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-VIA ELECTRONIC FILING-

Carlotta Stauffer, Director
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

> **Re: Docket No. 20180000-OT: Staff's Supplemental Data Request #4 (Nos. 1-12);**
> **Florida Power & Light Company's 2018 Ten Year Power Plant Site Plan**

Dear Ms. Stauffer:

Please find enclosed for electronic filing a copy of Florida Power & Light Company's responses to Staff's Supplemental Data Request #4, Question Nos. 1-12.

If there are any questions regarding this transmittal, please contact me at (561)304-5170.

Sincerely,

/s/ Kevin I.C. Donaldson
Kevin I.C. Donaldson
Fla. Bar No. 0833401

Enclosure

QUESTION:
Please refer to Florida Power & Light Company's (FPL or Company) responses to Staff's Supplemental Data Request No. 1, response No. 70. Please discuss the decrease in the natural gas price (of -30 percent) from 2017 actual, to the 2018 projected value. As in, what are/were the drivers of this price difference?

RESPONSE:
The primary drivers for the difference between 2017 actual natural gas prices and 2018 projected natural gas prices shown in FPL's response to Staff's Supplemental Data Request No. 70 are the inclusion of financial hedging gains/losses and fuel transportation costs in the 2008 through 2017 actual values. Consistent with prior Ten-Year-Site-Plan responses, the actual fuel price values are sourced from the Company's annual A-Schedule filings, which include all relevant natural gas costs incurred during the period. The projected natural gas prices are derived from forecasts of commodity prices at various market locations. The projected gas prices do not include the hedging activity results or transportation costs included in the A-Schedules.

The Commission suspended the natural gas financial hedging program by its approval of the 2016 rate case settlement agreement in FPSC Docket No. 20160021-EI. The hedging activity reduced the actual cost of natural gas by approximately $38 million for the 2017 period. The projected transportation costs for 2018 through 2027 range from approximately $890 million to $990 million annually.

QUESTION:
Please refer to FPL's 2018-2027 Ten-Year Site Plan (2018 TYSP), page 28.

a. Indicated in the third paragraph appearing on page 28, is that FPL used IHS Markit's *October 2017* population forecast for the purposes of forecasting customers. Did the Company compare the population forecast sourced form IHS Markit (*October 2017*) to any other population forecast(s)? If so, please specify the forecast(s) source and briefly discuss the results of any analysis performed.

b. Does FPL develop high and low case scenarios of its expected population and average number of customers? If so, please explain the methodology used and detail any analysis results.

RESPONSE:
a. FPL did not compare the population forecast sourced from IHS Markit with population forecasts from other sources.

b. FPL does not develop high and low case scenarios for our population forecast or for our customer forecasts.

QUESTION:

On page 27, FPL's 2018 TYSP states that, for the purpose of NEL forecasting, cooling degree-hours are based on thresholds set at 72 degrees Fahrenheit and 68 degrees Fahrenheit and winter heating degree-days are based on thresholds set at 62 degrees Fahrenheit and 66 degrees Fahrenheit. However, in FPL's answer pertaining to Question 6 of Staff's Supplemental Data Request No. 1, it is stated that NEL models are based on several weather variables "including cooling degree-hours based on 68 degrees F and heating degree-days based on 62 degrees F by calendar month, and a respective quadratic term for each." Please explain the disparity between the 2018 TYSP and this Data Request response, specifically as it pertains to the absence of cooling degree-hours threshold of 72 degrees F and a heating degree-days threshold of 66 degrees F. Additionally, please explain how adding quadratic terms enhances the predictability of FPL's NEL forecasts.

RESPONSE:

FPL uses cooling degree hours based on 68 degrees and heating degree days based on 62 degrees in our Net Energy for Load (NEL) model. FPL's Revenue class sales forecasting model uses cooling degree hours based on 72 degrees and heating degree days based on 66 degrees. Therefore, the NEL model and Revenue class sales forecasting model forecasts utilize their respective measures of cooling and heating identified in this response. The quadratic terms in our NEL model allows the model to capture the non-linear impacts of weather on our load, and thereby more accurately control for weather effects when predicting load.

QUESTION:

On page 29, FPL's 2018 TYSP states that residential electric usage per customer is estimated based on "cooling degree-hours and heating degree-days, dummy variables for January 2010 and November 2016, and an autoregressive term." In FPL's 2017 TYSP on page 31, the included variables are "cooling degree-hours, heating degree-days, electric prices, and Florida real per capita income weighted by the percentage of the population that is employed." Please explain the exclusion of electric prices and Florida real per capita income in the 2018 TYSP model and how this updated model accounts for variation in consumer income and employment as it relates to residential electric usage. Additionally, please provide an explanation for including dummy variables for January 2010 and November 2016.

RESPONSE:

During each forecast cycle when FPL reevaluates its forecasting models, historical data is updated to include the most recent months, and the model is re-estimated. After re-estimating the residential sales model, the resulting model had good statistics, however the resulting forecast was not consistent with historical trends or prior forecasts. In evaluating the model statistics, the economic terms were identified as the reason for this inconsistent forecast. Subsequently the Florida real per capita income weighted by the percentage of the population that is employed and the two electric price terms were dropped from the model.

The economy is accounted for in the residential sales forecast through the residential customer forecast. The residential customer forecast is multiplied by the residential usage per customer model output to derive the residential sales forecast.

The dummy variables are included in the model to account for unusually high residuals resulting from exogenous one-time events. The January 2010 dummy variable was included to account for an unusually cold month while the November 2016 dummy variable was included to account for the impact of Hurricane Matthew.

QUESTION:
On page 30, FPL's 2018 TYSP states that the small commercial sales model has been updated to include a dummy variable for September 2017 and to exclude "heating degree-hours, lagged cooling degree-hours, an electric price variable based on increases in the real price of electricity over time, and dummy variables for November 2005 and February 2016." Please provide a justification for why FPL does not include in the 2018 model a term to account for colder days requiring customer usage of heating nor variations in electric prices.

RESPONSE:
As discussed in FPL's response to Staff's Supplemental Data Request # 4 Question No. 4, during each forecast cycle, FPL updates the historical data to include the most recent months, and the model is re-estimated. After re-estimating the small commercial sales model, the heating degree hour variable and the lagged cooling degree hour variables were no longer significant in explaining the variation in small commercial sales. As such, they were removed from the model. This new model specification resulted in a forecast that differed from the recent history and the prior forecasts. Model statistics identified the real price of electricity as the driver of this very low forecast. This variable was therefore removed from the model. Subsequent model runs resulted in the need for a seasonal autoregressive term, which uses the seasonal error pattern in the model residuals to improve the estimation by taking advantage of this pattern, the removal of the November 2005 and February 2016 dummies, and the inclusion of a September 2017 dummy variable to account for the impact of Hurricane Irma.

QUESTION:
On page 30, FPL's 2018 TYSP states that there are multiple autoregressive terms in the commercial sales models for "medium"-sized accounts, here defined as 21 kW to 499 kW of demand. This is in contrast to FPL's 2017 TYSP on page 32, in which only one autoregressive term is implied. Please justify the inclusion of additional autoregressive terms.

RESPONSE:
The medium commercial sales model in the 2017 and 2018 TYSPs include the same two autoregressive terms. Page 32 of the 2017 TYSP states, "The medium commercial sales model utilizes the following variables: Florida real per capita income weighted by the percent of the population that is employed, cooling degree-hours, lagged cooling degree-hours, an electric price variable based on increases in the real price of electricity over time, and **autoregressive terms**."

QUESTION:
On page 30, FPL's 2018 TYSP states that the commercial sales model for "large"-sized accounts, here defined as 500kW+ of demand, includes an autoregressive term. In the corresponding section on page 29 of FPL's 2017 TYSP, there is no mention of an autoregressive term in this model, but there are two electric price variables, one based on increases in the real price of electricity over time and one based on decreases in the real price of electricity over time. Please provide a qualitative explanation for these model changes.

RESPONSE:
As discussed in FPL's response to Staff's Supplemental Data Request # 4 Question No. 4, during each forecast cycle FPL updates the historical data to include the most recent months, and the model is re-estimated. With the re-estimated model, the real electric price increase and real electric price decrease terms were no longer significant and were removed from the model. Analysis of model statistics revealed that new specification required a seasonal autoregressive term to correct for seasonal patterns in the residual.

QUESTION:

In FPL's response to Staff's Supplemental Data Request No. 1, Question 6 under "System Summer Peak," FPL acknowledges the exclusion of the three-month average CPI for Energy. Please provide a qualitative explanation for this exclusion.

RESPONSE:

As discussed in FPL's response to Staff's Supplemental Data Request # 4 Question No. 4, during each forecast cycle, FPL updates the historical data to include the most recent months, and the model is re-estimated. With the re-estimated model, the Consumer Price Index for Energy (CPIE) variable was no longer statistically significant. It was therefore removed from the model.

QUESTION:

On page 35 of FPL's 2018 TYSP as well as in FPL's response to Staff's Supplemental Data Request No. 1, Question 6, it is stated that peak forecast models are adjusted to account for the City Of Vero Beach transaction. Please specify what this model adjustment entails and the size of the impact this transaction has on FPL's summer and winter peak demand.

RESPONSE:

The adjustment to FPL's summer and winter peak forecasts for the City of Vero Beach transaction are line item increases to our regression model output. The average summer and winter adjustment for the 2019-2027 time period is 161 MW in the summer and 163 MW in the winter.

QUESTION:

On page 35 of FPL's 2018 TYSP, it is stated that the system load forecasting program used for hourly load forecasts is called MetrixLT. In FPL's 2017 TYSP on page 38, this program was defined as a "System Load Forecasting 'shaper'" program. Please specify if this is the same program, and if it is not, any potential differences in forecast outcomes as an effect of this program change.

RESPONSE:

The "System Load Forecasting 'shaper'" program is the same program as MetrixLT. In the 2018 TYSP we are simply referencing the name of the software program that is used to develop the hourly load forecast. In fact, MetrixLT has been used by FPL to develop hourly load forecasts for more than 10 years

QUESTION:
On page 37 of FPL's 2018 TYSP, it is stated that "A P80 monthly peak forecast is provided to FPL's System Operations Group for operational planning purposes." This P80 forecast is not mentioned in the same section in FPL's 2017 TYSP on pages 38-39. Please explain the benefit of providing a P80 monthly peak forecast to FPL's System Operations Group.

RESPONSE:
The benefit of providing a P80 monthly peak forecast to FPL's System Operations Group is to allow this group to schedule generation overhauls and transmission and substation maintenance based on an 80% probability that load will be at or below a certain level. This minimizes the risk of not being able to serve load reliably on a real time basis.

While not specifically mentioned in the 2017 TYSP, the P80 monthly peak forecast was provided to FPL's System Operations Group last year as well.

QUESTION:

According to Schedule 2.2, column (16), FPL experienced a decline in total energy sales to ultimate consumers, from 109,662 GWh in 2016, to 108,871 GWh in 2017. FPL forecasts continued decline in energy sales in the residential and commercial customer classes in 2018, followed by growth from 2019 (except for Industrial) through 2027.

    a. Please explain the observed decline in total sales to ultimate customers in 2017.
    b. Please explain the forecast continued decline in residential and commercial sales in 2018.
    c. Why does FPL not expect that decline to persist in the residential and commercial classes after 2018?

RESPONSE:

a. The decline in total sales to ultimate customers in 2017 is due primarily to Hurricane Irma. Our estimate of the impact of the hurricane on 2017 sales was a reduction of about 1.1%.

b. The decline in 2018 forecasted residential and commercial sales, as reported in Schedule 2.2, can be attributed primarily to weather. The 2018 forecast is comparatively lower due to the assumption of normal weather, based on a 20-year average of historical weather. 2017 numbers represent actual sales during a year with warmer than normal weather. The weather-normalized 2017 sales to ultimate customers, adjusted for Hurricane Irma, are estimated to be 106,967 GWh, making the forecasted change to 106,881 in 2018 a decrease of 0.1% on an adjusted basis.

c. Expected sales growth in 2019 onward is driven by forecasted increases in the number of FPL customers and growth in the economy.