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May 6, 2019

-VIA ELECTRONIC FILING-

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

**Re: Florida Power & Light Company's Petition for Approval of a Renewable Energy
Tariff and Standard Offer Contract
Docket No. 20190082-EQ**

Dear Mr. Teitzman:

Please find enclosed for electronic filing Florida Power & Light Company's response to Staff's Second Data Request (Nos. 1-2) in Docket No. 20190082-EQ.

Thank you for your assistance. Please contact me should you or your staff have any questions regarding this filing.

Sincerely,

s/ William P. Cox

William P. Cox
Senior Attorney
Florida Bar No. 0093531

Enclosure

cc: Takira Thompson, Division of Engineering
Margo DuVal, Office of the General Counsel

QUESTION:

Please explain why Florida Power & Light Company (FPL or Utility) is planning to construct a 1,886 megawatt (MW) combined cycle unit in 2026, when FPL's projected capacity need in 2026 is only 106 MW per Schedule 7.1 of the Utility's Ten-Year Site Plan. As part of this response, detail what alternatives, if any, FPL considered and provide analysis demonstrating that the 2026 unit was the most economic decision.

RESPONSE:

The objective of FPL's resource planning work, both current and historic, is to consider projected MW needs over a planning horizon and determine what resource additions meet those resource needs at the lowest cumulative present value revenue requirements (CPVRR) cost (or the equivalent lowest system average electric rates when demand-side management options are also being analyzed). Attempting to exactly or closely match a certain number of MW of annual resource need with the same number of MW of new resources added in a particular year as the overriding planning criterion does not maximize CVPRR benefits for customers and can lead to situations (such as unforeseen near-term load growth) in which the reserve margin criterion is not met and reliability is placed at risk.

In the analyses that led to the resource plan presented in FPL's 2019 Site Plan, FPL's primary focus was on the years 2019 through 2030. Assuming the resource additions/retirements shown in this Site Plan from 2019 through 2025, FPL does have a projected resource need of 106 MW in 2026. However, the projected resource needs continue to grow to 659 MW in 2027 (only one year later) and to 1,221 MW in 2028 (only two years later). Then, although not shown in the Site Plan (which only presents information through 2028), the resource need continues to increase to 1,961 MW in 2029 and 2,788 MW in 2030. Thus, FPL's resource planning work sought to determine how best to meet this growing 2026 through 2030 resource need, which became a cumulative need of almost 2,800 MW by the year 2030. As described below, based on CPVRR analyses, the addition of this resource is best timed for 2026.

In its planning work, FPL first determined that certain resource additions/retirements would be made for 2019 (the new Okeechobee CC unit and 2019 SoBRA PV), for 2020 (the 2020 SoBRA PV and additional PV), and for 2022 (the Dania Beach CC unit, the retirement of Manatee 1 & 2, and the 469 MW battery). These additions/retirements were then assumed in the optimization work performed using Electric Power Research Institute's (EPRI) optimization model, EGEAS, which was used to complete a resource plan through 2030.

A total of 20 resource options, including combined cycle (CC) units, combustion turbine (CT) units, solar PV facilities, and batteries, were analyzed for those years. The EGEAS model used these resource options to first produce, then analyze, all feasible resource plans that meet the projected resource needs. The most economic plan in the EGEAS output is Plan 1, which is the resource plan shown in FPL's 2019 Site Plan. Each successive plan in the output is more expensive than the plan that precedes it. Please see Attachment No. 1 for copies of the printouts from the EGEAS model for Plans 1 and 20, plus a page that provides a code number for the resource options.

The first plan in which a 2026 CC unit was not selected was Plan 20 in which a CC unit was selected in the year 2025. Plan 20 is projected to be approximately \$44 million CPVRR more expensive than Plan 1.

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 EGEAS REPORT VERSION 11.0 2018 IRP Base Case

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ELECTRIC	GENERATION	EXPANSION	ANALYSIS	SYSTEM

REPORT PROGRAM

2018 IRP EGEAS REPORT

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RPI 1529

ELECTRIC POWER RESEARCH INSTITUTE
 3420 HILLVIEW AVENUE
 PALO ALTO, CALIFORNIA 94304
 2018 IRP Base Case

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 EGEAS REPORT CONTROL REPORT

REPORT FILE OPTION 0 - STANDARD

REPORT OPTIONS

UNIT TYPES

1 PA 1	1GFCC1	1886.000 MW	2 PA 9	2GFCC2	1884.000 MW	3 PA 7	3GFCT	704.000 MW
4 PA 2	5Batt-100MW 1hr	100.000 MW	5 PA 10	6Batt-100MW 2hr	100.000 MW	6 PA 11	7Batt-100MW 3hr	100.000 MW
7 PA 12	8Batt-100MW 4hr	100.000 MW	8 PA 4	10EQ-Filler	75.000 MW	9 PA 6	12NSOLF20	300.000 MW
10 PA 13	4NSOLF50	150.000 MW	11 PA 14	11NSOLF38	150.000 MW	12 PA 3	13Nsol50150	150.000 MW
13 PA 15	14Nsol150U1	300.000 MW	14 PA 16	15Nsol138U1	300.000 MW	15 PA 17	16NSOLFC50_2	300.000 MW
16 PA 18	NewCT2X0	469.000 MW	17 PA 19	17Nsol120U1	300.000 MW	18 PA 20	18NSOLF7	300.000 MW
19 PA 21	19469MWBat	469.000 MW	20 PA 22	20Nsol152150_2	150.000 MW			

cc unit

NOTES: ALL COSTS ARE IN MILLIONS OF DOLLARS DISCOUNTED TO THE BEGINNING OF 2018.
 W/O EXT = COST FOR STUDY PERIOD ONLY.
 WITH EXT = TOTAL COST FOR STUDY AND EXTENSION PERIODS.
 + MEANS CUMULATIVE NUMBER OF UNITS IS AT AN UPPER BOUND.
 . MEANS LOWER AND UPPER BOUNDS ARE EQUAL.

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2018 IRP Base Case

2/ 5/19 14: 5: 0

20 planning alternatives (PA)

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EGEAS REPORT EXPANSION PLAN DIRECTORY

PLAN 1 = Resource plan presented in 2019 Site Plan

YEAR	NEW UNITS ADDED																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2018	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2019	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2020	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2021	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.
2022	0.	0.	0.	0.	0.	0.	0.	0.	5.	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
2023	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
2024	0.	0.	0.	0.	0.	0.	0.	0.	0.	5.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2025	0.	0.	0.	0.	0.	0.	0.	0.	0.	5+	0.	0.	1+	0.	0.	0.	0.	0.	0.	0.
2026	1.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.	0.
2027	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2028	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2029	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2030	1+	0.	0.	0.	0.	0.	0.	0.	4.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2031	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2032	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2033	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2034	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2035	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2036	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2037	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2038	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2039	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2040	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2041	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2042	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2043	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2044	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2045	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2046	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2047	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.

TOTAL COST, M\$
 --W/O EXT 46022.820
 --WITH EXT 56175.637

ELECTRIC POWER RESEARCH INSTITUTE

2018 IRP Base Case



CPVRR COST = \$ 56,175.6 million CPVRR

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EGEAS REPORT

EXPANSION PLAN DIRECTORY

PLAN	NEW UNITS ADDED																			
YEAR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2018	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2019	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2020	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2021	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	0.	0.	0.	0.	1.
2022	0.	0.	0.	0.	0.	0.	0.	0.	5.	0.	1.	0.	0.	0.	0.	0.	0.	0.	1.	0.
2023	0.	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.
2024	0.	0.	0.	0.	0.	0.	0.	0.	0.	5.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2025	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
2026	0.	0.	0.	0.	0.	0.	0.	0.	0.	5+	0.	0.	1+	0.	0.	0.	0.	0.	0.	0.
2027	0.	0.	0.	0.	0.	0.	0.	0.	3.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2028	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2029	0.	0.	0.	0.	0.	0.	0.	0.	4.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2030	1+	0.	0.	0.	0.	0.	0.	0.	4.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2031	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2032	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2033	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2034	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2035	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2036	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2037	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2038	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2039	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2040	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2041	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2042	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2043	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2044	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2045	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2046	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.
2047	0+	0.	0.	0.	0.	0.	0.	0.	0.	0.	0+	0.	0.	0+	0.	0.	0.	0.	0.	0.

TOTAL COST, M\$
 --W/O EXT 46065.039
 --WITH EXT 56219.590

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2018 IRP Base Case



Plan 20 : \$ 56,219,590 million CPVR
 - Plan 1 : \$ 56,175,637 million CPVR
 Difference: \$ 43,953 million CPVR

QUESTION:

Please indicate whether or not building the 1,886 MW combined cycle unit can be delayed with purchased power contracts. If not, please explain.

RESPONSE:

FPL has made no final decision regarding how best to meet its currently projected resource needs for 2026 through 2030. This is indicated in the 3rd full paragraph on page 12 of FPL's 2019 Site Plan. No such decision would be needed regarding a 2026 combined cycle unit until 2021. In the coming years, FPL expects load forecasts, fuel cost forecasts, and other assumptions to change which could alter the projected timing and magnitude of its projected resource needs, and changes to the relative economics of resource options are also likely. Thus, it is possible that other options, including a possible power purchase, may emerge as the best option for 2026 as the date for making that decision gets closer in time.

FPL chose to include the 2026 CC unit in the resource plan shown in the 2019 Site Plan for two reasons. First, the 2026 CC unit was selected as the most economical choice in the optimization analyses as explained in FPL's response to Staff's Second Data Request No. 1. Second, one of the objectives of the Site Plan document is to give notice to various local and state organizations/agencies regarding the type, timing, and (when determined) the location of potential future generation additions. Including the 2026 CC unit in the resource plan provides that advance notice.