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GULF POWER
A SOUTHERN COMPANY

June 30, 2008

080000

Ms. Ann Cole, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee FL 32399-0850

Dear Ms. Cole:

Enclosed are an original and fifteen copies of Gulf Power Company's 2009 Cost of Service Load Research Plan which is filed pursuant to Rule 25.6.0437(7).

Sincerely,

Susan D. Ritenour bnh

bh

Enclosures

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GULF POWER COMPANY

Cost of Service Load Research Plan

2009

June 2008

INTRODUCTION

The purpose of this load research plan is to ensure compliance with the Cost of Service Load Research Rule (referred to as the Rule), Docket No. 820491-EU, Order No. 13026, issued 02-23-84 by the Florida Public Service Commission.

This rule requires that all subject utilities shall provide for load research sampling of all rate classes that account for more than one percent of their annual retail sales and that the sampling plan shall be designed to provide estimates of the summer and winter peak demand by class and the averages of the twelve monthly coincident peaks for each class within plus or minus 10 percent relative accuracy at the 90 percent confidence level. However, the Rule was amended January 6, 2004, to change the requirement for Rate GS: "The sampling plan shall be designed to provide estimates of the summer and winter peak demands for the General Service Non-Demand rate class within plus or minus 15 percent at the 90 percent confidence interval." Another revision to the Rule states that each subject utility shall submit a revised sampling plan to the Commission no less than every three years. Previously, the Rule stated that the plan submission must occur every two years.

Provided in Table 1 are Gulf Power's rate classes subject to this rule and their 2007 energy relationship to the total retail energy sales. As shown on this table, rate classes RS, GS, GSD, LP, LPT, RTP, CISR/CSA and SBS meet the Rule's threshold which causes them to be included in the Cost of Service Load Research Plan.

TABLE 1

GULF POWER COMPANY
Energy By Rate

Rate	2007 MWh	% of Total Energy
RS	5,469,466	47.46%
GS	319,788	2.78%
GSD/GSDT/GS-TOU	2,665,175	23.13%
LP	583,152	5.06%
LPT	1,263,307	10.96%
RTP	869,384	7.54%
OS-I	24,496	0.21%
OS-II	83,474	0.72%
OS-III	32,847	0.29%
SBS	171,366	1.49%
CISR/CSA	41,105	0.36%
TOTAL RETAIL (1)	11,523,560	100.00%

(1) Excludes unbilled, Interdepartmental, company use and losses.

PREVIOUS SAMPLE DESIGN PLAN

The 2006 Load Research Study used the combined ratio estimator methodology for sample size estimates in all rate classes. Sample points were allocated to the various strata using the Neyman allocation procedure. Provided in Table 2 is a summary of the 2006 sample size for each of the applicable rate classes and the strata allocation variable with the strata limits.

The RS rate class, which represents approximately 47 percent of the total Company's annual kWh retail sales, was prestratified into six strata based on housing type and winter peak month usage. The break points were 900 kWh for multifamily and 925 and 1675 kWh for single family detached.

The GS rate class sample design was prestratified by kWh into four strata based on winter peak month usage with break points at 300, 1075, and 1875 kWh. The GS class accounts for only 2.8 percent of the Company's annual kWh retail sales.

The GSD rate class, accounting for 23 percent of the Company's annual kWh retail sales, was prestratified on the winter peak month kW demand with strata break points of 20.0 kW, 50.0 kW and 130.0 kW.

The LP rate class was prestratified into two groups. The first stratum contained a random sampling of 30 customers out of the total group of customers whose billing demand during January was lower than 800 kW. The second stratum was a census of all customers whose billing demand was 800 kW or higher. The LP rate

class accounts for 5.1 percent of the Company's annual kWh retail sales.

The LPT rate class was prestratified into two groups. The first stratum contained a random sampling of 20 customers out of the total group of customers whose billing demand during January was lower than 1,000 kW. The second stratum was a census of all customers whose billing demand was 1,000 kW or higher. The LPT rate class accounts for approximately 11 percent of the Company's annual kWh retail sales.

The SBS rate class customers, the RTP rate class customers, and the CISR/CSA customers were 100 percent metered, thus requiring no sample design.

PREVIOUS STUDY ACCURACY

The relative accuracy of the 2006 load research data based on the sample design described above is provided in Table 3 and the results obtained in this study were used in the design of the 2009 Load Research Study. All rate classes, except the GS rate class, achieved better than ten percent accuracy at the ninety percent confidence interval for the summer and winter peak period as well as for the averages of the twelve monthly coincident peaks. The GS rate class achieved better than fifteen percent accuracy at the ninety percent confidence interval for the summer and winter peak period as well as for the averages of the twelve monthly coincident peaks.

TABLE 2

GULF POWER COMPANY
2006 Cost of Service Load Research Rule Sample Size

Rate	Strata Allocation		Sample Size	
RS	1) MF-GT900		20	
	2) MF-LE900		21	
	3) MOBILE		33	
	4) SF-925*1675		53	
	5) SF-GE1676		49	
	6) SF-LE925		49	
		TOTAL	225	
GS	1) 0- 300		80	
	2) 301-1075		76	
	3) 1076-1875		73	
	4) 1876- UP		71	
		TOTAL	300	
GSD	1) 0 - 20 kW		31	
	2) 20.1- 50 kW		32	
	3) 50.1-130 kW		52	
	4) 130.1 kW- UP		45	
		TOTAL	160	
LP	1) Less than 800 kW		30	
	2) 800 kW and greater		25	(census)
		TOTAL	55	
LPT	1) Less than 1000 kW		20	
	2) 1000 kW and greater		33	(census)
		TOTAL	53	
RTP	1) All customers		19	(census)
SBS	1) All customers		3	(census)
CISR/CSA	1) All customers		1	(census)
		TOTAL	816	

Table 3

GULF POWER COMPANY
Load Research Data
January, 2006 to December, 2006

RATE CLASS RS

2006	Estimated CPKW	Relative Accuracy
Winter Peak	1,126,861	7.54%
Summer Peak	1,141,759	3.94%
12 Month Avg.	1,005,228	2.88%

RATE CLASS GS

2006	Estimated CPKW	Relative Accuracy
Winter Peak	52,950	11.46%
Summer Peak	74,736	7.27%
12 Month Avg.	56,949	3.97%

RATE CLASS GSD

2006	Estimated CPKW	Relative Accuracy
Winter Peak	344,372	7.02%
Summer Peak	491,101	3.49%
12 Month Avg.	385,759	2.56%

RATE CLASS LP

2006	Estimated CPKW	Relative Accuracy
Winter Peak	63,046	6.33%
Summer Peak	89,642	3.14%
12 Month Avg.	76,251	2.42%

RATE CLASS LPT

2006	Estimated CPKW	Relative Accuracy
Winter Peak	139,442	1.88%
Summer Peak	188,299	0.83%
12 Month Avg.	169,683	0.78%

RATE CLASS RTP

2006	Estimated CPKW	Relative Accuracy
Winter Peak	111,955	0.00%
Summer Peak	68,648	0.00%
12 Month Avg.	85,148	0.00%

RATE CLASS SBS

2006	Estimated CPKW	Relative Accuracy
Winter Peak	18,638	0.00%
Summer Peak	156	0.00%
12 Month Avg.	9,557	0.00%

2009 SAMPLE DESIGN PLAN

This 2009 sample design plan uses the data collected from the 2006 Load Research Study as required by the Cost of Service Load Research Rule, which states that ". . . any new or revised plan shall be developed using data from the utility's most current load research to determine the required sampling plan to achieve the precision required . . ".

The combined ratio estimator methodology was used for the sample size estimates for this 2009 sample plan. The formulas for this plan using this method are provided in Table 4. The definitions for the variables for these formulas are provided in Table 5. Stratified random sampling was used within each rate class, except those rate classes which were census-metered, to achieve better accuracy with fewer sample points. The actual calculations for each rate class, which provide sample size determinations based on the Neyman allocation methods, are provided in the description of each rate class within this study plan.

In all rate classes where census metering is not applicable, a new sample will be drawn from the existing population and the recorders deployed to those premises.

A summary of strata allocation and sample size for all rate classes is shown in Table 9.

TABLE 4
GULF POWER COMPANY
Formulas for Sample Plan

I. Sample Size Estimates Using Combined Ratio Estimator:

$$n = \frac{\left[\sum_{h=1}^{L} W_h \sqrt{F_h}\right]^2}{\left[\frac{D\left(\frac{\hat{T}_y}{N}\right)}{1.65}\right]^2 + \frac{1}{N}\sum_{h=1}^{L} W_h F_h}$$

$$F_h = S_{yh}^2 + \left(\hat{R}^2 * S_{xh}^2\right) - 2\hat{R} r_h * S_{yh} * S_{xh}$$

$$\hat{T}_y = \hat{R} * T_x$$

$$\hat{R} = \frac{\sum_{h=1}^{L} W_h \bar{y}_h}{\sum_{h=1}^{L} W_h \bar{x}_h}$$

II. Neyman Allocation of Sample Points to Strata:

$$n_h = \frac{W_h S_{yh}}{\sum_{h=1}^{L} W_h S_{yh}} * n$$

TABLE 5

GULF POWER COMPANY
Definitions for Formulas

n = Sample Size Estimate

n_h = Stratum Sample Size

W_h = Stratum Weight

D = Percent Relative Accuracy (0.1 or 0.15 for Rate GS)

$\hat{T}_y$ = Estimated Population CPKW

N = Population Number of Customers

$\hat{R}$ = Ratio Estimator

T_x = Population kWh

$\overline{Y}_h$ = Stratum Average CPKW

S_{yh} = Stratum Standard Deviation of CPKW

$\overline{x}_h$ = Stratum Average Monthly kWh

S_{xh} = Stratum Standard Deviation of Monthly kWh

r_h = Stratum Correlation Coefficient between CPKW & Monthly kWh

Subscripts

h = Stratum number

y = CPKW variable

x = Monthly kWh variable

RS Rate Class

The 2006 RS rate class study used a two-way sample design that incorporated a primary stratification variable of housing type and a secondary stratification variable of kWh for the single-family detached and multifamily housing types only. The 2009 RS rate class study will keep the 2006 design except for the multifamily housing type which will just have one stratum. The two breakpoints for single family detached will be 1,150 kWh and 1,950 kWh. The Neyman allocation of sample to strata for the 2009 study is as follows:

	PRIMARY	SECONDARY	WINTER		
	STRATA	STRATA	WSTD	MIN	2009
STR	DESCRIPTION	DESCRIPTION	CPKW	n	INSTALLED
1	Multifamily		0.65	31	59
2	Mobile Home		0.29	15	28
3	Single Family Detached	1150 to 1950 kWh	0.50	24	46
4	Single Family Detached	ge 1950 kWh	0.49	23	45
5	Single Family Detached	0-1150 kWh	0.51	24	47
			2.44	117	225

Additional data and study design calculations for this rate class are provided in Table 6.

TABLE 6

RATE RS
STRATIFICATION ON 01/2008 KWH
FIVE STRATA WITH 10% RELATIVE ACCURACY

02/2006 PEAK

			CPKW DATA				KWH DATA					
STRATUM	WEIGHT	S.S.	AVERAGE	WGT AVG	STD DEV	WGT STD	AVERAGE	WGT AVG	STD DEV	WGT STD	(F)	CORR.
MF	0.291911	56	2.39	0.70	2.22	0.65	764.89	223.28	454.06	132.54	0.56	0.517243
MOBILE	0.082566	45	4.82	0.40	3.53	0.29	1342.36	110.83	771.24	63.68	0.22	0.656453
SF-1150*1950	0.215222	81	4.52	0.97	2.33	0.50	1458.85	313.98	223.95	48.20	0.47	0.354991
SF-GE1950	0.138806	32	6.41	0.89	3.54	0.49	2483.81	344.77	458.05	63.58	0.43	0.496661
SF-LE1150	0.271495	122	1.70	0.46	1.88	0.51	641.83	174.25	306.39	83.18	0.47	0.385951
TOTAL				3.42		2.44		1167.11			2.15	

RATIO R_HAT = 0.00293
POP. # CUST.:352052 POP. ENERGY : 392768810
POP. CPKW : 1151091 POP. KW/CUST.: 3.27

ESTIMATES FOR 90% C.I., 10% RELATIVE ACCURACY
MEAN PER UNIT SAMPLE SIZE ESTIMATE = 137.98
RATIO METHOD SAMPLE SIZE ESTIMATE = 117.07

07/2006 PEAK

			CPKW DATA				KWH DATA					
STRATUM	WEIGHT	S.S.	AVERAGE	WGT AVG	STD DEV	WGT STD	AVERAGE	WGT AVG	STD DEV	WGT STD	(F)	CORR.
MF	0.291911	56	2.40	0.70	2.17	0.63	1365.96	398.74	841.62	245.68	0.34	0.845129
MOBILE	0.082566	41	3.82	0.32	2.00	0.16	2074.66	171.30	988.03	81.58	0.11	0.762559
SF-1150*1950	0.215222	92	3.60	0.78	1.30	0.28	1597.24	343.76	231.08	49.73	0.27	0.294814
SF-GE1950	0.138806	97	5.31	0.74	2.07	0.29	2829.00	392.68	923.82	128.23	0.18	0.791643
SF-LE1150	0.271495	44	1.99	0.54	1.26	0.34	710.66	192.94	323.62	87.86	0.31	0.434380
TOTAL				3.07		1.71		1499.42			1.21	

RATIO R_HAT = 0.00205
POP. # CUST.:353077 POP. ENERGY : 574252408
POP. CPKW : 1174958 POP. KW/CUST.: 3.33

ESTIMATES FOR 90% C.I., 10% RELATIVE ACCURACY
MEAN PER UNIT SAMPLE SIZE ESTIMATE = 83.72
RATIO METHOD SAMPLE SIZE ESTIMATE = 35.83

GENERAL SERVICE (NON-DEMAND) RATE CLASS

The 2006 study contained a total of 300 sample points stratified on winter peak month energy with strata break points at 300, 1,075, and 1,875 kWh. The resulting accuracy did meet the target accuracy of 15 percent at the 90 percent confidence level during both winter and summer peaks. Since the target accuracy was met, the basic sample design will be kept for 2009 with minor changes in the breakpoints. The 2009 GS rate class is prestratified into four strata with breakpoints at 675, 1,425, and 2,300 kWh of the average of January and February energy.

Shown below is the Neyman allocation of sample to strata for the 2009 study.

	WINTER		
STR	WSTD CPKW	MIN n	INSTALLED n
1	0.35	15	72
2	0.39	17	79
3	0.37	16	75
4	0.36	16	74
	1.47	64	300

Additional data and study design calculations for this rate class are provided in Table 7.

TABLE 7

RATE CLASS GS
ONE-WAY STRATIFICATION ON AVERAGE of 01/2008 AND 02/2008 kWh
FOUR STRATA WITH 15% RELATIVE ACCURACY

02/2006 PEAK

			]==========CPKW DATA==========]				]==========KWH DATA==========]					
STRATUM	WEIGHT	S.S.	AVERAGE	WGT AVG	STD DEV	WGT STD	AVERAGE	WGT AVG	STD DEV	WGT STD	(F)	CORR.
0-675	0.562952	113	0.33	0.18	0.63	0.35	205.27	115.56	217.76	122.59	0.26	0.677473
1425-2300	0.134915	82	3.43	0.46	2.86	0.39	1468.55	198.13	484.02	65.30	0.34	0.465637
2300-UP	0.072381	59	5.23	0.38	5.16	0.37	2567.78	185.86	1349.09	97.65	0.25	0.790255
675-1425	0.229752	78	1.70	0.39	1.58	0.36	883.21	202.92	411.53	94.55	0.35	0.337350
TOTAL				1.42		1.48		702.47			1.20	

RATIO R_HAT = 0.00201
POP. # CUST.: 29394 POP. ENERGY : 24162577
POP. CPKW : 48686 POP. KW/CUST.: 1.66

ESTIMATES FOR 90% C.I., 15% RELATIVE ACCURACY
MEAN PER UNIT SAMPLE SIZE ESTIMATE = 131.14
RATIO METHOD SAMPLE SIZE ESTIMATE = 63.57

07/2006 PEAK

			]==========CPKW DATA==========]				]==========KWH DATA==========]					
STRATUM	WEIGHT	S.S.	AVERAGE	WGT AVG	STD DEV	WGT STD	AVERAGE	WGT AVG	STD DEV	WGT STD	(F)	CORR.
0-675	0.562952	98	0.37	0.21	0.92	0.52	205.32	115.58	197.75	111.33	0.44	0.550303
1425-2300	0.134915	74	4.08	0.55	2.36	0.32	1824.54	246.16	260.36	35.13	0.31	0.287077
2300-UP	0.072381	83	8.47	0.61	4.82	0.35	3697.86	267.65	1759.11	127.33	0.24	0.735517
675-1425	0.229752	64	2.42	0.56	1.98	0.45	1071.97	246.29	228.90	52.59	0.45	0.143840
TOTAL				1.93		1.64		875.68			1.43	

RATIO R_HAT = 0.00220
POP. # CUST.: 29866 POP. ENERGY : 32757700
POP. CPKW : 72201 POP. KW/CUST.: 2.42

ESTIMATES FOR 90% C.I., 15% RELATIVE ACCURACY
MEAN PER UNIT SAMPLE SIZE ESTIMATE = 87.00
RATIO METHOD SAMPLE SIZE ESTIMATE = 42.17

GENERAL SERVICE - DEMAND RATE CLASS

Since the 2006 sample design provided very accurate load research results, no change is being proposed for the 2009 sample design. The stratification variable will be January kW billing demand with break points at 20 kW, 50 kW and 130 kW. The total number of sample points is to be 160, which is the same sample size as the one used in the 2006 study.

The Neyman allocation of sample to strata for the new study is as follows:

	WINTER		
	WSTD	MIN	INSTALLED
STR	CPKW	n	n
1	1.41	16	30
2	5.08	25	45
3	4.66	24	45
4	5.07	22	40
	16.22	87	160

Additional data and study design calculations for this rate class are provided in Table 8.

Table 8

RATE CLASS GSD, GSDT AND GSTOU
STRATIFIED ON JANUARY 2008 KW (NCP)

02/2006 PEAK

			]==========CPKW DATA============]				]==============KWH DATA==============]					
STRATUM	WEIGHT	S.S.	AVERAGE	WGT AVG	STD DEV	WGT STD	AVERAGE	WGT AVG	STD DEV	WGT STD	(F)	CORR.
0 - 20	0.356489	36	5.13	1.83	3.95	1.41	3178.89	1133.24	2184.97	778.92	1.57	0.389924
20.1- 50	0.409718	32	15.83	6.48	12.36	5.07	8490.00	3478.51	6541.66	2680.23	3.51	0.752462
50.1-130	0.176991	51	45.43	8.04	28.70	5.08	24917.92	4410.25	13123.77	2322.79	3.79	0.683181
130.1-UP	0.056802	33	150.42	8.54	81.98	4.66	80706.06	4584.27	33334.76	1893.48	3.33	0.700333
TOTAL				24.90		16.21		13606.3			12.20	

RATIO R_HAT = 0.00183
POP. # CUST.: 16565 POP. ENERGY : 194670803
POP. CPKW :356254 POP. KW/CUST.: 21.51

ESTIMATES FOR 90% C.I., 10% RELATIVE ACCURACY
MEAN PER UNIT SAMPLE SIZE ESTIMATE = 114.70
RATIO METHOD SAMPLE SIZE ESTIMATE = 87.04

07/2006 PEAK

			]==========CPKW DATA============]				]==============KWH DATA==============]					
STRATUM	WEIGHT	S.S.	AVERAGE	WGT AVG	STD DEV	WGT STD	AVERAGE	WGT AVG	STD DEV	WGT STD	(F)	CORR.
0 - 20	0.356489	33	10.62	3.78	5.76	2.05	4901.42	1747.30	2971.71	1059.38	1.18	0.829426
20.1- 50	0.409718	33	21.25	8.71	10.07	4.13	11064.67	4533.39	6039.50	2474.49	3.25	0.731610
50.1-130	0.176991	47	69.11	12.23	24.05	4.26	37058.26	6558.98	13098.36	2318.29	2.81	0.787560
130.1-UP	0.056802	40	191.84	10.90	86.78	4.93	108428.5	6158.96	48932.73	2779.48	1.69	0.945641
TOTAL				35.62		15.36		18998.6			8.93	

RATIO R_HAT = 0.00187
POP. # CUST.: 16325 POP. ENERGY : 272731802
POP. CPKW :511365 POP. KW/CUST.: 31.32

ESTIMATES FOR 90% C.I., 10% RELATIVE ACCURACY
MEAN PER UNIT SAMPLE SIZE ESTIMATE = 50.34
RATIO METHOD SAMPLE SIZE ESTIMATE = 21.98

LARGE POWER RATE CLASS

The 2006 study design provided a very accurate estimate of demand for this class. The 2009 sample design will retain the 2006 sample design which is two strata with census metering of all LP rate customers whose billing demand during January was 800 kW or higher and a random sampling of 30 customers of the remaining customers.

LARGE POWER TOU RATE CLASS

The 2006 study design provided a very accurate estimate of demand for this class. The 2009 sample design will retain the 2006 sample design which is two strata with census metering of all LPT rate customers whose billing demand during January was 1,000 kW or higher and a random sampling of 20 customers of the remaining customers.

RTP,CISR/CSA, SBS RATES

All customers being billed on these three rate classes have a recorder installed, thus no sample design is necessary. The number of customers on these rate classes as of May 2008 are as follows:

RTP Rate - 24 customers

SBS Rate - 3 customers

CISR/CSA Rate - 1 customer

Table 9
GULF POWER COMPANY
2009 Cost of Service Load Research Rule Sample Size

Rate		Strata Allocation	Sample Size	
RS	1)	Multifamily	59	
	2)	Mobile Home	28	
	3)	SFD 1150-1950 kWh	46	
	4)	SFD GE 1950 kWh	45	
	5)	SFD 0-1150 kWh	47	
		TOTAL	225	
GS	1)	0-675 kWh	72	
	2)	675-1425 kWh	79	
	3)	1425-2300 kWh	75	
	4)	over 2300 kWh	74	
		TOTAL	300	
GSD	1)	0-20.0 kW	30	
	2)	20.1-50.0 kW	45	
	3)	50.1-130.0 kW	45	
	4)	over 130.0 kW	40	
		TOTAL	160	
LP	1)	Less than 800 kW	30	
	2)	800 kW and greater	40	(census)
		TOTAL	70	
LPT	1)	Less than 1000 kW	20	
	2)	1000 kW and greater	40	(census)
		TOTAL	60	
RTP	1)	All customers	24	(census)
SBS	1)	All customers	3	(census)
CISR/CSA	1)	All customers	1	(census)
		TOTAL	843	