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December 30, 2020

Via Electronic Filing

Mr. Adam Teitzman, Clerk
Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

> **RE: Docket No. 20200000**
> **Florida Power & Light Company 2019 Load Research Study**

Dear Mr. Teitzman:

In compliance with Rule 25-6.0437, Florida Administrative Code, enclosed is the Florida Power & Light Company 2019 Load Research Study.

If you have any questions or require additional information about this filing, please call me at (561) 691-2391.

Sincerely,

/s/ *Tara B. DuBose*
Tara B. DuBose
Manager, Cost and Load Research

CC: Bill McNulty, Chief of Conservation and Forecasting (via electronic mail)
    Michael Barrett, Economic Supervisor (via electronic mail)
    Office of Commission Clerk

Florida Power & Light Company

700 Universe Boulevard, Juno Beach, FL 33408

FLORIDA POWER & LIGHT COMPANY

Load Research Study Results
Covering the Period from
January 1 through December 31, 2019
FPSC Rule 25-6.0437(7) F.A.C.

December 2020

Rates and Tariff Administration Department
Load Research Section

Table of Contents

I.   Purpose of the Study

The purpose of this load research study is to comply with the requirements of section (7) of the Florida Public Service Commission ("FPSC" or the "Commission") Rule No. 25-6.0437, Cost of Service Load Research. The Rule provides:

25-6.0437 Cost of Service Load Research.

   (1)   Applicability. This rule shall apply to all investor-owned electric utilities over which the Commission has jurisdiction and which provide electric service to more than 50,000 retail customers at the end of any calendar year.

   (2)   Purpose. The primary purpose of this rule is to require that load research that supports cost of service studies used in ratemaking proceedings is of sufficient precision to reasonably assure that tariffs are equitable and reflect the true costs of serving each class of customer. Load research data gathered and submitted in accordance with this rule will also be used by the Commission to allocate costs to the customer classes in cost recovery clause proceedings, in evaluating proposed and operating conservation programs, for research, and for other purposes consistent with the Commission's responsibilities.

   (3)   Sampling Plan. Within 90 days of becoming subject to this rule, each utility shall submit to the Commission a proposed load research sampling plan. The plan shall provide for sampling all rate classes that account for more than 1 percent of a utility's annual retail sales. The plan shall provide that all covered rate classes shall be sampled within two years of the effective date of this rule. The sampling plan shall be designed to provide estimates of the averages of the 12 monthly coincident peaks for each class within plus or minus 10 percent at the 90 percent confidence level. The sampling plan shall also be designed to provide estimates of the summer and winter peak demands for each rate class within plus or minus 10 percent at the 90 percent confidence level, except for the General Service Non-Demand rate class. 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.

   (4)   Review of Proposed Plan. Except where a utility has requested a formal ruling by the Commission, within 90 days after submission, the Commission's Division of Economic Regulation shall review each utility's plan to determine whether it satisfies the criteria set forth in subsection (3) above and shall notify the utility in writing of its decision accepting or rejecting the proposed sampling plan. If a proposed plan is rejected, the written notice of rejection shall state clearly the reasons for rejecting the proposed plan. If a utility's proposed plan is rejected, the utility shall submit a revised sampling plan to the Commission within 60 days after receiving the notice of rejection. Where a utility has requested staff review of its sampling plan and the plan has been rejected the utility may petition the Commission for approval of the plan. If a utility has not submitted a satisfactory sampling plan within 6 months following the submission of the initially proposed plan, the Commission may prescribe by order a sampling plan for the utility.

   (5)   Use of Approved Sampling Plan. The approved sampling plan shall be used for all load research performed for cost of service studies and other studies submitted to the Commission until a new sampling plan is approved by the Commission.

   (6)   Revised Sampling Plans. Each utility subject to this rule shall submit a current, revised sampling plan to the Commission no less often than every three years after the most recent sampling plan was required to be submitted. 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 in subsection (3) of this rule. New or revised plans shall be reviewed by the Commission pursuant to subsection (4) of this rule.

   (7)   Load Research Data to be Reported. Each utility subject to this rule shall perform a complete load research study in accordance with the specifications of this rule no less often than every three years. Each utility shall, within 120 days following completion of the study, submit to the Commission the results of each load research study completed after the effective date of this rule. The submission shall include a detailed calculation of the average 12 coincident peak and class load factors for each covered rate class based upon the load research results.

   (8)   Hourly Data to be Available Upon Request. Each utility subject to this rule shall make available within 30 days of a request by the Commission the estimated hourly demands by class for all hours in the year derived from this load research.

   Specific Authority 366.05(1), 350.127(2) FS. Law Implemented 350.117, 366.03, 366.04(2)(f), 366.05(1), 366.06(1), 366.82(3), (4) FS. History– New 3-11-84, Formerly 25-6.437, Amended 1-6-04.

The following table lists the rate classes included in this report and their respective annual retail billed sales and average customer population for 2019.

Rate Classes	2019 Annual Retail Billed Sales		2019 Average Population
	MWH	Percent	Population
RS(T)-1 Residential Service (RS-1 and RTR-1)	60,294,568	50.56%	4,476,588
GSD(T)-1 General Service Demand (GSD-1, GSDT-1, HLFT-1, SDTR-1A & SDTR-1B)	27,177,601	22.79%	105,577
GSLD(T)-1 General Service Large Demand 1 (500-1999 kW) (GSLD-1, GSLDT-1, CS-1, CST-1, HLFT-2, SDTR-2A and SDTR-2B)	10,043,166	8.42%	2,831
GS(T)-1 General Service Non-Demand (GS-1 & GST-1)	6,500,972	5.45%	448,378
GSLD(T)-2 General Service Large Demand 2 (2000+ kW) (GSLD-2, GSLDT-2, CS-2, CST-2, HLFT-3, SDTR-3A and SDTR-3B)	2,681,114	2.25%	156
CILC-1D Commercial/Industrial Load Control, Distribution	2,597,502	2.18%	264
CILC-1T Commercial/Industrial Load Control, Transmission	1,456,036	1.22%	17

For purposes of this study, the time-of-use rate schedules were combined with their associated non-time-of-use rate schedules. For example, General Service Demand (GSD-1), General Service Demand - Time of Use (GSDT-1), High Load Factor - Time of Use 1 (HLFT-1), Seasonal Demand - Time of Use Rider 1A (SDTR-1A) and Seasonal Demand - Time of Use Rider 1B (SDTR-1B) were analyzed as one class—GSD(T)-1.

Due to their population sizes, the studies for the RS(T)-1, GSD(T)-1, GSLD(T)-1 and GS(T)-1 rate classes are based on statistical sampling. The other rate classes included in this report (*i.e.*, CILC-1D, GSLD(T)-2 and CILC-1T) are 100 percent metered with recording meters for billing purposes and, therefore, do not require statistical sampling.

In accordance with section (3) of Rule 25-6.0437, the RS(T)-1, GSD(T)-1, GS(T)-1 and GSLD(T)-1 statistical samples were designed to provide estimates of the averages of the 12 monthly coincident peaks for each rate class within plus or minus 10 percent at the 90 percent confidence level. The sampling plan was also designed to provide estimates of the summer and winter peak demands for each rate class within plus or minus 10 percent at the 90 percent confidence level, except for the General Service Non-Demand (GS(T)-1) rate class. In accordance with section (3) of Rule 25-6.0437, the sampling plan for the GS(T)-1 rate class was designed to provide estimates of the summer and winter peak demand within plus or minus 15 percent at the 90 percent confidence level.

II. Sampling Methodology

This section summarizes the key elements of the load research sampling methodology used in this study.

Metering of Sampled Rate Classes

The sampled premises' conventional kilowatt-hour meters use Advanced Metering Infrastructure (AMI) meters to monitor electricity usage. AMI electric meters capture 60-minute energy intervals while AMI demand meters capture 15-minute energy intervals.

The data from the AMI meters was validated and processed in the Oracle Utilities Load Analysis (OULA) computer application. The interval load data was analyzed on a calendar month basis to derive the average load data, statistics and other related information contained in this report.

Sample Installation Procedure

The installed AMI meters collect interval data. Premises with an ongoing current diversion investigation or a location where current diversion is discovered are excluded from the sample.

In order to ensure continuous recording of energy intervals, a new rate class sample group is deployed prior to the removal of the existing study group. It is FPL's policy to have all meters for a new rate class sample set up and operating prior to the effective date of the new sample. The effective day for all new samples is January 1st.

AMI Replacement Procedure

In order to maintain the randomness of the sample, every effort is made to include the premises originally selected. In situations where it becomes impossible to include the original premise, a replacement is picked from a list of alternates randomly selected at the same time the original sample was drawn. The selected replacement is the first available alternate on the list within the same stratum and district as the original sample. Section IV of this report provides the actual number of replacements for each sampled rate class.

A thirty (30) day waiting period is observed before a sampled premise is replaced due to account

inactivity.

The status of each active sample premise is continuously monitored to ensure that they remain within the same rate class. If an active sample premise migrates to a different rate class, the sampled premise is replaced with an alternate.

Extrapolation Technique

FPL uses the Stratified Combined Ratio technique for the RS(T)-1, GSD(T)-1, GS(T)-1 and GSLD(T)-1 sampled rate classes. This methodology calculates a "combined ratio" across all strata, which is then used to extrapolate to the rate class level by applying the ratio to the rate total billed energy. This technique produces demand estimates for the class; it does not produce stratum-level demand estimates.

The Non-Stratified Ratio extrapolation technique applies only to simple random samples (*i.e.*, samples with no stratification) and 100% metered classes. In this report the Non-Stratified Ratio technique is used for CILC-1D, CILC-1T and GSLD(T)-2 rate classes.

III.   Sampling Plans

Sampling plans for the RS(T)-1, GSD(T)-1, GS(T)-1 and GSLD(T)-1 sampled rate classes were filed with and approved by the Commission's Division of Economic Regulation in accordance with Rule No. 25-6.0437. The sampling plans approved in those filings form the basis for the samples that were used for this study. Consistent with the Commission-approved plans, AMI meters of the selected sampled premises were flagged for load research. The AMI meters were activated and operational on or before December 31, 2018. The data used in this report covers the calendar months of 2019 (January 1, 2019 through December 31, 2019).

RS(T)-1 Residential Service (RS-1 & RTR-1)

The sample used for this study was installed in 2017. Consistent with the sampling plan approved by the FPSC staff on June 21, 2017 the RS(T)-1 rate class used a one-dimensional stratification random technique. The technique stratified the sample based on annual average monthly energy consumption (kWh). The most current energy consumption (kWh) data available prior to the sample implementation was used. The customer population was divided into kWh strata break points based on the Dalenius-Hodges procedure.

Stratum	Strata Break Point	Population Size	Sample Points	Stratum Weight
1	0 to 702 kWh	1,413,560	149	0.33166
2	703 to 1,339 kWh	1,569,275	249	0.36819
3	1,340 to 2,314 kWh	1,017,024	232	0.23862
4	2,315 kWh and Above	262,271	82	0.06153
Total		4,262,130	712	1.00000

GSD(T)-1 General Service Demand (GSD-1, GSDT-1, HLFT-1, SDTR-1A and SDTR-1B)

The sample used for this study was installed in 2016. Consistent with the sampling plan approved by the FPSC staff on May 12, 2014, the GSD(T)-1 rate class used a one-dimensional stratification random technique. The technique stratified the sample based on annual average monthly energy consumption (kWh). The most current energy consumption (kWh) data available prior to the sample implementation was used. The customer population was divided into kWh strata break points based on the Dalenius-Hodges procedure.

Stratum	Strata Break Point	Population Size	Sample Points	Stratum Weight
1	0 to 16,000 kWh	69,440	253	0.69229
2	16,001 to 65,920 kWh	24,322	237	0.24248
3	65,921 kWh and Above	6,543	87	0.06523
Total		100,305	577	1.00000

GS(T)-1 General Service Non-Demand (GS-1 & GST-1)

The sample used for this study was installed in 2018. Consistent with the updated sampling plan informational filing that was submitted and received by the FPSC staff on May 2, 2018, the GS(T)-1 rate class used a one-dimensional stratification random technique. The technique stratified the sample based on annual average monthly energy consumption (kWh). The most current energy consumption (kWh) data available prior to the sample implementation was used. The customer population was divided into kWh strata break points based on the Dalenius-Hodges procedure.

Stratum	Strata Break Point	Population Size	Sample Points	Stratum Weight
1	0 to 790 kWh	211,708	212	0.51064
2	791 to 1,900 kWh	111,313	147	0.26848
3	1,901 to 4,100 kWh	69,937	154	0.16869
4	4,101 kWh and Above	21,638	58	0.05219
Total		414,595	571	1.00000

GSLD(T)-1 General Service Large Demand 1 (GSLD-1, GSLDT-1, CS-1, CST-1, HLFT-2, SDTR-2A and SDTR-2B)

The sample used for this study was installed in 2016. Consistent with the sampling plan approved by the FPSC staff on May 12, 2014, the GSLD(T)-1 rate class used a one-dimensional stratification random technique. The technique stratified the sample based on annual average monthly energy consumption (kWh). The most current energy consumption (kWh) data available at the time of the sample selection was used to determine the sample size. The customer population was divided into kWh strata break points based on the Dalenius-Hodges procedure.

Stratum	Strata Break Point	Population Size	Sample Points	Stratum Weight
1	0 to 282,100 kWh	1,840	72	0.61138
2	282,101 kWh and Above	1,170	52	0.38862
Total		3,010	124	1.00000

IV.   **Sample Replacements**

The following table shows the actual replacements installed for each sampled rate class through 12/31/19. The table also shows the year the original sample selection was installed, the sample size and the sample depth. The sample depth column consists of the original sampled premise plus the number of replacement premises drawn. The replacements were obtained from the original computer-generated customer random sample selection list for each sampled rate class.

	Original Installation Year	Sample Size	Sample Depth	Actual Replacements Through 12/31/19
RS(T)-1 Residential Service	2017	712	51	45
GS(T)-1 General Service Non-Demand	2018	571	51	56
GSD(T)-1 General Service Demand	2016	577	51	182
GSLD(T)-1 General Service Large Demand 1	2016	124	21	71

V. **Study Results**

This section contains the estimated coincident and non-coincident peak demands for January 1 through December 31, 2019, for all rate classes included in this report. The 90 percent confidence intervals around the monthly peak demands and their percent relative accuracy is also presented for the sample rate classes. The averages of the twelve monthly coincident peaks, their 90 percent confidence intervals, and their relative accuracy were computed for the twelve-month calendar period ending December 31, 2019. The annual class non-coincident and coincident peak load factors were computed using the 2019 annual retail billed sales provided on page 2 of this report. The statistics shown in this section were derived using the Oracle Utilities Load Analysis (OULA) computer system.

FPL's winter peak occurred on November 7, 2019, during the hour ending at 3:00 PM and the summer peak occurred on June 25, 2019, during the hour ending at 4:00 PM.

FPL met the target level of statistical accuracy of plus or minus 10 percent (15 percent for GS(T)-1) at the 90 percent confidence level for the summer and winter peaks for the sampled rate classes. FPL also met the target level of statistical accuracy for each class of plus or minus 10 percent at the 90 percent confidence level for the estimate of averages of the 12 monthly coincident peaks.

RS(T)-1 Residential Service
(RS-1 and RTR-1)

	Class Non-coincident Peak			Coincident Peak		
	Demand	**Relative Accuracy**	**90% Confidence**	**Demand**	**Relative Accuracy**	**90% Confidence**
	(MW)	**y**	**Interval**	**(MW)**	**y**	**Interval**
Jan-19	9,474	6.26%	593	8,492	4.45%	378
Feb-19	10,364	3.99%	414	9,407	3.47%	326
Mar-19	9,910	3.77%	374	9,596	3.74%	359
Apr-19	10,584	3.15%	333	9,499	3.57%	339
May-19	11,258	3.09%	348	11,062	3.22%	356
Jun-19	13,606	2.59%	352	12,953	2.57%	333
Jul-19	13,407	2.62%	351	12,594	2.60%	327
Aug-19	13,422	2.61%	350	12,494	2.35%	294
Sep-19	14,431	2.24%	323	13,688	2.32%	318
Oct-19	12,143	2.82%	342	11,432	2.65%	303
Nov-19	13,758	2.55%	351	11,909	2.60%	310
Dec-19	8,361	4.33%	362	7,629	4.06%	310
Annual Peak	14,431					
Average of 12 CPs				10,896	1.67%	181
Load Factors	47.69%			63.17%		

GSD(T)-1 General Service Demand
(GSD-1, GSDT-1, HLFT-1, SDTR-1A and SDTR-1B)

	Class Non-coincident Peak			Coincident Peak		
	Demand	Relative Accuracy	90% Confidence	Demand	Relative Accuracy	90% Confidence
	(MW)	y	Interval	(MW)	y	Interval
Jan-19	4,114	2.74%	113	4,107	2.73%	112
Feb-19	4,021	2.67%	107	3,768	2.88%	109
Mar-19	4,000	2.85%	114	3,850	2.52%	97
Apr-19	4,118	2.73%	112	3,989	2.39%	95
May-19	4,117	2.71%	112	3,964	2.70%	107
Jun-19	4,766	2.56%	122	4,690	2.36%	111
Jul-19	4,560	2.35%	107	4,516	2.36%	107
Aug-19	4,591	2.39%	110	4,393	2.17%	95
Sep-19	4,977	2.50%	124	4,767	2.15%	102
Oct-19	4,511	2.67%	120	4,408	2.47%	109
Nov-19	4,843	2.77%	134	4,843	2.77%	134
Dec-19	4,123	2.88%	119	4,079	2.88%	117
Annual Peak	4,977					
Average of 12 CPs				4,281	2.03%	87
Load Factors	62.34%			72.47%		

GSLD(T)-1 General Service Large Demand 1 (500-1999 kW)
(GSLD-1, GSLDT-1, CS-1, CST-1, HLFT-2, SDTR-2A and SDTR-2B)

	Class Non-coincident Peak			Coincident Peak		
	Demand	Relative Accuracy	90% Confidence	Demand	Relative Accuracy	90% Confidence
	(MW)	y	Interval	(MW)	y	Interval
Jan-19	1,572	3.56%	56	1,420	3.64%	52
Feb-19	1,614	3.46%	56	1,408	3.96%	56
Mar-19	1,642	3.98%	65	1,435	3.61%	52
Apr-19	1,640	3.66%	60	1,478	3.19%	47
May-19	1,626	4.05%	66	1,459	3.15%	46
Jun-19	1,767	4.01%	71	1,694	3.46%	59
Jul-19	1,687	3.60%	61	1,609	3.50%	56
Aug-19	1,799	3.94%	71	1,608	3.26%	52
Sep-19	1,938	4.12%	80	1,737	3.34%	58
Oct-19	1,747	3.64%	64	1,678	3.90%	65
Nov-19	1,908	3.47%	66	1,895	3.32%	63
Dec-19	1,662	3.94%	65	1,616	4.44%	72
Annual Peak	1,938					
Average of 12 CPs				1,586	2.86%	45
Load Factors	59.16%			72.27%		

GS(T)-1 General Service Non Demand
(GS-1 & GST-1)

	Class Non-coincident Peak			Coincident Peak		
	Demand (MW)	Relative Accuracy	90% Confidence Interval	Demand (MW)	Relative Accuracy	90% Confidence Interval
Jan-19	1,066	6.00%	64	1,042	5.90%	61
Feb-19	1,070	5.87%	63	1,037	5.63%	58
Mar-19	1,103	5.57%	61	1,060	5.35%	57
Apr-19	1,194	4.68%	56	1,157	4.68%	54
May-19	1,204	4.73%	57	1,100	4.72%	52
Jun-19	1,428	4.02%	57	1,414	4.02%	57
Jul-19	1,381	4.21%	58	1,367	4.15%	57
Aug-19	1,364	3.94%	54	1,284	3.72%	48
Sep-19	1,453	3.85%	56	1,320	3.80%	50
Oct-19	1,311	4.41%	58	1,281	4.33%	55
Nov-19	1,411	4.62%	65	1,407	4.62%	65
Dec-19	1,117	5.40%	60	1,117	5.40%	60
Annual Peak	1,453					
Average of 12 CPs				1,215	3.84%	47
Load Factors	51.07%			61.06%		

CILC-1D Commercial/Industrial Load Control, Distribution

	Class Non-coincident Peak	Coincident Peak
	Demand (MW)	Demand (MW)
Jan-19	335	323
Feb-19	338	336
Mar-19	323	315
Apr-19	338	321
May-19	330	312
Jun-19	365	358
Jul-19	354	348
Aug-19	358	334
Sep-19	371	354
Oct-19	350	334
Nov-19	363	361
Dec-19	330	323
Annual Peak	371	
Average of 12 CPs		335
Load Factors	79.89%	88.51%

GSLD(T)-2 General Service Large Demand 2 (2000 kW +) (GSLD-2, GSLDT-2, CS-2, CST-2, HLFT-3, SDTR-3A and SDTR-3B)

	Class Non-coincident Peak	Coincident Peak
	Demand (MW)	Demand (MW)
Jan-19	359	348
Feb-19	332	323
Mar-19	327	317
Apr-19	344	318
May-19	339	318
Jun-19	372	358
Jul-19	379	358
Aug-19	390	351
Sep-19	414	398
Oct-19	377	349
Nov-19	410	409
Dec-19	365	363
Annual Peak	414	
Average of 12 CPs		351
Load Factors	73.89%	87.24%

CILC-1T Commercial/Industrial Load Control, Transmission

	Class Non-coincident Peak	Coincident Peak
	Demand (MW)	Demand (MW)
Jan-19	176	175
Feb-19	189	176
Mar-19	190	168
Apr-19	187	167
May-19	177	145
Jun-19	194	176
Jul-19	192	173
Aug-19	202	185
Sep-19	200	137
Oct-19	205	185
Nov-19	194	178
Dec-19	191	182
Annual Peak	205	
Average of 12 CPs		171
Load Factors	81.10%	97.43%