DUKE ENERGY FLORIDA

Matthew R. Bernier
ASSOCIATE GENERAL COUNSEL

July 30, 2021

VIA ELECTRONIC FILING

Adam J. Teitzman, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: *Cost of Service Load Research Study;* Undocketed

Dear Mr. Teitzman:

Pursuant to Rule 25-6.0437(7), F.A.C., please find enclosed for filing Duke Energy Florida, LLC's ("DEF") Cost of Service Load Research Study Results for the twelve-month period ending March 31, 2021.

Thank you for your assistance in this matter. Please feel free to call me at (850) 521-1428 should you have any questions concerning this filing.

Respectfully,

/s/ Matthew R. Bernier

Matthew R. Bernier

MRB/cmw
Enclosures

106 East College Avenue, Suite 800 ▪ Tallahassee, Florida 32301
Phone: 850.521.1428 ▪ Fax: 727.820.5041 ▪ Email: matthew.bernier@duke-energy.com

DUKE ENERGY FLORIDA, LLC ("DEF")

LOAD RESEARCH STUDY RESULTS

APRIL 2020 THROUGH MARCH 2021

SUBMITTED JULY 30, 2021

FPSC RULE 25-6.0437(7), F.A.C.

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Study Background and Objectives

The purpose of this study is to meet the requirements of the Cost of Service Load Research Rule, Docket No. 820491-EU, Order No. 13026, adopted as Rule 25-6.0437 ("the Rule") on February 23, 1984, by the Florida Public Service Commission ("FPSC or "Commission") and as amended on January 6, 2004.

Section 3 of the Rule requires that all rate classes that account for more than one percent of an investor-owned utility's annual retail sales be sampled and submitted to the Commission. Section 7 of the Rule directs that all investor-owned electric utilities submit this information to the Commission every three years. Per the direction of Section 3, the studies must be designed to provide estimates of the average of the 12 monthly coincident peaks for each rate class within plus or minus 10% relative precision at the 90% confidence level. The samples shall also be designed to provide estimates of the summer and winter peak demands for each rate class within plus or minus 10% relative precision at the 90% confidence level, except for the General Service Non-Demand rate class which shall be designed to provide estimates of the summer and winter peak demands within plus or minus 15% relative precision at the 90% confidence interval.

Study Period

The samples for this study were designed in the summer of 2019. The sample plan was submitted to FPSC Staff on July 15, 2019, and approved by Commission administrative authority Staff via letter on September 4, 2019. Interval recording meters were installed in the winter of 2019/2020. Data collection began on April 1, 2020, and continued through March 31, 2021.

Residential (RS) Rate Class

The Residential rate class had almost 1,720,000 customers when data collection commenced. Approximately 448,000 customers were on the load management rate at that time. Due to the large number of residences on load management, independent samples were drawn for both the load management and the standard residential rates. The samples were stratified on winter and summer billed kWh.

The RS sample size and stratum allocations are outlined in Table 1 for a total sample size of 570.

Stratum	Winter Low (<= 1,200 kWh)	Winter High (> 1,200 kWh)
RS Standard Summer Low (<= 1,600 kWh)	100	50
RS Standard Summer High (> 1,600 kWh)	50	110
RS LM Summer Low (<= 1,500 kWh)	80	60
RS LM Summer High (> 1,500 kWh)	50	70
Total	280	290

Table 1 – *Residential Sample Design*

General Service Non-Demand (GS) Rate Class

The GS rate class had almost 154,000 customers when data collection commenced. It was stratified on Summer billed kWh and revenue class – commercial, public authority and industrial. The GS sample size and stratum allocations are outlined in Table 2 for a total sample size of 855.

Cell (Stratum)	Sample Size
Commercial: Summer kWh <= 650	80
Commercial: Summer kWh > 650, but <= 1,600	60
Commercial: Summer kWh > 1,600, but <= 3,600	70
Commercial: Summer kWh > 3,600, but <= 9,000	60
Commercial: Summer kWh > 9,000, but <= 30,000	60
Commercial: Summer kWh > 30,000	90
Public Authority: Summer kWh <= 1,830	60
Public Authority: Summer kWh > 1,830, but <= 15,030	60
Public Authority: Summer kWh > 15,030, but <= 75,030	60
Public Authority: Summer kWh > 75,030	60
Industrial: Summer kWh <= 5,050	60
Industrial: Summer kWh > 5,050, but <= 17,250	55
Industrial: Summer kWh > 17,250, but <= 51,250	60
Industrial: Summer kWh > 51,250 (Census)	20
Total	855

Table 2 – *GS Sample Design*

General Service Demand (GSD) Rate Class

The GSD rate class had almost 50,000 customers when data collection commenced. The GSD rate class was stratified by revenue class – commercial, public authority and industrial. Each customer's 3rd highest demand of the last 12 months was used to establish small, medium and large cells. If a customer's 3rd highest demand is greater than 1000 kW, then the customer is already equipped with an interval meter for billing and would be included in a census stratum. The GSD sample size and stratum allocations are outlined in Table 3 for a total sample size of 521.

Cell (Stratum)	Sample Size
Commercial: 3rd highest kW <= 30	40
Commercial: 3rd highest kW > 30, but <= 90	35
Commercial: 3rd highest kW > 90, but <= 300	45
Commercial: 3rd highest kW > 300, but <= 900	30
Commercial: 3rd highest kW > 900	75
Public Authority: 3rd highest kW <= 125	50
Public Authority: 3rd highest kW > 125, but <= 600	50
Public Authority: 3rd highest kW > 600, but <= 4,300	50
Public Authority: 3rd highest kW > 4,300 (Census)	6
Industrial: 3rd highest kW <= 140	40
Industrial: 3rd highest kW > 140, but <= 520	40
Industrial: 3rd highest kW > 520, but <= 1,900	45
Industrial: 3rd highest kW > 1,900 (Census)	15
Total	521

Table 3 – *GSD Sample Design*

Interruptible Service (IS) Rate Class

The IS rate class did not require sampling because each customer in this class has an interval data meter for billing purposes. Data for all IS accounts was used in the analysis. In April 2020, there were 182 customers in the IS rate class.

Metering of Sample Members

During this study period, DEF was in the process of implementing AMI metering throughout its service territory. As a result, most of the sample interval data for this study came from AMI (smart meters). The other sample sites have solid-state meters with mass memory. These meters were all configured to record customer energy usage in fifteen-minute intervals. The data from the AMI meters was collected via the Itron Openway system and passed to the Oracle Utilities data management system ("MDM") for processing and validation. AMI data was extracted from the MDM system and transferred to the Oracle Load Analysis system. The data from the solid-state meters was collected, processed, and validated for accuracy in the Itron MV90xi software package. Monthly extracted files of interval data for the solid-state sample points were created from the Itron MV90xi system and transferred to the Oracle Load Analysis System. The Oracle Load Analysis System was used to further review the interval data and calculate the monthly customer class estimates contained in the report attached hereto.

Selection of Replacements

Alternates for customers in the sampled rate classes were selected at the time of the sample design. When a replacement was needed, the first available alternate for that sample point was selected.

Statistical Accuracy Achieved

The winter peak hour occurred on Thursday, February 4, 2021, at hour ending 8:00 AM, and the summer peak occurred on Thursday, June 25, 2020, at hour ending 5:00 PM. The ratio method was used for expansion to the class level for RS, GS, and GSD rate classes. No expansion was necessary for IS, because all customers were included in the analysis. The target level of statistical accuracy for the winter system peak, summer system peak and average of the 12 coincident peaks was met for all classes.

Tables 4 – 7 attached hereto contain the estimated class demands for the system peak hour, the class coincident peak hour, and the non-coincident peaks for the Residential, General Service Non-Demand, General Service Demand, and Interruptible Service rate classes. Also included are the 90% confidence intervals around the monthly peak demands and their relative precision in percentage. The averages of the twelve-monthly system peaks for all rate classes, their 90% confidence intervals and their relative precision are computed for the study period. The statistics shown in Tables 4-7 were obtained using Oracle's Load Analysis software package.

DUKE ENERGY FLORIDA, LLC
LOAD RESEARCH DATA
APRIL 2020 - MARCH 2021

RESIDENTIAL SERVICE (RS) CLASS

		Class Coincident Peak					Coincident with System Peak					Non-Coincident Peak		
Month	KWH Sales	Estimated Peak (MW)	90% Confidence Interval (MW)	Relative Precision (%)	Date	Time	Estimated Peak (MW)	90% Confidence Interval (MW)	Relative Precision (%)	Date	Time	Estimated Peak (MW)	90% Confidence Interval (MW)	Relative Precision (%)
Apr-20	1,716,255,906	5052.6	178.3	3.53	4/12/2020	18:00	4,783.4	150.3	3.14	4/13/2020	17:00	10,185.8	268.1	2.63
May-20	1,876,415,803	5092.5	174.5	3.43	5/31/2020	18:00	4,917.1	150.9	3.07	5/22/2020	17:00	10,137.0	269.3	2.66
Jun-20	2,171,446,076	5628.8	149.7	2.66	6/24/2020	18:00	5,468.9	156.1	2.86	**6/25/2020**	**17:00**	10,384.5	217.9	2.10
Jul-20	2,405,788,448	5662.6	139.9	2.47	**7/12/2020**	**17:00**	5,454.3	129.6	2.38	7/14/2020	17:00	10,808.2	244.8	2.27
Aug-20	2,313,520,464	5456.9	150.5	2.76	8/25/2020	18:00	5,399.2	162.2	3.00	8/25/2020	17:00	10,223.7	219.7	2.15
Sep-20	2,055,783,361	5400.5	148.4	2.75	9/3/2020	18:00	5,311.4	137.6	2.59	9/3/2020	17:00	10,128.4	235.6	2.33
Oct-20	1,838,927,814	4664.5	158.2	3.39	10/7/2020	18:00	4,551.5	163.8	3.60	10/7/2020	16:00	9,631.6	244.8	2.54
Nov-20	1,487,046,305	4128.7	169.1	4.10	11/15/2020	17:00	3,986.4	152.6	3.83	11/15/2020	16:00	9,994.9	280.6	2.81
Dec-20	1,594,776,555	4555.0	231.9	5.09	12/27/2020	8:00	4,443.7	224.4	5.05	12/27/2020	9:00	11,003.2	341.4	3.10
Jan-21	1,518,572,326	4231.0	209.6	4.95	1/19/2021	8:00	4,231.0	209.6	4.95	1/19/2021	8:00	10,204.8	299.5	2.94
Feb-21	1,249,500,221	4957.7	259.3	5.23	**2/4/2021**	**8:00**	4,957.7	259.3	5.23	**2/4/2021**	**8:00**	9,866.8	283.4	2.87
Mar-21	1,490,476,548	4225.1	192.2	4.55	3/27/2021	18:00	4,140.2	175.3	4.23	3/31/2021	17:00	10,260.3	317.2	3.09
		Twelve Coincident Peak Statistics:					**4803.7**	**74.5**	**1.55**					

Table 4 - *RS Class Results*

DUKE ENERGY FLORIDA, LLC
LOAD RESEARCH DATA
APRIL 2020 - MARCH 2021

GENERAL SERVICE (GS) CLASS

		Class Coincident Peak					Coincident with System Peak					Non-Coincident Peak		
Month	KWH Sales	Estimated Peak (MW)	90% Confidence Interval (MW)	Relative Precision (%)	Date	Time	Estimated Peak (MW)	90% Confidence Interval (MW)	Relative Precision (%)	Date	Time	Estimated Peak (MW)	90% Confidence Interval (MW)	Relative Precision (%)
Apr-20	164,164,081	434.3	22.8	5.24	4/13/2020	15:00	379.6	19.6	5.15	4/13/2020	17:00	828.1	50.1	6.05
May-20	175,151,374	488.0	30.5	6.24	5/28/2020	14:00	386.7	19.6	5.06	5/22/2020	17:00	846.5	47.7	5.64
Jun-20	209,906,804	543.4	21.2	3.91	6/25/2020	15:00	497.0	21.7	4.37	6/25/2020	17:00	935.5	48.3	5.17
Jul-20	225,964,482	544.6	34.5	6.34	7/13/2020	15:00	500.1	19.8	3.97	**7/14/2020**	**17:00**	951.9	46.7	4.91
Aug-20	229,817,047	581.7	27.4	4.70	8/25/2020	14:00	519.9	20.4	3.93	8/25/2020	17:00	945.5	45.3	4.80
Sep-20	223,133,618	601.3	27.2	4.53	**9/2/2020**	**15:00**	541.0	21.3	3.93	9/3/2020	17:00	987.1	45.3	4.59
Oct-20	223,637,073	576.4	22.9	3.96	10/8/2020	15:00	564.3	24.6	4.36	10/7/2020	16:00	984.9	40.8	4.14
Nov-20	193,046,106	529.6	21.5	4.06	11/10/2020	12:00	310.5	16.1	5.18	11/15/2020	16:00	968.9	42.9	4.43
Dec-20	171,167,307	406.2	26.6	6.55	12/9/2020	9:00	291.8	31.2	10.70	12/27/2020	9:00	1,016.6	63.2	6.22
Jan-21	140,531,910	336.8	26.4	7.84	1/19/2021	9:00	293.4	20.6	7.01	**1/19/2021**	**8:00**	808.8	60.1	7.43
Feb-21	152,077,516	436.6	29.1	6.66	**2/4/2021**	**9:00**	412.6	29.0	7.03	2/4/2021	8:00	921.7	57.3	6.22
Mar-21	189,951,563	523.9	24.7	4.71	3/31/2021	15:00	482.2	24.4	5.05	3/31/2021	17:00	967.3	52.3	5.41
		Twelve Coincident Peak Statistics:					**431.6**	**12.9**	**2.99**					

Table 5 - *GS Class Results*

DUKE ENERGY FLORIDA, LLC
LOAD RESEARCH DATA
APRIL 2020 - MARCH 2021

GENERAL SERVICE DEMAND (GSD) CLASS

		Class Coincident Peak					Coincident with System Peak					Non-Coincident Peak		
Month	KWH Sales	Estimated Peak (MW)	90% Confidence Interval (MW)	Relative Precision (%)	Date	Time	Estimated Peak (MW)	90% Confidence Interval (MW)	Relative Precision (%)	Date	Time	Estimated Peak (MW)	90% Confidence Interval (MW)	Relative Precision (%)
Apr-20	934,751,078	1,984.1	56.3	2.84	4/13/2020	15:00	1,902.3	53.0	2.78	4/13/2020	17:00	2,463.0	64.1	2.60
May-20	1,004,989,824	2,123.4	52.7	2.48	5/28/2020	15:00	1,935.2	44.6	2.30	5/22/2020	17:00	2,562.7	61.8	2.41
Jun-20	1,117,024,861	2,239.8	50.6	2.26	6/25/2020	15:00	2,171.2	48.1	2.22	6/25/2020	17:00	2,727.5	56.8	2.08
Jul-20	1,164,189,730	2,163.7	47.5	2.20	7/13/2020	15:00	2,107.7	45.3	2.15	**7/14/2020**	**17:00**	2,666.9	54.6	2.05
Aug-20	1,257,010,877	2,414.6	50.5	2.09	**8/26/2020**	**16:00**	2,322.6	47.9	2.06	8/25/2020	17:00	2,903.6	57.2	1.97
Sep-20	1,135,967,655	2,300.0	55.1	2.40	9/4/2020	14:00	2,214.9	50.4	2.28	9/3/2020	17:00	2,749.8	55.7	2.02
Oct-20	1,155,903,361	2,259.9	52.3	2.32	10/7/2020	15:00	2,232.4	52.1	2.34	10/7/2020	16:00	2,723.7	56.4	2.07
Nov-20	1,026,619,598	2,161.5	53.3	2.46	11/10/2020	12:00	1,710.1	52.7	3.08	11/15/2020	16:00	2,690.2	61.4	2.28
Dec-20	961,407,384	1,816.0	45.7	2.52	12/14/2020	15:00	1,356.1	59.0	4.35	12/27/2020	9:00	2,609.0	74.4	2.85
Jan-21	806,069,038	1,531.4	48.7	3.18	1/27/2021	15:00	1,351.4	52.2	3.86	**1/19/2021**	**8:00**	2,161.5	63.3	2.93
Feb-21	822,305,663	1,819.9	51.8	2.84	**2/18/2021**	**15:00**	1,516.3	65.3	4.30	2/4/2021	8:00	2,428.2	65.8	2.71
Mar-21	1,024,356,362	2,152.7	58.7	2.73	3/31/2021	15:00	2,093.9	54.7	2.61	3/31/2021	17:00	2,673.2	68.6	2.57
		Twelve Coincident Peak Statistics:					**1,909.5**	**35.7**	**1.87**					

Table 6 - *GSD Class Results*

DUKE ENERGY FLORIDA, LLC
LOAD RESEARCH DATA
APRIL 2020 - MARCH 2021

INTERRUPTIBLE (IS) CLASS

		Class Coincident Peak					Coincident with System Peak					Non-Coincident Peak		
Month	KWH Sales	Estimated Peak (MW)	* 90% Confidence Interval (MW)	* Relative Precision (%)	Date	Time	Estimated Peak (MW)	* 90% Confidence Interval (MW)	* Relative Precision (%)	Date	Time	Estimated Peak (MW)	* 90% Confidence Interval (MW)	* Relative Precision (%)
Apr-20	183,824,632	319.9	N/A	N/A	4/23/2020	19:00	277.1	N/A	N/A	4/13/2020	17:00	432.2	N/A	N/A
May-20	175,238,943	320.8	N/A	N/A	5/26/2020	21:00	278.9	N/A	N/A	5/22/2020	17:00	444.2	N/A	N/A
Jun-20	181,104,207	309.9	N/A	N/A	6/11/2020	19:00	247.4	N/A	N/A	6/25/2020	17:00	438.5	N/A	N/A
Jul-20	197,560,724	334.3	N/A	N/A	7/8/2020	17:00	248.0	N/A	N/A	**7/14/2020**	**17:00**	444.6	N/A	N/A
Aug-20	205,138,680	360.2	N/A	N/A	**8/17/2020**	**23:00**	270.8	N/A	N/A	8/25/2020	17:00	473.9	N/A	N/A
Sep-20	195,250,102	335.0	N/A	N/A	9/2/2020	15:00	297.3	N/A	N/A	9/3/2020	17:00	453.6	N/A	N/A
Oct-20	193,144,091	332.9	N/A	N/A	10/29/2020	11:00	287.4	N/A	N/A	10/7/2020	16:00	477.6	N/A	N/A
Nov-20	190,572,895	361.0	N/A	N/A	11/10/2020	16:00	274.6	N/A	N/A	11/15/2020	16:00	477.7	N/A	N/A
Dec-20	186,874,812	311.4	N/A	N/A	12/4/2020	17:00	238.8	N/A	N/A	12/27/2020	9:00	464.1	N/A	N/A
Jan-21	199,161,917	333.5	N/A	N/A	1/15/2021	9:00	292.8	N/A	N/A	**1/19/2021**	**8:00**	479.8	N/A	N/A
Feb-21	192,120,805	340.3	N/A	N/A	**2/8/2021**	**18:00**	305.2	N/A	N/A	2/4/2021	8:00	501.5	N/A	N/A
Mar-21	216,074,846	351.2	N/A	N/A	3/9/2021	12:00	296.6	N/A	N/A	3/31/2021	17:00	487.8	N/A	N/A
		Twelve Coincident Peak Statistics:					**276.2**							

* All accounts were used for the IS analysis, so the confidence interval and relative precision do not apply.

Table 7 - *IS Class Results*

APPENDIX

Development of Load Factors

FLORIDA PUBLIC SERVICE COMMISSION

COMPANY: Duke Energy Florida, LLC

EXPLANATION: For each rate class that is not 100% interval metered, provide the estimated historic value and 90% confidence interval by month from the latest load research for (1) contribution to monthly system peaks (coincident), (2) monthly noncoincident peak (class peaks) and (3) monthly customer maximum demand (billing demand for demand classes). For classes, 100% metered with interval meters provide actual monthly values for the aforementioned demands and identify such as actual values. Also, provide the annual KWH as well as the 12 CP Load Factor, Class NCP Load Factor and the Customer Load Factor for each class.

Type of Data Shown:
_X__ Historical Test Year Ended 03/31/21
____Projected Test Year Ended ___/___/___
____Prior Year Ended ___/___/___

Rate Schedule	Month and Year	Estimated Coincident Peak	90% Confidence Interval	Estimated Noncoincident Peak	90% Confidence Interval	Estimated Customer Maximum Demand	90% Confidence Interval	KWH
Residential Service								
	Apr-20	4,783.4	150.3	5,052.6	178.3	10185.8	268.1	1,716,255,906
	May-20	4,917.1	150.9	5,092.5	174.5	10137.0	269.3	1,876,415,803
	Jun-20	5,468.9	156.1	5,628.8	149.7	10384.5	217.9	2,171,446,076
	Jul-20	5,454.3	129.6	5,662.6	139.9	10808.2	244.8	2,405,788,448
	Aug-20	5,399.2	162.2	5,456.9	150.5	10223.7	219.7	2,313,520,464
	Sep-20	5,311.4	137.6	5,400.5	148.4	10128.4	235.6	2,055,783,361
	Oct-20	4,551.5	163.8	4,664.5	158.2	9631.6	244.8	1,838,927,814
	Nov-20	3,986.4	152.6	4,128.7	169.1	9994.9	280.6	1,487,046,305
	Dec-20	4,443.7	224.4	4,555.0	231.9	11003.2	341.4	1,594,776,555
	Jan-21	4,231.0	209.6	4,231.0	209.6	10204.8	299.5	1,518,572,326
	Feb-21	4,957.7	259.3	4,957.7	259.3	9866.8	283.4	1,249,500,221
	Mar-21	4,140.2	175.3	4,225.1	192.2	10260.3	317.2	1,490,476,548

Annual Peak: 5,663 MW

Annual KWH: 21,718,509,827

12 Month Coincident Peak Average: 4,804 MW

12 CP Load Factor: 0.516

90% Confidence Interval: 74 MW

Class (NCP) Load Factor: 0.438

Sum of individual customer annual max demands: 14,203 MW

Customer (Billing or Maximum Demand) Load Factor: 0.175

Supporting Schedules:

FLORIDA PUBLIC SERVICE COMMISSION

COMPANY: Duke Energy Florida, LLC

EXPLANATION: For each rate class that is not 100% interval metered, provide the estimated historic value and 90% confidence interval by month from the latest load research for (1) contribution to monthly system peaks (coincident), (2) monthly noncoincident peak (class peaks) and (3) monthly customer maximum demand (billing demand for demand classes). For classes, 100% metered with interval meters provide actual monthly values for the aforementioned demands and identify such as actual values. Also, provide the annual KWH as well as the 12 CP Load Factor, Class NCP Load Factor and the Customer Load Factor for each class.

Type of Data Shown:
_X__ Historical Test Year Ended 03/31/21
____Projected Test Year Ended ___/___/___
____Prior Year Ended ___/___/___

Rate Schedule	Month and Year	Estimated Coincident Peak	90% Confidence Interval	Estimated Noncoincident Peak	90% Confidence Interval	Estimated Customer Maximum Demand	90% Confidence Interval	KWH
General Service Non-Demand								
	Apr-20	379.6	19.6	434.3	22.8	828.1	50.1	164,164,081
	May-20	386.7	19.6	488.0	30.5	846.5	47.7	175,151,374
	Jun-20	497.0	21.7	543.4	21.2	935.5	48.3	209,906,804
	Jul-20	500.1	19.8	544.6	34.5	951.9	46.7	225,964,482
	Aug-20	519.9	20.4	581.7	27.4	945.5	45.3	229,817,047
	Sep-20	541.0	21.3	601.3	27.2	987.1	45.3	223,133,618
	Oct-20	564.3	24.6	576.4	22.9	984.9	40.8	223,637,073
	Nov-20	310.5	16.1	529.6	21.5	968.9	42.9	193,046,106
	Dec-20	291.8	31.2	406.2	26.6	1016.6	63.2	171,167,307
	Jan-21	293.4	20.6	336.8	26.4	808.8	60.1	140,531,910
	Feb-21	412.6	29.0	436.6	29.1	921.7	57.3	152,077,516
	Mar-21	482.2	24.4	523.9	24.7	967.3	52.3	189,951,563

Annual Peak: 601 MW

Annual KWH: 2,298,548,882

12 Month Coincident Peak Average: 432 MW

12 CP Load Factor: 0.608

90% Confidence Interval: 13 MW

Class (NCP) Load Factor: 0.436

Sum of individual customer annual max demands: 1332 MW

Customer (Billing or Maximum Demand) Load Factor: 0.197

Supporting Schedules:

FLORIDA PUBLIC SERVICE COMMISSION

COMPANY: Duke Energy Florida, LLC

EXPLANATION: For each rate class that is not 100% interval metered, provide the estimated historic value and 90% confidence interval by month from the latest load research for (1) contribution to monthly system peaks (coincident), (2) monthly noncoincident peak (class peaks) and (3) monthly customer maximum demand (billing demand for demand classes). For classes, 100% metered with interval meters provide actual monthly values for the aforementioned demands and identify such as actual values. Also, provide the annual KWH as well as the 12 CP Load Factor, Class NCP Load Factor and the Customer Load Factor for each class.

Type of Data Shown:
_X__ Historical Test Year Ended 03/31/21
____Projected Test Year Ended ___/___/___
____Prior Year Ended ___/___/___

Rate Schedule	Month and Year	Estimated Coincident Peak	90% Confidence Interval	Estimated Noncoincident Peak	90% Confidence Interval	Estimated Customer Maximum Demand	90% Confidence Interval	KWH
General Service Demand								
	Apr-20	1,902.3	53.0	1,984.1	56.3	2463.0	64.1	934,751,078
	May-20	1,935.2	44.6	2,123.4	52.7	2562.7	61.8	1,004,989,824
	Jun-20	2,171.2	48.1	2,239.8	50.6	2727.5	56.8	1,117,024,861
	Jul-20	2,107.7	45.3	2,163.7	47.5	2666.9	54.6	1,164,189,730
	Aug-20	2,322.6	47.9	2,414.6	50.5	2903.6	57.2	1,257,010,877
	Sep-20	2,214.9	50.4	2,300.0	55.1	2749.8	55.7	1,135,967,655
	Oct-20	2,232.4	52.1	2,259.9	52.3	2723.7	56.4	1,155,903,361
	Nov-20	1,710.1	52.7	2,161.5	53.3	2690.2	61.4	1,026,619,598
	Dec-20	1,356.1	59.0	1,816.0	45.7	2609.0	74.4	961,407,384
	Jan-21	1,351.4	52.2	1,531.4	48.7	2161.5	63.3	806,069,038
	Feb-21	1,516.3	65.3	1,819.9	51.8	2428.2	65.8	822,305,663
	Mar-21	2,093.9	54.7	2,152.7	58.7	2673.2	68.6	1,024,356,362

Annual Peak: 2,415 MW

Annual KWH: 12,410,595,430

12 Month Coincident Peak Average: 1,910 MW

12 CP Load Factor: 0.742

90% Confidence Interval: 36 MW

Class (NCP) Load Factor: 0.587

Sum of individual customer annual max demands: 3,209 MW

Customer (Billing or Maximum Demand) Load Factor: 0.441

Supporting Schedules:

FLORIDA PUBLIC SERVICE COMMISSION

COMPANY: Duke Energy Florida, LLC

EXPLANATION: For each rate class that is not 100% interval metered, provide the estimated historic value and 90% confidence interval by month from the latest load research for (1) contribution to monthly system peaks (coincident), (2) monthly noncoincident peak (class peaks) and (3) monthly customer maximum demand (billing demand for demand classes). For classes, 100% metered with interval meters provide actual monthly values for the aforementioned demands and identify such as actual values. Also, provide the annual KWH as well as the 12 CP Load Factor, Class NCP Load Factor and the Customer Load Factor for each class.

Type of Data Shown:
_X__ Historical Test Year Ended 03/31/21
____Projected Test Year Ended ___/___/___
____Prior Year Ended ___/___/___

Rate Schedule	Month and Year	Actual Coincident Peak	90% Confidence Interval	Actual Noncoincident Peak	90% Confidence Interval	Actual Customer Maximum Demand	90% Confidence Interval	KWH
Curtailable Service								
	Apr-20	6.8	N/A	10.8	N/A	11.8	N/A	4,941,825
	May-20	6.3	N/A	15.8	N/A	17.6	N/A	4,662,556
	Jun-20	6.2	N/A	9.9	N/A	10.3	N/A	4,902,185
	Jul-20	6.6	N/A	15.5	N/A	16.7	N/A	4,806,643
	Aug-20	6.5	N/A	14.6	N/A	16.0	N/A	5,015,032
	Sep-20	6.5	N/A	18.6	N/A	19.7	N/A	5,210,092
	Oct-20	5.2	N/A	17.9	N/A	19.3	N/A	4,932,165
	Nov-20	6.8	N/A	18.3	N/A	19.0	N/A	5,131,340
	Dec-20	6.7	N/A	19.1	N/A	20.4	N/A	5,427,139
	Jan-21	9.1	N/A	16.7	N/A	17.3	N/A	5,195,743
	Feb-21	6.7	N/A	16.4	N/A	16.8	N/A	4,538,648
	Mar-21	6.8	N/A	15.1	N/A	15.8	N/A	5,168,221

Annual Peak: 19.1 MW

12 Month Coincident Peak Average: 6.7 MW

90% Confidence Interval: N/A

Sum of individual customer annual max demands: 20.8 MW

Annual KWH: 59,931,589

12 CP Load Factor: 1.028

Class (NCP) Load Factor: 0.358

Customer (Billing or Maximum Demand) Load Factor: 0.328

Supporting Schedules:

FLORIDA PUBLIC SERVICE COMMISSION

COMPANY: Duke Energy Florida, LLC

EXPLANATION: For each rate class that is not 100% interval metered, provide the estimated historic value and 90% confidence interval by month from the latest load research for (1) contribution to monthly system peaks (coincident), (2) monthly noncoincident peak (class peaks) and (3) monthly customer maximum demand (billing demand for demand classes). For classes, 100% metered with interval meters provide actual monthly values for the aforementioned demands and identify such as actual values. Also, provide the annual KWH as well as the 12 CP Load Factor, Class NCP Load Factor and the Customer Load Factor for each class.

Type of Data Shown:
_X__ Historical Test Year Ended 03/31/21
____Projected Test Year Ended ___/___/___
____Prior Year Ended ___/___/___

Rate Schedule	Month and Year	Actual Coincident Peak	90% Confidence Interval	Actual Noncoincident Peak	90% Confidence Interval	Actual Customer Maximum Demand	90% Confidence Interval	KWH
Interruptible Service								
	Apr-20	277.1	N/A	319.9	N/A	432.2	N/A	183,824,632
	May-20	278.9	N/A	320.8	N/A	444.2	N/A	175,238,943
	Jun-20	247.4	N/A	309.9	N/A	438.5	N/A	181,104,207
	Jul-20	248.0	N/A	334.3	N/A	444.6	N/A	197,560,724
	Aug-20	270.8	N/A	360.2	N/A	473.9	N/A	205,138,680
	Sep-20	297.3	N/A	335.0	N/A	453.6	N/A	195,250,102
	Oct-20	287.4	N/A	332.9	N/A	477.6	N/A	193,144,091
	Nov-20	274.6	N/A	361.0	N/A	477.7	N/A	190,572,895
	Dec-20	238.8	N/A	311.4	N/A	464.1	N/A	186,874,812
	Jan-21	292.8	N/A	333.5	N/A	479.8	N/A	199,161,917
	Feb-21	305.2	N/A	340.3	N/A	501.5	N/A	192,120,805
	Mar-21	296.6	N/A	351.2	N/A	487.8	N/A	216,074,846

Annual Peak: 361 MW

Annual KWH: 2,316,066,655

12 Month Coincident Peak Average: 276 MW

12 CP Load Factor: 0.957

90% Confidence Interval: N/A

Class (NCP) Load Factor: 0.732

Sum of individual customer annual max demands: 565.2 MW

Customer (Billing or Maximum Demand) Load Factor: 0.468

Supporting Schedules:

FLORIDA PUBLIC SERVICE COMMISSION

COMPANY: Duke Energy Florida, LLC

EXPLANATION: For each rate class that is not 100% interval metered, provide the estimated historic value and 90% confidence interval by month from the latest load research for (1) contribution to monthly system peaks (coincident), (2) monthly noncoincident peak (class peaks) and (3) monthly customer maximum demand (billing demand for demand classes). For classes, 100% metered with interval meters provide actual monthly values for the aforementioned demands and identify such as actual values. Also, provide the annual KWH as well as the 12 CP Load Factor, Class NCP Load Factor and the Customer Load Factor for each class.

Type of Data Shown:
_X__ Historical Test Year Ended 03/31/21
____Projected Test Year Ended ___/___/___
____Prior Year Ended ___/___/___

Rate Schedule	Month and Year	Actual Coincident Peak	90% Confidence Interval	Actual Noncoincident Peak	90% Confidence Interval	Actual Customer Maximum Demand	90% Confidence Interval	KWH
Firm Standby Service								
SS-1	Apr-20	5.0	N/A	9.6	N/A	23.7	N/A	3,005,550
	May-20	2.3	N/A	11.7	N/A	24.4	N/A	2,698,364
	Jun-20	11.4	N/A	15.2	N/A	19.5	N/A	4,857,932
	Jul-20	6.0	N/A	9.5	N/A	13.7	N/A	3,395,836
	Aug-20	0.5	N/A	9.9	N/A	18.4	N/A	3,233,895
	Sep-20	4.3	N/A	11.9	N/A	22.4	N/A	4,602,960
	Oct-20	8.8	N/A	15.0	N/A	24.4	N/A	6,436,514
	Nov-20	9.1	N/A	11.9	N/A	12.8	N/A	5,979,149
	Dec-20	10.8	N/A	14.0	N/A	17.9	N/A	6,561,005
	Jan-21	11.7	N/A	15.2	N/A	17.4	N/A	7,488,126
	Feb-21	7.4	N/A	13.4	N/A	14.1	N/A	5,401,061
	Mar-21	9.7	N/A	13.9	N/A	18.8	N/A	7,141,843

Annual Peak: 15.2 MW

Annual KWH: 60,802,234

12 Month Coincident Peak Average: 7.2 MW

12 CP Load Factor: 0.958

90% Confidence Interval: N/A

Class (NCP) Load Factor: 0.456

Sum of individual customer annual max demands: 32.5 MW

Customer (Billing or Maximum Demand) Load Factor: 0.213

Supporting Schedules:

FLORIDA PUBLIC SERVICE COMMISSION

COMPANY: Duke Energy Florida, LLC

EXPLANATION: For each rate class that is not 100% interval metered, provide the estimated historic value and 90% confidence interval by month from the latest load research for (1) contribution to monthly system peaks (coincident), (2) monthly noncoincident peak (class peaks) and (3) monthly customer maximum demand (billing demand for demand classes). For classes, 100% metered with interval meters provide actual monthly values for the aforementioned demands and identify such as actual values. Also, provide the annual KWH as well as the 12 CP Load Factor, Class NCP Load Factor and the Customer Load Factor for each class.

Type of Data Shown:
_X__ Historical Test Year Ended 03/31/21
____Projected Test Year Ended ___/___/___
____Prior Year Ended ___/___/___

Rate Schedule	Month and Year	Actual Coincident Peak	90% Confidence Interval	Actual Noncoincident Peak	90% Confidence Interval	Actual Customer Maximum Demand	90% Confidence Interval	KWH
Interruptible Standby Service								
SS-2	Apr-20	1.2	N/A	13.1	N/A	19.6	N/A	3,286,344
	May-20	8.3	N/A	17.7	N/A	23.7	N/A	4,260,354
	Jun-20	7.9	N/A	15.1	N/A	20.8	N/A	3,907,007
	Jul-20	3.4	N/A	19.6	N/A	30.4	N/A	5,281,954
	Aug-20	9.2	N/A	13.7	N/A	19.9	N/A	5,063,282
	Sep-20	13.3	N/A	20.9	N/A	23.0	N/A	6,227,081
	Oct-20	11.6	N/A	21.0	N/A	23.0	N/A	8,625,777
	Nov-20	6.1	N/A	24.5	N/A	26.5	N/A	8,042,572
	Dec-20	4.5	N/A	23.6	N/A	24.2	N/A	3,709,777
	Jan-21	2.7	N/A	17.6	N/A	24.4	N/A	3,708,428
	Feb-21	7.1	N/A	27.0	N/A	31.0	N/A	9,788,524
	Mar-21	11.2	N/A	26.4	N/A	30.5	N/A	10,441,575

Annual Peak: 27.0 MW

Annual KWH: 72,342,675

12 Month Coincident Peak Average: 7.2 MW

12 CP Load Factor: 1.147

90% Confidence Interval: N/A

Class (NCP) Load Factor: 0.306

Sum of individual customer annual max demands: 31.0 MW

Customer (Billing or Maximum Demand) Load Factor: 0.267

Supporting Schedules:

FLORIDA PUBLIC SERVICE COMMISSION

COMPANY: Duke Energy Florida, LLC

EXPLANATION: For each rate class that is not 100% interval metered, provide the estimated historic value and 90% confidence interval by month from the latest load research for (1) contribution to monthly system peaks (coincident), (2) monthly noncoincident peak (class peaks) and (3) monthly customer maximum demand (billing demand for demand classes). For classes, 100% metered with interval meters provide actual monthly values for the aforementioned demands and identify such as actual values. Also, provide the annual KWH as well as the 12 CP Load Factor, Class NCP Load Factor and the Customer Load Factor for each class.

Type of Data Shown:
_X__ Historical Test Year Ended 03/31/21
____Projected Test Year Ended ___/___/___
____Prior Year Ended ___/___/___

Rate Schedule	Month and Year	Actual Coincident Peak	90% Confidence Interval	Actual Noncoincident Peak	90% Confidence Interval	Actual Customer Maximum Demand	90% Confidence Interval	KWH
Curtailable Standby Service								
SS-3	Apr-20	0.5	N/A	20.7	N/A	20.7	N/A	5,117,157
	May-20	2.2	N/A	19.7	N/A	19.7	N/A	3,330,352
	Jun-20	0.5	N/A	20.9	N/A	20.9	N/A	3,733,479
	Jul-20	1.1	N/A	21.0	N/A	21.0	N/A	1,403,326
	Aug-20	0.0	N/A	19.5	N/A	19.5	N/A	2,575,546
	Sep-20	0.0	N/A	19.9	N/A	19.9	N/A	2,761,248
	Oct-20	0.0	N/A	19.0	N/A	19.0	N/A	4,470,271
	Nov-20	8.6	N/A	19.8	N/A	19.8	N/A	6,923,487
	Dec-20	12.0	N/A	18.9	N/A	18.9	N/A	7,244,259
	Jan-21	0.0	N/A	16.1	N/A	16.1	N/A	4,855,531
	Feb-21	3.3	N/A	20.4	N/A	20.4	N/A	6,832,500
	Mar-21	4.9	N/A	20.1	N/A	20.1	N/A	8,632,950

Annual Peak: 21.0 MW

Annual KWH: 57,880,106

12 Month Coincident Peak Average: 2.8 MW

12 CP Load Factor: 2.390

90% Confidence Interval: N/A

Class (NCP) Load Factor: 0.314

Sum of individual customer annual max demands: 21.0 MW

Customer (Billing or Maximum Demand) Load Factor: 0.314

Supporting Schedules:

DUKE ENERGY FLORIDA, LLC
ANALYSIS OF COINCIDENT LOADING FOR THE LIGHTING CLASS
FOR THE TEN YEARS ENDED DECEMBER 31, 2020

RATE SCHEDULE
LIGHTING - LS

Percentage of Lighting Load Occurring at Time of Monthly System Peak

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	TEN YR AVG % LIGHT LOAD
JAN	23%	27%	28%	28%	-	21%	26%	25%	18%	7%	20.30%
FEB	10%	14%	15%	11%	2%	7%	-	-	-	-	5.90%
MAR	-	-	-	-	-	-	-	-	-	-	0.00%
APR	-	-	-	-	-	-	-	-	-	-	0.00%
MAY	-	-	-	-	-	-	-	-	-	-	0.00%
JUN	-	-	-	-	-	-	-	-	-	-	0.00%
JUL	-	-	-	-	-	-	-	-	-	-	0.00%
AUG	-	-	-	-	-	-	-	-	-	-	0.00%
SEP	-	-	-	-	-	-	-	-	-	-	0.00%
OCT	-	-	-	-	-	-	-	-	-	-	0.00%
NOV	-	-	-	-	-	-	-	-	-	-	0.00%
DEC	100%	1%	97%	2%	-	-	8%	7%	13%	-	22.80%
											49.00%
											===

AVG MONTHLY COINCIDENCE	=	4.1%
ANNUAL BURNING HOURS	=	4,200
LOAD FACTOR:		
BASED ON AVG. 12 CP	=	11.683
BASED ON CLASS ANNUAL MAX DEMAND	=	0.479