DUKE ENERGY® FLORIDA

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June 29, 2022

VIA ELECTRONIC FILING

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

Re: *2022 Ten-Year Site Plan Data Request #3; Undocketed*

Dear Mr. Teitzman:

Please find enclosed for filing, Duke Energy Florida, LLC's Response to Staff's Data Request #3, issued on June 8, 2022 regarding the 2022 TYSP.

Thank you for your assistance in this matter and if you have any questions, please feel free to contact me at (850) 521-1425.

Sincerely,

s/ Stephanie A. Cuello

Stephanie A. Cuello

SAC/mw
Attachments

cc: Donald Phillips, Division of Engineering, FPSC

DEF's Response to Staff's Third Data Request
Regarding the 2022 Ten Year Site Plan;
Questions 1-12

1. Page 2-15 of DEF's 2022 Ten Year Site Plan (TYSP), Schedule 3.1.1 History and Forecast of Summer Peak Demand (MW), reflects 25 MWs of residential summer peak demand reductions for 2021 (the 2021 value for Column 6 less the 2020 value for Column 6 [1] + 2021 value for Column 7 less the 2020 value for Column 7 [24]). In the DEF's Demand Side Management Annual Report for 2021, dated February 24, 2022 (a/k/a "FEECA filing"), Page 1, the Company reported that it achieved 28 MWs of Residential Summer Peak Demand reductions in 2021. Please explain the variance between the amount of residential summer peak demand reduction reported in the FEECA filing for 2021, compared to the amount of 25 MWs reflected on Page 2-15 in Schedule 3.1.1 for 2021.

   Response:
   The value 28 cited from the FEECA filing is actually a cumulative value over the two-year period beginning with the end of 2019. 18 MW were achieved in 2020 and 10 were achieved in 2021. The 25 MW shown in Schedule 3.1.1 of the TYSP is an estimated value based on the historic time series. This is used in preparing the site plan load forecast because the load forecast has to be prepared before the end of the year (2021) in order to meet the filing schedule. Going forward, DEF will include a footnote to clarify these values.

2. Page 2-18 of DEF's 2022 Ten Year Site Plan (TYSP), Schedule 3.2.1 History and Forecast of Winter Peak Demand (MW), reflects 25 MWs of residential winter peak demand reductions for 2021 (the 2021 value for Column 6 less the 2020 value for Column 6 [1] + 2021 value for Column 7 less the 2020 value for Column 7 [24]). In the DEF's Demand Side Management Annual Report for 2021, dated February 24, 2022 (a/k/a "FEECA filing"), Page 1, the Company reported that it achieved 47 MWs of Residential Winter Peak Demand reductions in 2021. Please explain the variance between the amount of residential winter peak demand reduction reported in the FEECA filing for 2021, compared to the amount of 25 MWs reflected on Page 2-18 in Schedule 3.2.1 for 2021.

   Response:
   See the response to question 1.

2. For the purpose of this question, please review the following table. For each time period presented in the table, please explain the variance between the values presented in the Goals Order (as shown in Column 2) and the TYSP values shown in Column 3.

(1)	(2)	(3)
Year	Summer Peak Demand Goals – Residential (MW)*	2022 TYSP Summer Peak Demand Base Case Forecast – Residential Load Management and Conservation (MW), as reflected in Schedule 3.1.1 on Page 2-15**
2022	12.2	28 (2022 value for Column 6 less the 2021 value for Column 6 [1] + 2022 value for Column 7 less the 2021 value for Column 7 [27])
2023	11.3	27 (2023 value for Column 6 less the 2022 value for Column 6 [1] + 2023 value for Column 7 less the 2022 value for Column 7 [26])
2024	10.7	27 (2024 value for Column 6 less the 2023 value for Column 6 [1] + 2024 value for Column 7 less the 2023 value for Column 7 [26])
*Summer Peak Demand Goals (Residential) appear on Page 18, in Order No. PSC-2019-0509-FOF-EG ("Goals Order"). **DEF 2022 TYSP Base Case, Schedule 3.1.1, Forecast of Summer Peak Demand, Page 2-15, Columns (6) and (7).		

Response:
The forecast values shown in the referenced TYSP schedule reflect the values expected to be achieved based on the programs in place under FEECA. Specifically, the TYSP forecast values are based on projections that assume DEF will achieve the same level of savings that it has achieved in the last several years, which helps ensure that DEF will meet the goals set out in the most recent FEECA order.

4. For the purpose of this question, please review the following table. For each time period presented in the table, please explain the variance between the values presented in the Goals Order (as shown in Column 2) and the TYSP values shown in Column 3.

(1)	(2)	(3)
Year	Winter Peak Demand Goals - Residential (MW)*	2022 TYSP Winter Peak Demand Base Case Forecast - Residential Load Management and Conservation (MW), as reflected in Schedule 3.2.1 on Page 2-18**
2022	24.5	28 (2022 value for Column 6 less the 2021 value for Column 6 [1] + 2022 value for Column 7 less the 2021 value for Column 7 [27])
2023	22.3	28 (2023 value for Column 6 less the 2022 value for Column 6 [1] + 2023 value for Column 7 less the 2022 value for Column 7 [27])

2024	20.9	27 (2024 value for Column 6 less the 2023 value for Column 6 [1] + 2024 value for Column 7 less the 2023 value for Column 7 [26])
*Summer Peak Demand Goals (Residential) appear on Page 18, in Order No. PSC-2019-0509-FOF-EG ("Goals Order"). **DEF 2022 TYSP Base Case, Schedule 3.2.1, Forecast Winter Peak Demand, Page 2-15, Columns (6) and (7).		

Response:
See the response to Question 3.

5. For the purpose of this question, please review the following table. For each time period presented in the table, please explain the variance between the values presented in the Goals Order (as shown in Column 2) and the TYSP values shown in Column 3.

(1)	(2)	(3)
Year	Summer Peak Demand Goals – Commercial/Industrial (MW)*	2022 TYSP Summer Peak Demand Base Case Forecast – Commercial/Industrial Load Management and Conservation (MW), as reflected in Schedule 3.1.1 on Page 2-15**
2022	6.0	5 (2022 value for Column 8 less the 2021 value for Column 8 [3] + 2022 value for Column 9 less the 2021 value for Column 9 [2])
2023	5.6	5 (2023 value for Column 8 less the 2022 value for Column 8 [3] + 2023 value for Column 9 less the 2022 value for Column 9 [2])
2024	5.0	6 (2024 value for Column 8 less the 2023 value for Column 8 [4] + 2024 value for Column 9 less the 2023 value for Column 9 [2])
*Summer Peak Demand Goals (Residential) appear on Page 18, in Order No. PSC-2019-0509-FOF-EG ("Goals Order"). **DEF 2022 TYSP Base Case, Schedule 3.1.1, Forecast of Summer Peak Demand, Page 2-15, Columns (8) and (9).		

Response:
See the response to Question 3.

6. For the purpose of this question, please review the following table. For each time period presented in the table, please explain the variance between the values presented in the Goals Order (as shown in Column 2) and the TYSP values shown in Column 3.

(1)	(2)	(3)
Year	Winter Peak Demand Goals - Commercial/Industrial (MW)*	2022 TYSP Winter Peak Demand Base Case Forecast – Commercial/Industrial Load

		Management and Conservation (MW), as reflected in Schedule 3.2.1 on Page 2-18**
2022	4.7	5 (2022 value for Column 8 less the 2021 value for Column 8 [2] + 2022 value for Column 9 less the 2021 value for Column 9 [3])
2023	5.0	7 (2023 value for Column 8 less the 2022 value for Column 8 [4] + 2023 value for Column 9 less the 2022 value for Column 9 [3])
2024	4.6	5 (2024 value for Column 8 less the 2023 value for Column 8 [3] + 2024 value for Column 9 less the 2023 value for Column 9 [2])
*Summer Peak Demand Goals (Residential) appear on Page 18, in Order No. PSC-2019-0509-FOF-EG ("Goals Order"). **DEF 2022 TYSP Base Case, Schedule 3.2.1, Forecast Winter Peak Demand, Page 2-18, Columns (8) and (9).		

Response:
See the response to Question 3.

7. For the purpose of this question, please review the following table. For each time period presented in the table, please explain the variance between the values presented in the Goals Order (as shown in Column 2) and the TYSP values shown in Column 3.

(1)	(2)	(3)
Year	Annual Energy Conservation Goals - Residential (GWh)*	2022 TYSP Annual Net Energy For Load Base Case Forecast - Residential Conservation (GWh), as reflected in Schedule 3.3.1 on Page 2-21**
2022	3.8	49 (2022 value minus 2021 value)
2023	2.2	49 (2023 value minus 2022 value)
2024	1.2	49 (2024 value minus 2023 value)
*Annual Energy Conservation Goals (Commercial/Industrial) appear on Page 18, in Order No. PSC-2019-0509-FOF-EG ("Goals Order"). **DEF 2022 TYSP Base Case, Schedule 3.3.1, Forecast of Annual Net Energy for Load, Page 2-21, Column (3).		

Response:
See the response to Question 3.

8. For the purpose of this question, please review the following table. For each time period presented in the table, please explain the variance between the values presented in the Goals Order (as shown in Column 2) and the TYSP values shown in Column 3.

(1)	(2)	(3)
Year	Annual Energy Conservation Goals - Commercial/Industrial (GWh)*	2022 TYSP Annual Net Energy For Load Base Case Forecast – Commercial/Industrial Conservation (GWh), as reflected in Schedule 3.3.1 on Page 2-21**
2022	2.4	10 (2022 value minus the 2021 value)
2023	1.4	10 (2023 value minus the 2022 value)
2024	0.8	9 (2024 value minus the 2023 value)
*Annual Energy Conservation Goals (Commercial/Industrial) appear on Page 18, in Order No. PSC-2019-0509-FOF-EG ("Goals Order"). **DEF 2022 TYSP Base Case, Schedule 3.3.1, Forecast of Annual Net Energy for Load, Page 2-21, Column (4).		

Response:
See the response to Question 3.

9. Please refer to DEF's 2021 and 2022 TYSPs, pages 2-9 and 2-12, and Table 1 below for the following questions:

Table 1: DEF's Projections of Retail Sales and Total Number of Customers								
Year	Schedule 2.2.1, column (8)				Schedule 2.3.1, column (6)			
	Total Sales to Ultimate Customers				Total No. of Customers			
	2021 TYSP		2022 TYSP		2021 TYSP		2022 TYSP	
	GWH	Annual Growth (%)	GWH	Annual Growth (%)	No. of Customers	Annual Growth (%)	No. of Customers	Annual Growth (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
2021	38,530				1,893,024			
2022	39,568	2.69%	39,582		1,923,069	1.59%	1,936,334	
2023	40,123	1.40%	39,840	0.65%	1,952,290	1.52%	1,973,754	1.93%
2024	40,543	1.05%	40,020	0.45%	1,980,697	1.46%	2,010,971	1.89%
2025	40,913	0.91%	40,381	0.90%	2,008,458	1.40%	2,048,074	1.84%
2026	***40,893***	***-0.05%***	***40,393***	***0.03%***	2,035,509	1.35%	2,083,978	1.75%
2027	41,250	0.87%	40,867	1.17%	2,061,747	1.29%	2,117,851	1.63%
2028	41,883	1.53%	41,206	0.83%	2,087,134	1.23%	2,149,784	1.51%
2029	42,202	0.76%	41,662	1.11%	2,111,638	1.17%	2,179,734	1.39%
2030	42,501	0.71%	41,969	0.74%	2,135,241	1.12%	2,208,189	1.31%
2031			42,391				2,235,216	1.22%
Average Annual Growth Rate (AAGR):								
2021-2030		1.10%				1.35%		
2022-2031				0.76%				1.61%
Sources of Data: DEF's 2021 and 2022 TYSPs, pages 2-9 and 2-12.								

a. Referring to Table 1 above, columns (1) through (4), please explain the reason or cause for the projected 2026 trough in the increasing trend of Total Sales to Ultimate Costumers presented in both 2021 and 2022 TYSPs.

b. As indicated in Table 1 above, over the 2021 TYSP forecast horizon, DEF's projected average annual growth rate (AAGR) of Total Number of Customers and Total Sales to Ultimate Customers is 1.35 percent and 1.10 percent, respectively. Over the 2022 TYSP forecast horizon, DEF projected an AAGR of Total Number of Customers and Total Sales to Ultimate Customers is 1.61 percent and 0.76 percent, respectively. Please explain why, in the 2022 TYSP, DEF projected higher 10-year AAGR of Total Number of Customers but significantly lower 10-year AAGR of Total Sales to Ultimate Customers, compared to what were projected in the 2021 TYSP.

Response:

a. This temporary dip in the growth rate is tied to movement in the underlying fundamentals which drive the price of electricity. In both the 2021 and 2022 TYSPs, 2025 is the first year of the implementation of an explicit carbon price in the forecast. In addition, 2025 begins the transition to the fundamental fuel forecast from the NYMEX spot forecast, which results in a projection of escalating gas prices. As a result, the use per customer takes a permanent dip in 2026. The power price increase impacts the usage per customer through price elasticity and higher gas and oil prices impact the industrial usage per customer via the income effect of higher energy prices on the sector.

b. The 2022 forecast includes a number of updated assumptions regarding customer behavior. Key among these is the assumption of overall economic growth and performance. Lower forecast economic growth reduces forecast household income which in turn decreases the projection of electricity use. A second, although smaller effect includes previously installed customer owned PV solar becoming incorporated into the historical usage series that underlies the forecast each year. As PV installations exceed prior forecasts, this exerts downward pressure on the forecast going forward. The net result is that declines in use per customer begin to outweigh stronger growth in the number of customers.

10. Please refer to DEF's Response to Staff's First Data Request, No. 19. DEF states that they utilize Guidehouse's VAST tool which has "an EV Adoption Module which uses multiple variables (registration data, fuel costs, vehicle availability, vehicle miles traveled, etc.) to develop a conservative, base, and aggressive vehicle forecast." Is DEF's PEV projections that are presented in this year's TYSP based on VAST's conservative, base, or aggressive vehicle forecast?

Response:
For DEF's base PEV forecast the VAST aggressive vehicle forecast is used. There are minimal differences in variables assumptions (registration data, fuel costs, vehicle

availability, vehicle miles traveled, etc.) between the VAST base and the VAST aggressive cases. The main difference is the timing of when new vehicles will be introduced/available for public adoption. At the time the forecast was finalized, the vehicle introduction/availability assumptions of the VAST aggressive case aligned more closely with industry projections.

11. Please cite and identify any sources that support DEF's PEV forecast methodology.

Response:
Multiple sources were used in developing the EV forecast. Sources include, but are not limited to: IHS Market (Registration data such as make, model, year, and zip code), Federal Highway Administration (Vehicle Miles traveled), EIA (Fuel cost projections), Argonne National Lab (Vehicle efficiency and PHEV utilization), US Census Bureau (customer attributes and census tract information), AFDC (charger information such as location, type, and vehicle to charger ratio), and Guidehouse insights (Battery cost, BEV ranges).

12. Please refer to the following: DEF's Response to Staff's First Data Request, No. 19 (DEF's 2021 TYSP) and DEF's Response to Staff's First Data Request, No. 20 (DEF's 2022 TYSP).

    a. Comparing DEF's 2021 and 2022 TYSP's, the Company has increased its PEV forecast for 2022 by approximately 43.4 percent (see charts/calculations below). Please identify and explain the major drivers/factors in DEF's PEV forecasting models that have contributed to this significant increase.

DEF's 2021 TYSP

Year	Number of PEVs	Number of Public PEV Charging Stations	Number of Public DCFC PEV Charging Stations.	Cumulative Impact of PEVs		
				Summer Demand	Winter Demand	Annual Energy
				(MW)	(MW)	(GWh)
2021	17,473	1,006*	257*	1.1	0.1	7.6
2022	23,235	N/A	N/A	3.6	1.3	27.1
2023	31,809	N/A	N/A	7.1	2.9	54.1
2024	43,235	N/A	N/A	11.9	5.3	91.9
2025	57,796	N/A	N/A	18.1	8.5	140.7
2026	73,955	N/A	N/A	25.4	12.4	199.1
2027	91,689	N/A	N/A	33.6	16.8	263.8
2028	111,252	N/A	N/A	42.5	21.7	336.3
2029	132,778	N/A	N/A	52.4	27.1	414.9
2030	156,694	N/A	N/A	63.4	33.1	503.3

Notes

1. Source: Fall 2020 EV Forecast
2. "Number of PEVs" includes total cumulative PEV vehicles
3. "Cumulative Impact of PEVs" includes only net-new vehicles beginning January 2021 as used in Load Forecast
4. Summer Demand: July HE 17. Winter Demand: January HE 08
5. *Duke is currently developing a charger forecasting tool, these are based on year end 2020 actuals

DEF's 2022 TYSP

Year	Number of PEVs	Number of Public PEV Charging Stations	Number of Public DCFC PEV Charging Stations.	Cumulative Impact of PEVs		
				Summer Demand	Winter Demand	Annual Energy
				(MW)	(MW)	(GWh)
2022	33,325	*	573	1.45	0.5	24
2023	42,404		926	3.6	1.3	54
2024	52,918		1,438	6.6	1.9	92
2025	65,134		2,128	10.5	2.7	139
2026	79,267		3,035	15.3	3.8	199
2027	95,455		4,170	21.2	5.3	275
2028	114,021		5,459	28.1	7.2	367
2029	135,439		6,867	71.0	9.5	470
2030	160,059		8,382	44.6	12.1	586
2031	188,139		10,018	54.0	14.8	712

Notes

1. Source: Fall 2021 EV Forecast.

Previous EV forecasts only included Light Duty. This version includes Light, Medium, and Heavy Duty forecasts. Light duty is considered passenger vehicles (Class 1 and 2). Medium duty is delivery vehicles (Class 3 - 6 vehicles). Heavy duty are transit, school, haul vehicles (Class 7 and 8).

2. "Number of PEVs" includes total cumulative PEV vehicles which includes Light, Medium, and Heavy duty

3. "Cumulative Impact of PEVs" includes only net-new vehicles beginning January 2022 as used in Load Forecast. Includes Light, Medium, and Heavy duty demand and energy impacts.

4. Summer Demand: August HE 18. Winter Demand: January HE 08

5. * Duke currently forecasts L2 private and public chargers together. Duke is developing a charger forecasting tool that will differentiate between the two in the future.

Year-over-year forecast variance:
(2022 TYSP forecast of 2022 PEV's – 2021 TYSP forecast of 2022 PEV's)/ 2021 TYSP forecast of 2022 PEV's = (33,325 – 23,235)/23,235 = 43.4 Percent

b. Please explain why DEF is projecting lower winter demand growth over the planning period for PEV charging in its 2022 TYSP compared to its 2021 TYSP despite projecting an increase in the growth rate of the number of PEV's operating in the Company's service territory.

c. Please explain why DEF is projecting, in its 2022 TYSP, a large increase in Summer Demand associated with PEV charging in 2029, followed by a large decrease in 2030.

Response:

a. The delta between the 2021 TYSP and 2022 TYSP was a result of many positive influencing factors for EVs. One main factor was actual EV adoption in 2021. EV adoption recovered from COVID impacts quicker and higher than expected. At the end of 2021 DEF had ~23k EVs registered when it was previously forecasted to be ~17.5k EVS registered. In addition to this, numerous political and auto announcements/pledges have been made for positive EV growth which impacted future forecasted years as well.

b. The winter demand growth is looking at the EV hourly demand during the system peak hour (January, HE 08). Overall, there is an increase in the number of PEV's which results in an overall energy increase (The Annual Energy column increased), but due to updated load charging shapes the load was slightly shifted off the winter peaking hour. The updated load charging shapes resulted in a lower winter peak contribution, but the overall energy has increased and is reflected in "Annual Energy."

c. The value 71.0 shown in 2029 of the table is a typographic error. The correct value is 35.9 MW.