22	FROM BULK		6,957,257		1,246,188
23	OUT OF BULK		6,957,257		1,246,188
24	TO LEVEL 3		80,239,328		12,597,697
25	SALES		453,949		43,700
26	LOSSES	2.10816810%	1,847,821	2.86974847%	398,539
27	INTO BULK		89,498,355		14,286,124
28	FROM GENERATION		19,443,339		5,495,725
29	FROM GSU		70,055,016		8,790,399
30	OUT OF GSU		70,055,016		8,790,399
31	TO 44		0		0
32	SALES		0		0
33	LOSSES	0.21955601%	153,810	0.21454089%	18,859
34	INTO GSU		70,208,826		8,809,258
35	TO GSU		70,208,826		8,809,258
36	TO BULK		19,443,339		5,495,725
37	INTO LEVEL 2		89,652,165		14,304,983

Attachment B

**Gulf Power Company Cost-of-Service Load Flow
12 MONTHS ENDING DECEMBER 31, 2000**

LINE NO.	DESCRIPTION (7)	ENERGY BALANCE		DEMAND BALANCE	
		LOSS/BYPASS FACTORS (8)	TOTAL ELECTRIC SYSTEM (9)	LOSS/BYPASS FACTORS	TOTAL ELECTRIC SYSTEM
1	SALES		8,001,448		1,413,284
2	LOSSES	1.28415507%	102,751	1.62125942%	22,913
3	INTO 5		8,104,199		1,436,197
4	OUT OF 4		8,104,199		1,436,197
5	SALES		563,259		72,772
6	LOSSES	1.28120609%	111,048	1.61242544%	24,331
7	INTO 4		8,778,506		1,533,300
8	OUT OF 3		8,778,506		1,533,300
9	SALES		1,423,909		202,964
10	LOSSES	1.92413267%	196,308	2.40792875%	41,808
11	INTO 3		10,398,723		1,778,072
12	OUT OF 2		10,398,723		1,778,072
13	SALES		277,489		39,004
14	LOSSES	2.28759976%	244,229	2.84836738%	51,757
15	INTO 2		10,920,441		1,868,833
16	GENERATION		10,920,441		1,868,833
BREAKDOWN OF LEVEL 2					
17	OUT OF 44		318,203		52,080
18	SALES		0		0
19	LOSSES	7.03701725%	22,392	8.79032258%	4,578
20	INTO 44		340,595		56,658
21	FROM GSU		0		0
22	FROM BULK		340,595		56,658
23	OUT OF BULK		340,595		56,658
24	TO LEVEL 3		10,080,520		1,725,992
25	SALES		277,489		39,004
26	LOSSES	1.86857089%	199,911	2.33386801%	42,515
27	INTO BULK		10,898,515		1,864,169
28	FROM GENERATION		0		0
29	FROM GSU		10,898,515		1,864,169
30	OUT OF GSU		10,898,515		1,864,169
31	TO 44		0		0
32	SALES		0		0
33	LOSSES	0.20118337%	21,926	0.25019191%	4,664
34	INTO GSU		10,920,441		1,868,833
35	TO GSU		10,920,441		1,868,833
36	TO BULK		0		0
37	INTO LEVEL 2		10,920,441		1,868,833

Attachment B

**Mississippi Power Company Cost-of-Service Load Flow
12 MONTHS ENDING DECEMBER 31, 2010**

LINE NO.	DESCRIPTION (7)	ENERGY BALANCE		DEMAND BALANCE	
		LOSS/BYPASS FACTORS (8)	TOTAL ELECTRIC SYSTEM (9)	LOSS/BYPASS FACTORS	TOTAL ELECTRIC SYSTEM
1	SALES		4,980,945		862,322
2	LOSSES	1.55091055%	77,250	1.92097616%	16,565
3	INTO 5		5,058,195		878,887
4	OUT OF 4		5,058,195		878,887
5	SALES		1,247,704		172,567
6	LOSSES	1.54016095%	97,121	1.90184259%	19,997
7	INTO 4		6,403,020		1,071,451
8	OUT OF 3		6,403,020		1,071,451
9	SALES		1,434,844		172,272
10	LOSSES	1.18904841%	93,196	1.46399158%	18,208
11	INTO 3		7,931,060		1,261,931
12	OUT OF 2		7,931,060		1,261,931
13	SALES		4,705,074		801,050
14	LOSSES	2.14841822%	271,477	2.64500739%	54,566
15	INTO 2		12,907,611		2,117,547
16	GENERATION		12,907,611		2,117,547
BREAKDOWN OF LEVEL 2					
17	OUT OF 44		274,408		43,420
18	SALES		49,670		8,201
19	LOSSES	1.95878591%	6,348	2.40987195%	1,244
20	INTO 44		330,426		52,865
21	FROM GSU		0		0
22	FROM BULK		330,426		52,865
23	OUT OF BULK		330,426		52,865
24	TO LEVEL 3		7,656,652		1,218,511
25	SALES		4,655,403		792,849
26	LOSSES	1.80991079%	228,818	2.22922012%	46,016
27	INTO BULK		12,871,300		2,110,241
28	FROM GENERATION		803,874		130,567
29	FROM GSU		12,067,426		1,979,674
30	OUT OF GSU		12,067,426		1,979,674
31	TO 44		0		0
32	SALES		0		0
33	LOSSES	0.30090402%	36,311	0.36904477%	7,306
34	INTO GSU		12,103,737		1,986,980
35	TO GSU		12,103,737		1,986,980
36	TO BULK		803,874		130,567

Attachment B

37 INTO LEVEL 2 12,907,611 2,117,547

**Southern Electric System
Composite Cost-of-Service Load Flow**

LINE NO.	DESCRIPTION (7)	ENERGY BALANCE		DEMAND BALANCE		
		LOSS/BYPASS FACTORS (8)	TOTAL ELECTRIC SYSTEM (9)	LOSS/BYPASS FACTORS	TOTAL ELECTRIC SYSTEM	
1	SALES		106,989,048		18,377,635	
2	LOSSES	1.38832715%	1,485,358	2.15056635%	341,645	
3	INTO 5		108,474,406		18,719,280	
4	OUT OF 4		108,474,406		18,719,280	
5	SALES		13,612,514		1,862,655	
6	LOSSES	1.93951899%	2,367,899	2.44884856%	531,717	
7	INTO 4		124,454,819		21,113,652	
8	OUT OF 3		124,454,819		21,113,652	
9	SALES		29,391,200		3,607,853	
10	LOSSES	0.55321158%	851,094	0.71447105%	176,628	
11	INTO 3		154,697,114		24,898,133	
12	OUT OF 2		154,697,114		24,898,133	
13	SALES		18,720,960		2,544,137	
14	LOSSES	2.30608143%	3,999,162	3.03130528%	831,859	
15	INTO 2		177,417,236		28,274,130	
16	OUT OF 1		177,417,236		28,274,130	
17	GENERATION		177,417,236		28,274,130	
BREAKDOWN OF LEVEL 2						
18	OUT OF 44		18,981,594		3,236,024	
19	SALES		2,011,612		254,930	
20	LOSSES	2.91185809%	451,570	3.74512761%	98,027	
21	INTO 44		21,444,775		3,588,981	13.03%
22	FROM GSU		0		0	
23	FROM BULK		21,444,775		3,588,981	
24	OUT OF BULK		21,444,775		3,588,981	
25	TO LEVEL 3		135,715,520		21,662,110	
26	SALES		16,709,349		2,289,208	
27	LOSSES	1.96226599%	3,188,596	2.46551352%	673,102	27,540,298
28	INTO BULK		177,058,240		28,213,400	
29	FROM GENERATION		20,247,213		5,626,292	
30	FROM GSU		156,811,027		22,587,108	
31	OUT OF GSU		156,811,027		22,587,108	
32	LOSSES	0.32110655%	358,996	0.40164163%	60,730	
33	INTO GSU		157,170,023		22,647,838	
34	TO GSU		157,170,023		22,647,838	
35	TO BULK		20,247,213		5,626,292	
36	INTO LEVEL 2		177,417,236		28,274,130	

**Ratio of
Subtransmission
Load to
Territorial Load**

13.03%

**Territorial
Load at Bulk**

ATTACHMENT C

SOUTHERN COMPANY
Loss Analysis Spreadsheet for 2012 Tariff Review

Hydro Available Scenario

A. Hydro Available at 87.1% load level-Gross Cases

(Note 1)	Generation B	Load C	losses D	Tie line loss Adj. (Note 2) E	Receipts F	Passthrough G	GSU Loss H	Total Supply B+F+G-H I	Percent Losses (D+E-H)/I	Avg	Delivery
G12v2As12_DLOSS_HYDRO	43,562.2	40,171.4	944.1	54.4	-1,337.5	0.0	78.7	42,146.0	2.1826%		3,840.8
G13v2As12_DLOSS_HYDRO	44,329.4	40,951.7	941.4	49.4	-1,350.7	0.0	79.5	42,899.2	2.1242%		3,842.5
G14v2As12_DLOSS_HYDRO	45,298.4	41,981.3	964.0	51.9	-1,434.4	0.0	82.0	43,782.0	2.1329%		3,844.3
G15v2As12_DLOSS_HYDRO	45,884.6	42,458.0	1,029.3	47.5	-1,448.1	0.0	83.3	44,353.2	2.2399%		3,905.0
G16v2As12_DLOSS_HYDRO	46,260.5	42,955.9	1,068.1	50.1	-1,611.7	0.0	84.9	44,563.9	2.3187%	2.1997%	3,906.2

B. Hydro Available at 58.24% load level-Gross Cases

(Note 1)	Generation B	Load C	losses D	Tie line loss Adj. (Note 2) E	Receipts F	Passthrough G	GSU Loss H	Total Supply B+F+G-H I	Percent Losses (D+E-H)/I	Avg	Delivery
G12v2As12_ELOSS_HYDRO	29,854.3	26,860.9	547.8	45.5	-1,337.5	0.0	53.4	28,463.4	1.8968%		3,840.8
G13v2As12_ELOSS_HYDRO	30,376.3	27,382.7	559.5	45.7	-1,350.7	0.0	53.7	28,971.9	1.9033%		3,842.5
G14v2As12_ELOSS_HYDRO	30,980.1	28,071.1	556.2	45.8	-1,434.4	0.0	56.6	29,489.1	1.8496%		3,844.3
G15v2As12_ELOSS_HYDRO	31,365.5	28,389.9	576.1	39.1	-1,448.1	0.0	56.7	29,860.7	1.8703%		3,905.0
G16v2As12_ELOSS_HYDRO	31,587.8	28,722.8	627.4	36.4	-1,611.7	0.0	56.6	29,919.5	2.0293%	1.9099%	3,906.2

Hydro Not available Scenario

C. Hydro Not Available at 87.1% load level-Gross Cases

(Note 1)	Generation B	Load C	losses D	Tie line loss Adj. (Note 2) E	Receipts F	Passthrough G	GSU Loss H	Total Supply B+F+G-H I	Percent Losses (D+E-H)/I	Avg	Delivery
G12v2As12_DLOSS_NOHYDRO	43,546.6	40,171.4	929.1	54.7	-1,337.5	0.0	77.3	42,131.8	2.1518%		3,840.8
G13v2As12_DLOSS_NOHYDRO	44,335.5	40,951.7	951.4	52.2	-1,350.7	0.0	77.4	42,907.4	2.1586%		3,842.5
G14v2As12_DLOSS_NOHYDRO	45,307.6	41,981.3	973.7	51.9	-1,434.4	0.0	80.4	43,792.8	2.1583%		3,844.3
G15v2As12_DLOSS_NOHYDRO	45,850.8	42,458.0	993.6	47.2	-1,448.1	0.0	82.8	44,319.9	2.1617%		3,905.0
G16v2As12_DLOSS_NOHYDRO	46,183.9	42,955.9	988.2	48.2	-1,611.7	0.0	83.8	44,488.4	2.1411%	2.1543%	3,906.2

D. Hydro Not Available at 58.24% load level-Gross Cases

(Note 1)	Generation B	Load C	losses D	Tie line loss Adj. (Note 2) E	Receipts F	Passthrough G	GSU Loss H	Total Supply B+F+G-H I	Percent Losses (D+E-H)/I	Avg	Delivery
G12v2As12_ELOSS_NOHYDRO	29,876.4	26,860.9	572.4	53.0	-1,337.5	0.0	51.9	28,487.0	2.0133%		3,840.8
G13v2As12_ELOSS_NOHYDRO	30,397.3	27,382.7	580.6	51.2	-1,350.7	0.0	52.6	28,994.0	1.9977%		3,842.5
G14v2As12_ELOSS_NOHYDRO	31,023.1	28,071.1	601.4	55.9	-1,434.4	0.0	54.5	29,534.2	2.0413%		3,844.3
G15v2As12_ELOSS_NOHYDRO	31,368.0	28,389.9	579.7	42.5	-1,448.1	0.0	54.5	29,865.4	1.9008%		3,905.0
G16v2As12_ELOSS_NOHYDRO	31,540.1	28,722.8	581.6	46.5	-1,611.7	0.0	54.7	29,873.7	1.9195%	1.9745%	3,906.2

- Notes: 1. "d" in title indicates cases **with** hydro generation dispatched.
 "d_NoHydro" in title indicates case **without** hydro generation dispatched.
 2. Losses determined in PSSE simulations include losses on tie lines between Southern Company and adjacent Control Areas based on "metered end" of line in the PSS/E model.
 Therefore, Area losses are adjusted based on percentage of line ownership.
 "+" adjustment for Southern Control Area owned tie line losses metered at Area 1 bus, "-" adjustment for Adjacent Area owned tie line losses metered at Adjacent Area bus.
 3. Losses are (losses from PSSE simulation + Auto no-load losses - 46kV losses)

	Losses for 12 cp load level (i.e., 87.1 % of Peak Load)		Losses for Energy load level (i.e., 58.24 % of Peak Load)	
	Loss percent with Hydro on	Loss percent without hydro	Loss percent with Hydro on	Loss percent without hydro
2012	2.1826%	2.1518%	1.8968%	2.0133%
2013	2.1242%	2.1586%	1.9033%	1.9977%
2014	2.1329%	2.1583%	1.8496%	2.0413%
2015	2.2399%	2.1617%	1.8703%	1.9008%
2016	2.3187%	2.1411%	2.0293%	1.9195%
	2.1997%	2.1543%	1.9099%	1.9745%
Losses determined from average of simulations with and without hydro		2.1770%		1.9422%
Losses that cannot be modeled in line flow simulations (based on ITS Study)		0.1807%		0.2864%
Losses on Southern Companies Bulk Transmission System		2.3576%		2.2286%

Sources of Bulk Transmission System Losses Other Than Those Calculated in Transmission Planning Load Flows

		Demand Losses (Average 2012 - 2016)			Energy Losses (Average 2012 - 2016)
Bulk Transmission Losses (incl transformers)	(Note 1)	B	2.1770%	Bulk Transmission Losses (incl transformers)	(Note 1) B 1.9422%
Capacitors & Reactors (STUDY)	(Note 2)		0.0052%	Capacitors & Reactors (STUDY)	(Note 2) 0.0014%
Catenary - Equiv. In Load Flow (B * 2%)			0.0435%	Catenary - Equiv. In Load Flow (B * 2%)	0.0388%
Contact Resistances (Assumed = 0)*			0.0000%	Contact Resistances (Assumed = 0)*	0.0000%
Corona (STUDY)	(Note 2)		0.0175%	Corona (STUDY)	(Note 2) 0.0817%
Dev. From Base Case Schedules (Assumed = 0)*			0.0000%	Dev. From Base Case Schedules (Assumed = 0)*	0.0000%
Dev. In inad. Inter. (STUDY)	(Note 2)		0.0277%	Dev. In inad. Inter (STUDY)	(Note 2) 0.0500%
E/M Fields (B*0.3%)			0.0065%	E/M Fields (STUDY)	0.0144%
Harmonics (B*.0625%)			0.0014%	Harmonics (B*.0625%)	0.0012%
Insulator Leakage (STUDY)	(Note 2)		0.0179%	Insulator Leakage (STUDY)	(Note 2) 0.0323%
Line out operation (STUDY)	(Note 2)		0.0063%	Line out operation (STUDY)	(Note 2) 0.0011%
OHGW Losses (B*1.4%)			0.0305%	OHGW Losses (B*1.4%)	0.0272%
Power Factor (Assumed = 0)*			0.0000%	Power Factor (Assumed = 0)*	0.0000%
Temp. Compensation of Resistance (Assumed = 0)*			0.0000%	Temp. Compensation of Resistance (Assumed = 0)*	0.0000%
Unbalanced System Operation (B * 1%)			0.0218%	Unbalanced System Operation (B * 1.75%)	0.0340%
Unmetered Auxiliary Equip. (STUDY)	(Note 2)		0.0024%	Unmetered Auxiliary Equip. (STUDY)	(Note 2) 0.0043%
Total System Demand Losses			2.3576%	Total System Energy Losses	2.2286%
Bulk Transmission Losses from Load Flow Simulation			2.1770%	Bulk Transmission Losses from Load Flow Simulation	1.9422%
Demand Losses other than from Load Flow			0.1807%	Energy Losses other than from Load Flow	0.2864%

* ITS Loss study identified this loss component. It was assumed = 0 for this Tariff Loss Study.

Note 1 - Bulk system losses were determined from 2012 series base cases, for average 12 CP and energy simulations.

Note 2 - Where updated information is not available, information taken directly from 2011 ITS Loss Study is used as representative of current conditions.

OPERATING COMPANY PLANNING ANALYSIS for SUBTRANSMISSION SYSTEM

2012 Demand Case (simulations & calculations performed at 85.8% of peak load)

	<u>Supply to Subtransmission</u>	<u>Line Losses</u>	<u>Transformer Losses</u>	<u>Total Losses</u>	<u>Losses as % of Supply</u>
Alabama Power Company	2,072.13	35.53	10.31	45.84	2.21%
Georgia Power Company	1,622.10	19.70	5.07	24.77	1.53%
Mississippi Power Company (Note 1)	61.20			2.10	3.43%
Gulf Power Company	47.55	0.44	0.31	0.75	1.57%
Losses determined through line flow simulations	3,802.98			73.46	1.93%
ITS Defined Losses that cannot be modeled in line flow simulations					<u>0.09%</u>
Demand losses on the Subtransmission System					2.02%

2012 Energy Case (simulations & calculations performed at 58.2% of peak load)

	<u>Supply to Subtransmission</u>	<u>Line Losses</u>	<u>Transformer Losses</u>	<u>Total Losses</u>	<u>Losses as % of Supply</u>
Alabama Power Company	1,398.96	18.54	7.14	25.67	1.84%
Georgia Power Company	1,100.30	9.40	5.07	14.47	1.32%
Mississippi Power Company (Note 1)	41.40			0.92	2.22%
Gulf Power Company	32.17	0.20	0.23	0.43	1.33%
Losses determined through line flow simulations	2,572.83			41.49	1.61%
ITS Defined Losses that cannot be modeled in line flow simulations					<u>0.08%</u>
Energy losses on the Subtransmission System					1.69%

Note 1 - Subtransmission loss data was only supplied in total for Mississippi Power Company

Sources of 44/46 kV Transmission System Losses Other Than Those Calculated in Operating Company Planning Load Flows

		SubTransmission Demand Losses			SubTransmission Energy Losses
SubTransmission Losses	(Note 1)	S	1.93%	SubTransmission Losses	(Note 1) S 1.61%
Capacitors & Reactors (8,210MVAR*.02%)=1.6 MW				Capacitors & Reactors (3,240 *.02%+272*0.15%)=1.1 MW	
Catenary - Equiv. In Load Flow (S * 2%)			0.0386%	Catenary - Equiv. In Load Flow (S * 2%)	0.0322%
Corona (5.4 MWs)				Corona (14.44 MW)	
Dev. In inad. Inter (5.019 MWs)				Dev. In inad. Inter (6.77 MW)	
E/M Fields (S*0.3%)				E/M Fields	
Harmonics (S*.0625%)			0.0012%	Harmonics (S*.0625%)	0.0010%
Insulator Leakage (w/fixed Resist./Disk)=6.55 MW				Insulator Leakage (w/fixed Resist./ Disk)=6.55 MW	
Line out operation				Line out operation	
OHGW Losses (S*1.4%)			0.0270%	OHGW Losses (S*1.4%)	0.0225%
Unbalanced System Operation (S * 1%)			0.0193%	Unbalanced System Operation S * 1.75)%	0.0282%
Unmetered Auxiliary Equip. (0.57MW)				Unmetered Auxiliary Equip. (0.76 MW)	
Total System Demand Losses			2.0161%	Total System Energy Losses	1.6939%
SubTransmission Losses simulated by Companies			1.93%	SubTransmission Losses simulated by Companies	1.61%
Demand Losses other than those simulated			0.0861%	Demand Losses other than those simulated	0.0839%

Note 1 - SubTransmission losses were determined by analysis performed by the Southern Companies using study tools available.

ATTACHMENT D

**Contents of CD Provided with
Updated Losses Analysis**

1. Load flow simulations provided in “LossEvaluationCases2012.zip”

- a) Cases with load representing 87.1% of peak load with hydro generation available:
 - i) G12v2As12_DLOSS_HYDRO.sav
 - ii) G13v2As12_DLOSS_HYDRO.sav
 - iii) G14v2As12_DLOSS_HYDRO.sav
 - iv) G15v2As12_DLOSS_HYDRO.sav
 - v) G16v2As12_DLOSS_HYDRO.sav

- b) Cases with load representing 87.1% of peak load without hydro generation available:
 - i) G12v2As12_DLOSS_NOHYDRO.sav
 - ii) G13v2As12_DLOSS_NOHYDRO.sav
 - iii) G14v2As12_DLOSS_NOHYDRO.sav
 - iv) G15v2As12_DLOSS_NOHYDRO.sav
 - v) G16v2As12_DLOSS_NOHYDRO.sav

- c) Cases with load representing 58.24% of peak load with hydro generation available:
 - i) G12v2As12_ELOSS_HYDRO.sav
 - ii) G13v2As12_ELOSS_HYDRO.sav
 - iii) G14v2As12_ELOSS_HYDRO.sav
 - iv) G15v2As12_ELOSS_HYDRO.sav
 - v) G16v2As12_ELOSS_HYDRO.sav

- d) Cases with load representing 58.24% of peak load without hydro generation available:
 - i) G12v2As12_ELOSS_NOHYDRO.sav
 - ii) G13v2As12_ELOSS_NOHYDRO.sav
 - iii) G14v2As12_ELOSS_NOHYDRO.sav
 - iv) G15v2As12_ELOSS_NOHYDRO.sav
 - v) G16v2As12_ELOSS_NOHYDRO.sav

2. Spreadsheets with GSU loss evaluation in “GSU_losses.zip:”

- e) Spreadsheet with GSU losses for cases with load representing 87.1% of peak load with hydro generation available:
 - i) G12v2As12_DLOSS_HYDRO_GSUlosses.csv
 - ii) G13v2As12_DLOSS_HYDRO_GSUlosses.csv
 - iii) G14v2As12_DLOSS_HYDRO_GSUlosses.csv
 - iv) G15v2As12_DLOSS_HYDRO_GSUlosses.csv

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- v) G16v2As12_DLOSS_HYDRO_GSUlosses.csv
- f) Spreadsheet for GSU loss for cases with load representing 87.1% of peak load without hydro generation available:
 - i) G12v2As12_DLOSS_NOHYDRO_GSUlosses.csv
 - ii) G13v2As12_DLOSS_NOHYDRO_GSUlosses.csv
 - iii) G14v2As12_DLOSS_NOHYDRO_GSUlosses.csv
 - iv) G15v2As12_DLOSS_NOHYDRO_GSUlosses.csv
 - v) G16v2As12_DLOSS_NOHYDRO_GSUlosses.csv
- g) Spreadsheet for GSU loss for cases with load representing 58.24% of peak load with hydro generation available:
 - i) G12v2As12_ELOSS_HYDRO_GSUlosses.csv
 - ii) G13v2As12_ELOSS_HYDRO_GSUlosses.csv
 - iii) G14v2As12_ELOSS_HYDRO_GSUlosses.csv
 - iv) G15v2As12_ELOSS_HYDRO_GSUlosses.csv
 - v) G16v2As12_ELOSS_HYDRO_GSUlosses.csv
- h) Spreadsheet for GSU loss for cases with load representing 58.24% of peak load without hydro generation available:
 - i) G12v2As12_ELOSS_NOHYDRO_GSUlosses.csv
 - ii) G13v2As12_ELOSS_NOHYDRO_GSUlosses.csv
 - iii) G14v2As12_ELOSS_NOHYDRO_GSUlosses.csv
 - iv) G15v2As12_ELOSS_NOHYDRO_GSUlosses.csv
 - v) G16v2As12_ELOSS_NOHYDRO_GSUlosses.csv

3. Spreadsheets with Tie Line loss evaluation in “Tie_line_losses.zip:”

- a) Spreadsheet with Tie Line losses for cases with load representing 87.1% of peak load with hydro generation available:
 - i) G12v2As12_DLOSS_HYDRO_TIElosses.csv
 - ii) G13v2As12_DLOSS_HYDRO_TIElosses.csv
 - iii) G14v2As12_DLOSS_HYDRO_TIElosses.csv
 - iv) G15v2As12_DLOSS_HYDRO_TIElosses.csv
 - v) G16v2As12_DLOSS_HYDRO_TIElosses.csv
- b) Spreadsheet for Tie Line loss for cases with load representing 87.1% of peak load without hydro generation available:
 - i) G12v2As12_DLOSS_NOHYDRO_TIElosses.csv
 - ii) G13v2As12_DLOSS_NOHYDRO_TIElosses.csv
 - iii) G14v2As12_DLOSS_NOHYDRO_TIElosses.csv
 - iv) G15v2As12_DLOSS_NOHYDRO_TIElosses.csv
 - v) G16v2As12_DLOSS_NOHYDRO_TIElosses.csv
- c) Spreadsheet with Tie Line losses for cases with load representing 58.24% of peak load with hydro generation available:
 - i) G12v2As12_ELOSS_HYDRO_TIElosses.csv

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- ii) G13v2As12_ELOSS_HYDRO_TIElosses.csv
 - iii) G14v2As12_ELOSS_HYDRO_TIElosses.csv
 - iv) G15v2As12_ELOSS_HYDRO_TIElosses.csv
 - v) G16v2As12_ELOSS_HYDRO_TIElosses.csv
- d) Spreadsheet for Tie Line loss for cases with load representing 58.24% of peak load without hydro generation available:
- i) G12v2As12_ELOSS_NOHYDRO_TIElosses.csv
 - ii) G13v2As12_ELOSS_NOHYDRO_TIElosses.csv
 - iii) G14v2As12_ELOSS_NOHYDRO_TIElosses.csv
 - iv) G15v2As12_ELOSS_NOHYDRO_TIElosses.csv
 - v) G16v2As12_ELOSS_NOHYDRO_TIElosses.csv
- 4. Spreadsheets with 46KV loss evaluation in “46kV_losses.zip:”**
- a) Spreadsheet with 46kV losses for cases with load representing 87.1% of peak load with hydro generation available:
- i) G12v2As12_DLOSS_HYDRO_46kVlosses.csv
 - ii) G13v2As12_DLOSS_HYDRO_46kVlosses.csv
 - iii) G14v2As12_DLOSS_HYDRO_46kVlosses.csv
 - iv) G15v2As12_DLOSS_HYDRO_46kVlosses.csv
 - v) G16v2As12_DLOSS_HYDRO_46kVlosses.csv
- b) Spreadsheet for 46kV losses for cases with load representing 87.1% of peak load without hydro generation available:
- i) G12v2As12_DLOSS_NOHYDRO_46kV losses.csv
 - ii) G13v2As12_DLOSS_NOHYDRO_46kV losses.csv
 - iii) G14v2As12_DLOSS_NOHYDRO_46kV losses.csv
 - iv) G15v2As12_DLOSS_NOHYDRO_46kV losses.csv
 - v) G16v2As12_DLOSS_NOHYDRO_46kV losses.csv
- c) Spreadsheet for 46kV losses for cases with load representing 58.24% of peak load with hydro generation available:
- i) G12v2As12_ELOSS_HYDRO_46kV losses.csv
 - ii) G13v2As12_ELOSS_HYDRO_46kV losses.csv
 - iii) G14v2As12_ELOSS_HYDRO_46kV losses.csv
 - iv) G15v2As12_ELOSS_HYDRO_46kV losses.csv
 - v) G16v2As12_ELOSS_HYDRO_46kV losses.csv
- d) Spreadsheet for 46kV losses for cases with load representing 58.24% of peak load without hydro generation available:
- i) G12v2As12_ELOSS_NOHYDRO_46kV losses.csv
 - ii) G13v2As12_ELOSS_NOHYDRO_46kV losses.csv
 - iii) G14v2As12_ELOSS_NOHYDRO_46kV losses.csv
 - iv) G15v2As12_ELOSS_NOHYDRO_46kV losses.csv
 - v) G16v2As12_ELOSS_NOHYDRO_46kV losses.csv

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5. Spreadsheet used for estimating the Autotransformer no-load losses.

- i) Auto_no_load_losses_2012.xls