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July 28, 2017

Ms. Carlotta Stauffer
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: Undocketed

Dear Ms. Stauffer:

Attached for official filing is Gulf Power Company's 2018 Cost of Service Load Research Plan which is filed pursuant to Rule 25-6.0437.

Sincerely,

A handwritten signature in blue ink that reads "Robert L. McGee, Jr." in a cursive style.

Robert L. McGee, Jr.
Regulatory and Pricing Manager

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Attachments

cc: Florida Public Service Commission
Gregory Shafer, Director, Division of Economics (5 copies)
Beggs and Lane
Jeffrey A. Stone

GULF POWER COMPANY

Cost of Service Load Research Plan

2018

July 2017

INTRODUCTION

The purpose of this load research plan is to ensure compliance with the Cost of Service Load Research Rule (25-6.0437, F.A.C.), Docket No. 820491-EU, Order No. 13026, issued February 23, 1984, by the Florida Public Service Commission (FPSC). The rule was amended by the FPSC on January 6, 2004.

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. 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 level." The Rule also states that each subject utility shall submit a revised sampling plan to the Commission no less than every three years.

Provided in Table 1 are Gulf Power's rates subject to this rule and their 2016 energy relationship to total retail energy sales. As shown on this table, rates RS, RSVP, GS, GSD, LP, LPT, RTP and CIS exceed one percent of annual retail sales and are included in the Cost of Service Load Research Plan. Also included in Gulf's Plan is rate SBS.

TABLE 1

**GULF POWER COMPANY
 Energy By Rate**

<u>Rate</u>	2016 <u>MWh</u>	% of <u>Total</u> <u>Energy</u>
RS	5,042,258	45.56%
RSVP	275,786	2.49%
GS	305,698	2.76%
GSD/GSDT/GSTOU	2,575,348	23.27%
LP	319,370	2.89%
LPT	532,987	4.82%
RTP	1,669,696	15.09%
OS-I/II	108,860	0.98%
OS-III	46,448	0.42%
SBS	34,379	0.31%
CIS	156,522	1.41%
TOTAL RETAIL (1)	11,067,383	100.00%

(1) Excludes unbilled, company use and losses.

PREVIOUS SAMPLE DESIGN PLAN

The 2015 Load Research Study used the combined ratio estimator methodology for sample size estimates in the sampled rates. Sample points were allocated to the various strata using the Neyman allocation procedure. Provided in Table 2 is a summary of the 2015 sample size for each of the applicable rates and the strata allocation variable with the strata limits.

The RS rate, which represents approximately 46 percent of the Company's total annual kWh retail sales, was prestratified into five strata based on housing type and winter peak month energy. The breakpoints were 1,150 and 1,950 kWh for single family detached.

The RSVP rate, which represents approximately 2 percent of the Company's total annual kWh retail sales, was prestratified into three strata based on winter peak month energy. The breakpoints were 1,150 and 1,950 kWh.

The GS rate, which represents approximately 3 percent of the Company's total annual kWh retail sales, was prestratified into four strata based on winter peak month energy. The breakpoints were 600, 1,400, and 2,300 kWh.

The GSD rate, which represents approximately 23 percent of the Company's total annual kWh retail sales, was prestratified into four strata based on winter peak month demand. The breakpoints were 25, 50, and 130 kW.

All customers on the LP rate, which represents approximately 3 percent of the Company's total annual kWh retail sales, were included in the 2015 load research study. Therefore, no sample design was required.

All customers on the LPT rate, which represents approximately 5 percent of the Company's total annual kWh retail sales, were included in the 2015 load research study. Therefore, no sample design was required.

The SBS rate customers, the RTP rate customers, and the CIS customers were already 100 percent interval metered, thus they required no sample design.

PREVIOUS STUDY ACCURACY

The relative accuracy of the 2015 load research data is provided in Table 3. The results obtained in this study were used in the design of the 2018 Load Research Study. All rates achieved better accuracy than required by the rule.

Table 2
GULF POWER COMPANY
2015 Cost of Service Load Research Rule Sample Size

<u>Rate</u>	<u>Strata Allocation</u>	<u>Sample Size</u>
RS	1) Multifamily	45
	2) Mobile Home	13
	3) SFD 0-1150 kWh	37
	4) SFD 1151-1950 kWh	48
	5) SFD over 1950 kWh	57
	Total	200
RSVP	1) SFD 0-1150 kWh	43
	2) SFD 1151-1950 kWh	88
	3) SFD over 1950 kWh	69
	Total	200
GS	1) 0-600 kWh	53
	2) 601-1400 kWh	57
	3) 1401-2300 kWh	47
	4) Over 2300 kWh	43
	CENSUS *	20
	Total	220
GSD	1) 0-25.0 kW	25
	2) 25.1-50.0 kW	35
	3) 50.1-130.0 kW	43
	4) Over 130.0 kW	45
	GSTOU	45
	CENSUS *	169
	Total	362
LP	1) All customers (census)	139
LPT	1) All customers (census)	86
RTP	1) All customers (census)	117
SBS	1) All customers (census)	3
CIS	1) All customers (census)	2
	Total	1329

* These are industrial, primary or transmission voltage level customers

Table 3

GULF POWER COMPANY
 Load Research Data
January, 2015 to December, 2015

<u>2015</u>	RATE RS Estimated CPKW	Relative Accuracy	<u>2015</u>	RATE RSVP Estimated CPKW	Relative Accuracy
Winter Peak	1,423,311	7.04%	Winter Peak	61,735	8.47%
Summer Peak	1,152,765	3.77%	Summer Peak	52,388	4.84%
12 Month Avg.	1,014,442	2.51%	12 Month Avg.	45,601	3.59%

<u>2015</u>	RATE GS Estimated CPKW	Relative Accuracy	<u>2015</u>	RATE GSD Estimated CPKW	Relative Accuracy
Winter Peak	49,319	14.29%	Winter Peak	362,326	8.52%
Summer Peak	67,398	7.73%	Summer Peak	511,972	4.85%
12 Month Avg.	52,350	6.31%	12 Month Avg.	406,606	4.16%

<u>2015</u>	RATE LP Estimated CPKW	Relative Accuracy	<u>2015</u>	RATE LPT Estimated CPKW	Relative Accuracy
Winter Peak	41,970	1.52%	Winter Peak	61,014	0.52%
Summer Peak	57,725	1.13%	Summer Peak	86,614	0.19%
12 Month Avg.	47,426	1.04%	12 Month Avg.	72,737	0.39%

Table 3 (Cont.)

GULF POWER COMPANY
 Load Research Data
January, 2015 to December, 2015

<u>2015</u>	RATE RTP Estimated CPKW	Relative Accuracy	<u>2015</u>	RATE SBS Estimated CPKW	Relative Accuracy
Winter Peak	192,055	0.00%	Winter Peak	563	0.00%
Summer Peak	257,477	0.00%	Summer Peak	0	0.00%
12 Month Avg.	223,291	0.00%	12 Month Avg.	140	0.00%

<u>2015</u>	RATE CIS Estimated CPKW	Relative Accuracy
Winter Peak	11,551	0.00%
Summer Peak	24,310	0.00%
12 Month Avg.	18,146	0.00%

2018 SAMPLE DESIGN PLAN

The 2018 sample design plan uses data collected from the 2015 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 2018 sample plan includes all primary and transmission voltage level customers. These customers will be treated as a

separate population for each rate. In addition, where applicable, commercial and industrial customers will be treated as separate populations. For secondary voltage level customers, the combined ratio estimator methodology was used for the sample size estimates for this 2018 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, except those rates which were census-metered, to achieve better accuracy with fewer sample points. The actual calculations for each rate, which provide sample size determinations based on the Neyman allocation methods, are provided in the description of each rate within this study plan.

In all rates where census metering is not applicable, a new sample will be drawn from the existing population and interval recording will be deployed at those premises. To calculate the total rate data, the coincident peak kW (CPKW) estimates and variance for each group will be summed together and then a new standard deviation will be calculated along with a new relative accuracy.

A summary of strata allocation and sample size for all rates is shown in Table 10.

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
\bar{Y}_h	=	Stratum Average CPKW
S_{yh}	=	Stratum Standard Deviation of CPKW
\bar{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

RESIDENTIAL SERVICE (RS) RATE

The 2015 RS rate study used a two-way sample design that incorporated a primary stratification variable of housing type and a secondary stratification variable of kWh for single-family detached only. The 2018 RS rate study will keep the 2015 sample design. The two breakpoints for single family detached will be 1,150 and 1,950 kWh.

The Neyman allocation of sample to strata for the 2018 study is as follows:

PRIMARY STRATA		SECONDARY STRATA	WINTER WSTD	MIN	2018
<u>STR</u>	<u>DESCRIPTION</u>	<u>DESCRIPTION</u>	<u>CPKW</u>	<u>n</u>	<u>INSTALLED n</u>
1	Multifamily		0.62	28	47
2	Mobile Home		0.32	14	24
3	Single Family Detached	0 to 1150 kWh	0.65	29	49
4	Single Family Detached	1151-1950 kWh	0.68	30	50
5	Single Family Detached	1951 kWh and greater	<u>0.73</u>	<u>33</u>	<u>55</u>
			3.00	134	225

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

TABLE 6

RATE 'RS'
 TWO WAY STRATIFICATION ON 01/2017 KWH
 FIVE STRATA WITH 10% RELATIVE ACCURACY

01/2015 PEAK

STRATUM	WEIGHT	S.S.	=====CPKW DATA=====				=====KWH DATA=====				(F)	CORR.
			AVERAGE	WGT AVG	STD DEV	WGT STD	AVERAGE	WGT AVG	STD DEV	WGT STD		
MF	0.294621	44	2.75	0.81	2.11	0.62	642.25	189.22	448.61	132.17	0.53	0.570591
MOBILE	0.074427	9	5.34	0.40	4.35	0.32	1313.89	97.79	802.74	59.75	0.23	0.717262
SF-1150*1950	0.216213	52	5.51	1.19	3.17	0.68	1465.63	316.89	226.58	48.99	0.66	0.292400
SF-GE1950	0.163169	27	8.87	1.45	4.45	0.73	2680.26	437.34	570.15	93.03	0.59	0.601407
SF-LE1150	0.251570	47	2.51	0.63	2.58	0.65	677.15	170.35	329.89	82.99	0.61	0.356777
=====												
TOTAL												

RATIO R_HAT = 0.00369
 POP. # CUST.: 379252 POP. ENERGY : 380281509
 POP. CPKW : 1404954 POP. KW/CUST.: 3.70

ESTIMATES FOR 90% C.I., 10% RELATIVE ACCURACY
 RATIO METHOD SAMPLE SIZE ESTIMATE = 133.91

RATE 'RS'
 TWO WAY STRATIFICATION ON 07/2016 KWH
 FIVE STRATA WITH 10% RELATIVE ACCURACY

07/2015 PEAK

STRATUM	WEIGHT	S.S.	=====CPKW DATA=====				=====KWH DATA=====				(F)	CORR.
			AVERAGE	WGT AVG	STD DEV	WGT STD	AVERAGE	WGT AVG	STD DEV	WGT STD		
MF	0.304825	45	1.75	0.53	1.13	0.35	966.07	294.48	576.41	175.70	0.21	0.821009
MOBILE	0.071181	12	3.55	0.25	1.83	0.13	1679.17	119.52	755.76	53.80	0.09	0.714205
SF-1150*1950	0.259339	56	3.38	0.88	1.19	0.31	1541.89	399.87	216.36	56.11	0.29	0.376714
SF-GE1950	0.182468	42	5.18	0.95	1.69	0.31	2715.60	495.51	694.70	126.76	0.23	0.683478
SF-LE1150	0.182187	31	1.76	0.32	1.13	0.21	674.42	122.87	399.42	72.77	0.18	0.514616
=====												
TOTAL												

RATIO R_HAT = 0.00205
 POP. # CUST.: 378499 POP. ENERGY : 586037358
 POP. CPKW : 1198671 POP. KW/CUST.: 3.17

ESTIMATES FOR 90% C.I., 10% RELATIVE ACCURACY
 RATIO METHOD SAMPLE SIZE ESTIMATE = 27.04

RESIDENTIAL SERVICE VARIABLE PRICING (RSVP) RATE

The 2015 RSVP rate study used a design similar to that for the single family strata (strata 3-5) in the rate RS sample. The 2018 RSVP rate sample design will remain the same with the exception of an additional stratum. A four strata design for the RSVP rate will allow for a more equal dispersion of population weights to each stratum as well as reducing the variance for each stratum. The three breakpoints for rate RSVP will be 900, 1,300, and 1,800 kWh.

The Neyman allocation of sample to strata for the 2018 study is as follows:

<u>STR</u>	<u>STRATA DESCRIPTION</u>	<u>WSTD</u>	<u>WINTER</u>	
			<u>MIN</u>	<u>2018</u>
		<u>CPKW</u>	<u>n</u>	<u>INSTALLED n</u>
1	0 to 900 kWh	0.75	33	52
2	901-1300 kWh	0.93	41	64
3	1301-1800 kWh	0.80	37	56
4	1801 kWh and greater	<u>0.77</u>	<u>34</u>	<u>53</u>
		3.25	145	225

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

TABLE 7

```
*****;
* STRATUM 1: 0-900 KWH ;
* STRATUM 2: 901-1300 KWH ;
* STRATUM 3: 1301-1800 KWH ;
* STRATUM 4: 1801-UP KWH ;
*****;
```

RATE RSVP(exclude F & above)
 STRATIFIED ON 01/2017 KWH
 FOUR STRATA WITH 10% RELATIVE ACCURACY

		MONTH 201501		UPPER STRATA LIMITS				900	1300	1800			
		=====CPKW DATA=====						=====KWH DATA=====					
STRATUM	WEIGHT	S.S.	AVERAGE	WGT AVG	STD DEV	WGT STD	AVERAGE	WGT AVG	STD DEV	WGT STD	(F)	CORR.	
1	.330214	42	2.13	0.70	2.26	0.75	608.64	200.98	217.40	71.79	0.70	0.342843	
2	.269298	40	4.80	1.29	3.47	0.93	1125.78	303.17	122.03	32.86	0.90	0.372593	
3	.229482	47	5.07	1.16	3.48	0.80	1555.72	357.01	153.47	35.22	0.80	0.105307	
4	.171006	57	6.66	1.14	4.49	0.77	2357.61	403.17	587.82	100.52	0.67	0.493345	
=====		=====		=====		=====		=====		=====			
TOTAL				4.30		3.25		1264.33			3.06		

RATIO R_HAT = 0.00340
 POP. # CUST.: 17819 POP. ENERGY : 21934201
 POP. CPKW : 74576 POP. KW/CUST.: 4.19

ESTIMATES FOR 90% C.I., 10% RELATIVE ACCURACY
 RATIO SAMPLE SIZE ESTIMATE = 144.92

RATE RSVP(exclude F & above)
 STRATIFIED ON 07/2016 KWH
 FOUR STRATA WITH 10% RELATIVE ACCURACY

		MONTH 201507		UPPER STRATA LIMITS				900	1300	1800			
		=====CPKW DATA=====						=====KWH DATA=====					
STRATUM	WEIGHT	S.S.	AVERAGE	WGT AVG	STD DEV	WGT STD	AVERAGE	WGT AVG	STD DEV	WGT STD	(F)	CORR.	
1	.096614	11	2.15	0.21	1.28	0.12	627.18	60.59	286.12	27.64	0.14	-.133414	
2	.164940	32	2.31	0.38	0.96	0.16	1118.94	184.56	115.55	19.06	0.15	0.426950	
3	.275971	42	2.83	0.78	1.08	0.30	1528.17	421.73	144.10	39.77	0.27	0.501656	
4	.462475	79	4.63	2.14	1.93	0.89	2678.89	1238.92	699.59	323.54	0.73	0.590343	
=====		=====		=====		=====		=====		=====			
TOTAL				3.51		1.47		1905.80			1.28		

RATIO R_HAT = 0.00184
 POP. # CUST.: 16963 POP. ENERGY : 31079148
 POP. CPKW : 57192 POP. KW/CUST.: 3.37

ESTIMATES FOR 90% C.I., 10% RELATIVE ACCURACY
 RATIO SAMPLE SIZE ESTIMATE = 38.99

GENERAL SERVICE NON-DEMAND (GS) RATE

The 2015 GS rate study was stratified on winter peak month energy with strata breakpoints at 600, 1,400, and 2,300 kWh. The 2018 GS rate study will keep the 2015 sample design with minor changes in the breakpoints for the secondary voltage level customers. The 2018 GS rate is prestratified into four strata with breakpoints at 500, 1,200, and 2,400 kWh of the average of January and February energy. Primary voltage level customers and industrial class customers will have interval recorders and will be treated as a separate group from the secondary voltage level customers. There are three primary voltage level customers and 28 secondary voltage level industrial class customers in the GS rate.

The Neyman allocation of sample to strata for the 2018 study is as follows:

<u>STR</u>	<u>STRATA DESCRIPTION</u>	WINTER		2018 <u>INSTALLED n</u>
		<u>WSTD</u> <u>CPKW</u>	<u>MIN</u> <u>n</u>	
1	0-500 kWh	0.23	17	35
2	501-1200 kWh	0.61	45	92
3	1201-2400 kWh	0.45	33	68
4	2401 kWh and greater	0.20	15	30
	CENSUS *			<u>31</u>
		1.49	110	256

* These are primary voltage level or industrial class customers. Additional data and study design calculations for this rate are provided in Table 8.

TABLE 8

```
*****;
* STRATUM 1: 0 -500 KWH ;
* STRATUM 2: 501 -1200 KWH ;
* STRATUM 3: 1201-2400 KWH ;
* STRATUM 4: 2401-UP KWH ;
*****;
```

RATE GS(exclude F & above)
 STRATIFIED ON AVERAGE OF 01/2017 KWH and 02/2017 KWH
 FOUR STRATA WITH 15% RELATIVE ACCURACY

		MONTH 201502		UPPER STRATA LIMITS				500	1200	2400			
		=====CPKW DATA=====						=====KWH DATA=====					
STRATUM	WEIGHT	S.S.	AVERAGE	WGT AVG	STD DEV	WGT STD	AVERAGE	WGT AVG	STD DEV	WGT STD	(F)	CORR.	
1	.553770	53	0.22	0.12	0.41	0.23	149.43	82.75	155.72	86.24	0.18	0.632934	
2	.258126	42	2.30	0.59	2.37	0.61	844.02	217.86	202.16	52.18	0.62	-.001922	
3	.149318	50	3.76	0.56	3.00	0.45	1734.48	258.99	304.59	45.48	0.44	0.213008	
4	.038786	26	7.73	0.30	5.20	0.20	3168.38	122.89	705.18	27.35	0.21	-.018065	
TOTAL				1.58		1.49		682.49			1.46		

RATIO R_HAT = 0.00231
 POP. # CUST.: 32086 POP. ENERGY : 21202438
 POP. CPKW : 48950 POP. KW/CUST.: 1.53

ESTIMATES FOR 90% C.I., 15% RELATIVE ACCURACY
 RATIO SAMPLE SIZE ESTIMATE = 110.02

RATE GS(exclude F & above)
 STRATIFIED ON 07/2016 KWH
 FOUR STRATA WITH 15% RELATIVE ACCURACY

		MONTH 201507		UPPER STRATA LIMITS				500	1200	2400			
		=====CPKW DATA=====						=====KWH DATA=====					
STRATUM	WEIGHT	S.S.	AVERAGE	WGT AVG	STD DEV	WGT STD	AVERAGE	WGT AVG	STD DEV	WGT STD	(F)	CORR.	
1	.440506	47	0.37	0.16	0.60	0.27	157.36	69.32	159.49	70.26	0.19	0.698256	
2	.211864	30	1.71	0.36	1.55	0.33	826.53	175.11	213.64	45.26	0.31	0.285302	
3	.216531	56	4.13	0.89	2.40	0.52	1723.59	373.21	367.94	79.67	0.46	0.499662	
4	.131099	42	7.49	0.98	3.67	0.48	3437.90	450.70	767.37	100.60	0.46	0.308398	
TOTAL				2.40		1.59		1068.35			1.43		

RATIO R_HAT = 0.00225
 POP. # CUST.: 31831 POP. ENERGY : 32960689
 POP. CPKW : 74024 POP. KW/CUST.: 2.33

ESTIMATES FOR 90% C.I., 15% RELATIVE ACCURACY
 RATIO SAMPLE SIZE ESTIMATE = 45.38

GENERAL SERVICE DEMAND (GSD) RATE

The 2015 GSD rate study was stratified on winter peak month demand with strata breakpoints at 25, 50, and 130 kW. The 2018 GS rate study will keep the 2015 sample design with minor changes in the breakpoints for the secondary voltage level customers. The stratification variable will be February kW billing demand with breakpoints at 30, 60, and 120 kW for the commercial secondary voltage level customers. Primary voltage level customers and industrial class customers will have interval recorders and will be treated as a separate group from the secondary voltage level customers. There are 32 primary voltage level customers and 128 secondary voltage level industrial class customers on the GSD rate. Since GSTOU does not contain a demand charge in its rate, it will be its own group and contain a simple random sample of 45 secondary voltage level, commercial class customers. The total number of sample points for GSD will be 430.

Shown on the next page is the Neyman allocation of sample to strata for the 2018 study.

<u>STR</u>	<u>STRATA</u> <u>DESCRIPTION</u>	<u>WSTD</u> <u>CPKW</u>	<u>WINTER</u>	
			<u>MIN</u> <u>n</u>	<u>2018</u> <u>INSTALLED n</u>
1	0-30 kW	4.43	49	66
2	30.1-60 kW	3.62	40	54
3	60.1-120 kW	3.18	36	48
4	120.1 kW and greater	<u>3.80</u>	<u>42</u>	<u>57</u>
		15.03	167	225
	CENSUS *		160	160
	GSTOU		<u>30</u>	<u>45</u>
			357	430

* These are primary voltage level or industrial class customers.

Additional data and study design calculations for this rate are provided in Table 9.

Table 9

```
*****;
* STRATUM 1: 0-30 KW ;
* STRATUM 2: 30.1-60 KW ;
* STRATUM 3: 60.1-120 KW ;
* STRATUM 4: 120.1-UP KW ;
*****;
```

RATE GSD(exclude F & above)
 STRATIFIED ON 02/2017 KW
 FOUR STRATA WITH 10% RELATIVE ACCURACY

		MONTH 201502		UPPER STRATA LIMITS				30	60	120			
		=====CPKW DATA=====						=====KWH DATA=====					
STRATUM	WEIGHT	S.S.	AVERAGE	WGT AVG	STD DEV	WGT STD	AVERAGE	WGT AVG	STD DEV	WGT STD	(F)	CORR.	
1	.588356	62	6.88	4.05	7.54	4.43	4338.94	2552.84	5657.40	3328.56	6.35	0.229112	
2	.240208	51	22.28	5.35	15.06	3.62	12351.00	2966.81	7779.43	1868.68	3.05	0.605591	
3	.111895	37	26.87	3.01	28.40	3.18	20086.27	2247.55	13239.42	1481.43	2.64	0.593266	
4	.059541	36	113.55	6.76	63.87	3.80	58258.89	3468.80	37532.84	2234.75	2.63	0.762012	
=====		TOTAL		19.17		15.03		11236.00		14.66			

RATIO R_HAT = 0.00171
 POP. # CUST.: 15324 POP. ENERGY : 167729312
 POP. CPKW : 286097 POP. KW/CUST.: 18.67

ESTIMATES FOR 90% C.I., 10% RELATIVE ACCURACY
 RATIO SAMPLE SIZE ESTIMATE = 166.95

RATE GSD(exclude F & above)
 STRATIFIED ON 07/2016 KW
 FOUR STRATA WITH 10% RELATIVE ACCURACY

		MONTH 201507		UPPER STRATA LIMITS				30	60	120			
		=====CPKW DATA=====						=====KWH DATA=====					
STRATUM	WEIGHT	S.S.	AVERAGE	WGT AVG	STD DEV	WGT STD	AVERAGE	WGT AVG	STD DEV	WGT STD	(F)	CORR.	
1	.554113	58	9.62	5.33	8.26	4.58	6006.40	3328.22	9296.55	5151.34	9.63	0.195982	
2	.243156	45	26.99	6.56	16.80	4.09	12317.49	2995.08	7735.67	1880.98	2.47	0.797036	
3	.126832	43	52.34	6.64	30.16	3.82	28360.56	3597.03	14411.03	1827.78	2.32	0.797671	
4	.075899	38	159.68	12.12	95.72	7.26	90144.74	6841.85	58259.20	4421.79	3.30	0.912987	
=====		TOTAL		30.65		19.75		16762.18		17.73			

RATIO R_HAT = 0.00183
 POP. # CUST.: 15337 POP. ENERGY : 255691404
 POP. CPKW : 467531 POP. KW/CUST.: 30.48

ESTIMATES FOR 90% C.I., 10% RELATIVE ACCURACY
 RATIO SAMPLE SIZE ESTIMATE = 91.56

LP, LPT, RTP, CIS, SBS RATES

Gulf already collects interval data on all customers in rates RTP, CIS, and SBS; thus no sample design was necessary. Rates LP and LPT will also be census metered. The number of customers on these rates as of May 2017 are as follows:

LP Rate	- 116 customers
LPT Rate	- 81 customers
RTP Rate	- 132 customers
SBS Rate	- 3 customers
CIS Rate	- 4 customers

Table 10
GULF POWER COMPANY
2018 Cost of Service Load Research Plan Sample Size

<u>Rate</u>	<u>Strata Allocation</u>	<u>Sample Size</u>
RS	1) Multifamily	47
	2) Mobile Home	24
	3) SFD 0-1150 kWh	49
	4) SFD 1151-1950 kWh	50
	5) SFD over 1950 kWh	55
	Total	225
RSVP	1) SFD 0-900 kWh	52
	2) SFD 901-1300 kWh	64
	3) SFD 1301-1800 kWh	56
	4) SFD over 1800 kWh	53
	Total	225
GS	1) 0-500 kWh	35
	2) 501-1200 kWh	92
	3) 1201-2400 kWh	68
	4) Over 2400 kWh	30
	CENSUS *	31
Total	256	
GSD	1) 0-30.0 kW	66
	2) 30.1-60.0 kW	54
	3) 60.1-120.0 kW	48
	4) Over 120.0 kW	57
	GSTOU	45
	CENSUS *	160
Total	430	
LP	1) All customers (census)	116
LPT	1) All customers (census)	81
RTP	1) All customers (census)	132
SBS	1) All customers (census)	3
CIS	1) All customers (census)	4
	Total	1472

* These are industrial, primary or transmission voltage level customers