R. Wade Litchfield
Vice President & General Counsel
Florida Power & Light Company
700 Universe Boulevard
Juno Beach, FL 33408-0420
(561) 691-7101

March 12, 2021

VIA ELECTRONIC FILING
Adam Teitzman, Commission Clerk
Division of the Commission Clerk and Administrative Services
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: Docket No. 20210015-EI
Petition by FPL for Base Rate Increase and Rate Unification

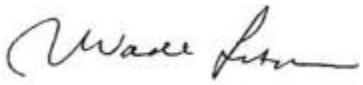
Dear Mr. Teitzman:

Attached for filing on behalf of Florida Power & Light Company ("FPL") in the above-referenced docket are the Direct Testimony and Exhibits of FPL witness Jun K. Park.

Please let me know if you should have any questions regarding this submission.

(Document 15 of 69)

Sincerely,



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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

DIRECT TESTIMONY OF JUN K. PARK

DOCKET NO. 20210015-EI

MARCH 12, 2021

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I. INTRODUCTION AND SUMMARY

Q. Please state your name and business address.

A. My name is Jun K. Park, and my business address is Florida Power & Light Company, 700 Universe Boulevard, Juno Beach, Florida 33408.

Q. By whom are you employed and what is your position?

A. I am employed by Florida Power & Light Company ("FPL" or the "Company") as the Manager of Load Forecasting.

Q. Please describe your duties and responsibilities in that position.

A. I am responsible for the development of the customer, energy sales, and peak demand forecasts for FPL and Gulf Power ("Gulf").

Q. Please describe your educational background and professional experience.

A. I graduated from the University of Alabama at Birmingham with a Bachelor of Science degree in Finance. I started my electric utility career in 1999 with Southern Company. Over the course of my career, I have held various positions with forecasting and analytical responsibilities, including forecasting wholesale energy prices, coordinating the development of price forecasts for fuel commodities and emissions allowances, and developing long-term energy and peak demand forecasts. I began leading Gulf's forecasting team in 2014. In January 2019, Gulf was acquired by NextEra Energy, Inc., which also owns FPL. In the third quarter of 2019, the load forecasting teams for FPL and Gulf were consolidated, and I became the manager of the consolidated team.

Q. Are you sponsoring any exhibits in this case?

A. Yes. I am sponsoring the following exhibits:

- Exhibit JKP-1 Consolidated MFRs Sponsored or Co-sponsored by Jun K. Park
- Exhibit JKP-2 Supplemental FPL and Gulf Standalone Information in MFR Format Sponsored or Co-sponsored by Jun K. Park
- Exhibit JKP-3 Historical and Forecasted Consolidated FPL Customers
- Exhibit JKP-4 Historical and Forecasted Consolidated FPL Retail Delivered Sales
- Exhibit JKP-5 Forecasted Consolidated FPL Summer Peak Demands

Q. Are you sponsoring or co-sponsoring any consolidated Minimum Filing Requirements ("MFRs") in this case?

A. Yes. Exhibit JKP-1 lists the consolidated MFRs that I am sponsoring and co-sponsoring.

Q. Are you sponsoring or co-sponsoring any schedules in "Supplement 1 – FPL Standalone Information in MFR Format" and "Supplement 2 – Gulf Standalone Information in MFR Format"?

A. Yes. Exhibit JKP-2 lists the supplemental FPL and Gulf standalone information in MFR format that I am sponsoring and co-sponsoring.

Q. Have you previously provided testimony to the Florida Public Service Commission ("FPSC" or the "Commission")?

A. Yes. I provided direct testimony and sponsored MFRs as the load forecasting witness in Gulf's 2016 rate case, Docket No. 160186-EI.

Q. Please explain how you will be referring to FPL and Gulf in your testimony.

A. Gulf was acquired by FPL's parent company, NextEra Energy, Inc., on January 1, 2019. On January 1, 2021, FPL and Gulf were legally merged but maintained their status as separate ratemaking entities. In this proceeding, FPL is seeking to consolidate the FPL and Gulf rates into a single FPL rate-regulated entity effective January 1, 2022.

For purposes of my testimony, operations or time periods prior to January 1, 2019 (when Gulf Power Company was acquired by FPL's parent company, NextEra Energy, Inc.), "FPL" and "Gulf" will refer to their pre-acquisition status, when they were legally and operationally separate companies. For operations or time periods between January 1, 2019 and January 1, 2022, "FPL" and "Gulf" will refer to their status as separate ratemaking entities, recognizing that they were merged legally on January 1, 2021 and consolidation proceeded throughout this period. Finally, in discussing operations or time periods after January 1, 2022, most references will be only to "FPL" because Gulf will be consolidated into FPL. Therefore, unless otherwise noted, my testimony addresses requests for the consolidated Company.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to sponsor and explain the customer, energy sales, and peak demand forecasts for the consolidated FPL system for the 2022 test year and 2023 subsequent year. My testimony also supports the inflation

forecast used as part of the budgeting process and for computing the Commission's Operations and Maintenance ("O&M") Benchmark.

Q. Please summarize your testimony.

A. My testimony begins with an overview of the current economic conditions for the FPL and Gulf service areas, including how the unprecedented COVID-19 pandemic has affected the economies and customers in those areas, as well as the inflation forecast. Next, I provide an overview of the processes used to develop the consolidated forecasts for customers, energy sales, and peak demands and how these processes are fundamentally sound and consistent with the criteria used by the Commission in evaluating forecasts. The overview concludes with a brief discussion regarding the ways weather affects electricity usage and how FPL's normal weather method and use of weather-normalized historical data are consistent with industry best practices.

The next portion of my testimony discusses the customer forecasts along with the factors that drive customer growth. The consolidated annual average forecasts of total FPL customers are 5,717,534 and 5,785,456 for 2022 and 2023, respectively.

My testimony then discusses the energy sales forecasts and the methods, models, and inputs used to develop those forecasts. The consolidated total FPL retail delivered energy sales forecasts, including incremental Demand Side Management ("DSM"), are 122,083 GWh and 122,980 GWh in 2022 and 2023,

respectively. These energy sales forecasts were developed using methods that have consistently provided accurate, reliable forecasts that are used for all regulatory and planning activities.

I then conclude with a discussion of the peak demand forecasts and how those forecasts were developed. The consolidated summer peak demand forecasts, including incremental DSM, are 27,205 MW and 27,661 MW for 2022 and 2023 respectively. These peak demands also reflect reductions in the consolidated system peak demands of 131 MW and 133 MW in 2022 and 2023 due to the benefits of peak demand diversity between the FPL and Gulf systems.

II. OVERVIEW

Overview of Economic Conditions

Q. Please describe the economic conditions in the FPL and Gulf service areas.

A. As of December 2020, FPL provides retail electric service to approximately 5.2 million customers in 35 counties in peninsular Florida, with an approximate population of 10.2 million. As of December 2020, Gulf provides retail electric service to approximately 473,000 customers in eight counties in Northwest Florida, with an approximate population of 878,000. As a consolidated company, FPL serves over 5.6 million retail customers in 43 counties. The combined service area includes roughly 11.1 million persons, or just over half of Florida's population.

The Great Recession, which lasted from December 2007 through June 2009, affected Florida's economy to a greater degree than other parts of the US. Between the first quarter of 2007 and the first quarter of 2010, Florida's total nonfarm employment fell 11.4 percent compared to the U.S.'s decline of 5.7 percent. Florida continued to see lingering impacts on its economy well beyond the end of the recession, with employment not recovering back to pre-recession levels until mid-2015. Starting in the first quarter of 2016 through the fourth quarter of 2019, Florida's economy gained momentum as employment grew cumulatively 8.7 percent while the U.S. employment grew 5.8 percent. However, growth halted in 2020 due to the COVID-19 pandemic and the shelter-in-place orders that were implemented to mitigate the virus's spread. This unprecedented shock to Florida's economy caused Florida's nonfarm employment to decline by 13.0 percent by the end of April. Over the next three months, Florida saw a slight rebound, with nonfarm employment growth of 4.5 percent during this period. Despite the rebound, nonfarm employment was still down 6.6 percent from the start of the year. Starting in August, the beginning point of the forecast, through the end of 2023, Florida's nonfarm employment is expected to grow at an average of 2.7 percent per year. The COVID-19 pandemic is also affecting Florida's population growth. Through 2023, population is projected to grow at an average annual rate of 1 percent, compared to the average annual growth rate of 1.4 percent for the period from 2016 through 2019.

Q. Has the COVID-19 pandemic affected energy usage?

A. Yes. The shelter-in-place orders and associated business closures resulted in significant reductions to commercial and industrial energy usage. However, those very same restrictions resulted in increases to residential energy usage as customers were spending more time at home. These impacts began to affect usage patterns beginning in March 2020 and continued through the third quarter of 2020. As the economy begins to recover from the impacts of the pandemic, usage patterns are expected to return to more normal patterns. The impacts of COVID-19 to date, and the projected recovery are captured in the forecasts.

Q. What is the basis for the economic projections?

A. The economic projections used for the customer, energy sales, and peak demand forecasts are from IHS Markit's August 2020 economic forecast, while the CPI projections are from IHS Markit's May 2020 economic forecast. IHS Markit is a recognized industry expert who has consistently provided objective and reliable economic projections.[1] FPL has relied on projections from IHS Markit for forecasting and budgeting purposes, including for FPL's 2012 and 2016 rate cases.

<u>Overview of Inflation Forecast</u>

Q. What inflation measure is used by FPL for budgeting purposes?

A. For its budgeting process, FPL uses IHS Markit's forecast of Consumer Price Index ("CPI") for all goods and services, which is also called overall CPI. This

[1] S&P Global and IHS Markit, two of the largest providers of financial data, announced in November 2020 an agreement to merge.

same CPI is also used when calculating the O&M Benchmarks. As previously discussed, the CPI projections are from IHS Markit's May 2020 economic forecasts. FPL's budgeting process begins earlier than the load forecasting process, and that is the reason why the budgeting process uses a different vintage of IHS Markit's economic forecast compared to the load forecasting process. This difference between the vintages for the CPI projections and the economic projections used for load forecasting is consistent with prior planning processes, including that used for FPL's 2016 rate case.

Q. What has been the historical trend for inflation?

A. Over the past 15 years, overall CPI has seen a cumulative increase of 28.1 percent. However, there are significant differences between the increase in overall CPI versus the subcategories that make up overall CPI. For example, over the same time period, food & beverage has increased by 35.8 percent, housing has increased by 33.4 percent, and medical care has increased by 54.2 percent.

Q. What is the forecast for inflation for 2022 and 2023?

A. Overall CPI is projected to increase by 1.7 percent and 0.8 percent in 2022 and 2023, respectively. The cumulative increase from 2021 through 2025 is projected to be 5.8 percent.

Overview of Forecast Methodology

Q. What is the objective of the load forecasting process?

A. The objective of FPL's load forecasting process is to produce reliable, unbiased

forecasts of customers, energy sales, and system peak demands for the FPL system.

Q. Please explain how customers, sales and peak demands are defined.

A. Customer forecasts reflect the total number of active accounts served by FPL and include the impacts of new service installations combined with other factors, including changes in the number of inactive accounts. Retail delivered energy sales reflect the amount of energy provided to all retail customers served by FPL. Net Energy for Load ("NEL") is another measure of energy sales that takes into account the Megawatt Hours ("MWh") FPL provides to its retail and wholesale customers as well as system losses and energy used by company-owned facilities. Peak demands refer to the highest hourly integrated net energy for load over a given period of time.

Q. How were the consolidated customer, energy sales, and peak demand forecasts developed?

A. The consolidated customer, energy sales, and peak demand forecasts were all developed by combining the respective standalone forecasts for FPL and Gulf. The consolidated FPL forecasts for customers and energy sales are the simple sums of the respective standalone FPL and Gulf forecasts, while the consolidated FPL forecast of peak demands also takes into account the impacts of peak demand diversity, which is described later in my testimony.

Q. Please summarize how the customer, energy sales, and peak demand forecasts were developed.

A. The forecasts were developed using econometric models as the primary tool.

The various econometric models are statistically sound and include logically reasonable drivers obtained from leading industry experts. This approach provides accurate forecasts that are used for all business purposes. Detailed explanations for these models and their respective drivers, along with historical forecast accuracies, are provided later in my testimony.

Q. What statistical measures were used to evaluate the robustness of those forecast models?

A. Consistent with industry standard practices, FPL used adjusted R-squared, Mean Absolute Percent Error ("MAPE"), and the Durbin-Watson statistic to evaluate the robustness and accuracy of its forecast models. Additionally, the variables included in each model were also evaluated using the p-values for each variable. Below are descriptions of each statistical measure:

- The adjusted R-squared is a measure that quantifies how much of the variations in history are explained by the models. Adjusted R-squared values range from 0 to 100 percent, and higher values are preferred.
- MAPE is a measure of model residuals, which are the differences between the model's estimate for a historical period versus the actual historical value. The residuals are expressed on an absolute percentage basis and then averaged. MAPE values range from 0 percent and upward, and lower values are preferred.
- Durbin-Watson is a measure of serial correlation in the model's residuals, where serial correlation is when the residual in one period is highly correlated to residuals in prior periods. Ideally, model residuals

should have a random pattern. Durbin-Watson statistic values range from 0 to 4, and 2 is the preferred value.

- P-value is a measure which indicates the statistical significance of a variable to the model. P-values range from 0 to 100 percent, and lower values are preferred.

Q. Is this approach consistent with criteria used by the Commission in recent years to evaluate utilities' forecasts?

A. Yes. The Commission has evaluated utilities' forecasts based on the use of statistically sound forecasting methods and reasonable input assumptions (*e.g.*, Order Nos. PSC-16-0032-FOF-EI, PSC-14-0590-FOF-EI, PSC-13-0505-PAA-EI, PSC-12-0179-FOF-EI, PSC-12-0187-FOF-EI, PSC-09-0283-FOF-EI and PSC-08-0518-FOF-EI). The Commission has also considered whether a forecast is applied consistently; that is, whether a forecast used for one purpose, such as a rate filing, is the same forecast used for other purposes, such as generation planning (Order No. PSC-09-0283-FOF-EI). Lastly, the Commission has considered a utility's record of forecasting accuracy when evaluating forecasts (Order No. PSC-16-0032-FOF-EI).

Q. Did you develop customer, energy sales, and peak demand forecasts in support of FPL's request for approval of a Solar Base Rate Adjustment mechanism for years 2024 and 2025?

A. Yes. I developed the customer, energy sales, and peak demand forecasts for years 2021 through 2025 using actual data through August 2020 and IHS

Markit's August 2020 economic projections. The consolidated forecasts for years 2024 and 2025 are provided in exhibits JKP-3, JKP-4, and JKP-5.

Overview of Weather

Q. What is the role of weather in the load forecasting process?

A. Weather is a key driver for both energy sales and peak demands. Electricity sales will increase during periods of warm weather due to higher cooling load, which is additional electricity usage due to higher air conditioning usage. Energy sales will also increase during periods of cold weather due to higher heating load, which is additional electricity usage due to increased usage of electric heating. Peak demands are also affected by weather; however, for any given historical period, weather can have differing impacts on energy sales versus peak demands. This is because peak demands are the highest hourly energy usage, which means peak demands are affected by short-term weather patterns. Energy sales, on the other hand, are the cumulative energy used over a period of time, so energy sales are impacted by weather patterns that occur over longer periods of time.

Q. How are the impacts of weather captured in the load forecasting process?

A. Weather impacts are captured in the load forecasting process by first identifying the appropriate sources for weather data. Next, historical weather variables specific to each model are then calculated and included in the respective models. Finally, projected values for each weather variable, or "normal weather," are then calculated using the historical weather data.

Q. What are the sources for the weather data?

A. Consistent with industry standard practice, all historical weather data is based on weather observations from the National Oceanic and Atmospheric Administration ("NOAA"). The historical weather for the FPL service area is based on a system average temperature using the weather data from the Miami, West Palm Beach, Fort Myers, and Daytona Beach weather stations. The weightings for each weather station are based on the proportion of total FPL load served in the area represented by that weather station. The historical weather for the Gulf service area is based on the Pensacola weather station.

Q. What are the weather variables used in the forecasting process?

A. The energy sales forecast models use cooling degree hours and heating degree hours, while the peak demand models use peak day hourly temperatures or degree hours. Cooling degree hours are a cumulative measure of temperatures above the temperature threshold where cooling load increases, and heating degree hours are a cumulative measure of temperatures below the temperature threshold where heating load increases. Since energy sales are a cumulative measure of energy sales over a given time period, cooling degree hours and heating degree hours are appropriate weather variables for energy sales models. Unlike energy sales, peak demand is the highest hourly integrated demand during a given time period; therefore, peak day hourly temperatures or degree hours are the appropriate weather variables for peak demand models. Detailed descriptions for each of the weather variables are provided later in my testimony.

Q. How is normal weather calculated?

A. Normal weather is calculated as the average of the most recent 20 years of historical weather.

Q. Is 20-year normal weather consistent with standard industry practice?

A. Yes. Although there may be some exceptions, the 20-year normal weather is a widely used industry practice. FPL and Gulf, along with Tampa Electric Company, have relied on 20-year normal weather for forecasting and weather normalization. The use of 20-year normal weather is appropriate because it provides stability to the weather assumptions, which in turn provides greater stability to the load forecasts, and this stability is especially important given the inherent volatility of weather.

Q. What is weather normalization?

A. Weather normalization refers to the process of adjusting actual energy sales or peak demands to reflect average, or normal weather. For example, the weather in the FPL service area was warmer than normal during 2019 and this warmer than normal weather resulted in higher energy sales for FPL during 2019. The first step in weather normalizing 2019 energy sales is to compare 2019 actual weather versus normal weather. The energy sales impact of the difference is then quantified using energy sales models. Finally, the impacts of weather are removed from 2019 actual energy sales to arrive at 2019 weather normalized sales.

Q. Why is it necessary to use weather-normalized historical data?

A. The use of weather-normalized historical data is necessary when calculating

growth rates. If the growth rates are calculated using historical data that is not weather-normalized, the resulting calculated growth rates will be affected by the variability of weather. Weather normalizing historical data removes the variability of weather and the resulting growth rates reflect the true underlying growth trends. Similarly, weather-normalized historical data is also necessary when determining the accuracy of a forecast.

Q. Is the use of weather-normalized data an industry best practice?

A. Yes. It is an industry best practice to use weather-normalized data when calculating growth rates and determining forecast accuracy. For example, electric utilities in Florida have relied on weather-normalized sales variances in their rate filings consistent with the Commission's policy that rates be based on weather-normalized sales (Order No. PSC-11-0103-FOF-EI).

III. CUSTOMER FORECAST

Customer Forecast Overview

Q. What is the objective of the customer forecast process?

A. The objective of the customer forecast process is to produce reliable, unbiased forecasts for the number of total customers and retail customers by revenue class, where a customer is defined as an active service account.

Q. What are the forecasts for total customers for 2022 and 2023?

A. Table JKP-1 summarizes the total customer forecasts for 2022 and 2023.

Table JKP-1		
Total Customer Forecasts		
	2022	2023
Standalone FPL	5,238,591	5,301,693
Standalone Gulf	478,943	483,764
Consolidated FPL	5,717,534	5,785,456

Additionally, Exhibit JKP-3 shows the consolidated forecasts for years 2024 and 2025, along with historical customer data beginning 2010. The historical customer data was developed by summing the FPL and Gulf customers.

Q. What are the drivers of the customer forecast?

A. The primary driver of the customer forecast is the number of households, where a household is a separate living arrangement for one or more persons. Households are directly related to residential customers, and residential customers make up the majority of total customers. Other factors that drive the customer forecast are retail sales activity and housing starts, which is a function of new construction activity. Retail sales activity drives the commercial customer forecast because changes in retail sales activity affect the number of commercial businesses. Housing starts drive the industrial customer forecast primarily associated with new construction activity.

Q. Have any other factors influenced customer growth in recent years?

A. Yes. One factor specific to FPL was initiated in the second half of 2013. FPL began using Automated Metering Infrastructure ("AMI" or "smart meter") technology to reduce the number of unknown usage ("UKU") premises. A UKU premise is a location where electricity is being consumed without an active customer account. If a UKU premise was identified, the occupants of the premise would have to open an account or have the electric service terminated.

This program was implemented beginning in the second half of 2013 and has resulted in an increase in the number of active accounts.

Another factor that influenced Gulf's recent customer growth was Hurricane Michael, which struck the eastern portion of the Gulf service area in October 2018. The Category 5 storm devastated the Panama City area, and significant numbers of premises were temporarily or permanently destroyed, resulting in substantial customer losses.

Recessions also affect customer growth. For example, the Great Recession, which lasted from December 2007 through June 2009, caused severe slowdowns in both FPL's and Gulf's customer growth rates for several years after the end of the recession.

Finally, customer growth is affected by acquisitions. For example, the electric utility customers previously served by the City of Vero Beach became FPL customers in late 2018.

Q. How was the consolidated customer forecast developed?

A. The consolidated customer forecast was developed using a "bottom-up" approach, where the total customer forecast is the sum of the customer forecasts for the individual revenue classes. The revenue classes included in the total forecast are residential, commercial, industrial, street & highway lighting, railroads & railways, other, and wholesale requirements. The consolidated

revenue class customer forecasts were developed by summing the respective standalone revenue class customer forecasts for FPL and Gulf. This approach is consistent with the methodology used to develop the customer forecast provided in the combined 2020-2029 Ten Year Site Plan for FPL and Gulf (hereinafter, the "FPL/Gulf 2020 TYSP") that was approved in the Commission's Review of the 2020 Ten-Year Site Plans of Florida's Electric Utilities, issued on October 6, 2020. The consolidated customer forecasts for 2022 and 2023 are shown in Table JKP-1 and Table JKP-14. Additionally, Exhibit JKP-3 shows the consolidated customer forecasts for years 2024 and 2025, along with historical customer data beginning 2010. The historical customer data was developed by summing the FPL and Gulf customers.

Q. Have there been any changes to the customer forecast methodology since the prior rate cases for either FPL or Gulf?

A. Yes, certain changes described below were made beginning with the forecasts presented in the FPL/Gulf 2020 TYSP. These changes are reasonable and ensure that the standalone FPL and Gulf customer forecasts employ the same methodology.

In its 2016 rate case, FPL used a "top-down" approach to develop its customer forecast, where the number of total customers was forecasted using a regression model. The customer forecasts for the residential and commercial revenue class were then adjusted by the difference between the sum of the revenue class forecasts and the total customer forecast. The current customer forecast is based

on a "bottom-up" approach used by Gulf, which is described in more detail later in my testimony. FPL's adoption of the bottom-up approach allows the customer forecasts to reflect better differences in growth rates between the customer classes.

In its 2016 rate case, residential customers for Gulf were forecasted based on inputs from Gulf's field marketing managers for the first two forecast years and then tied to household growth for subsequent years. Commercial customers for Gulf were forecasted based on inputs from Gulf's field marketing managers for the first forecast year and then tied to residential customer growth for subsequent years. Industrial customers for Gulf were forecasted based on inputs from Gulf's field marketing managers for the first forecast year and then grown based on historical trends. The customer forecast methodology used in this proceeding adopts FPL's approach and relies on multiple linear regression (or "regression") models or exponential smoothing (or "exponential") models for the entire forecast period. Gulf's adoption of models for forecasting customers improves productivity while still providing accurate forecasts.

Q. Does the current method provide accurate customer forecasts?

A. Yes. The accuracy of the current method is demonstrated by comparing the 2020 actuals with the forecasts developed for the FPL/Gulf 2020 TYSP using the same method, which were within 0.4 and 0.3 percent for FPL and Gulf, respectively.

Residential Customer Forecasts

Q. How was the consolidated residential customer forecast developed?

A. The consolidated residential customer forecast was developed by summing the standalone FPL and Gulf residential customer forecasts. These standalone forecasts were developed using two regression models, one for each of the companies, and the primary driver for each model was the number of households.

Q. What is the relationship between the number of households and population?

A. The number of households is directly related to population and the only differentiating factor is the number of persons per household. If the number of persons per household is constant, then household growth is the same as population growth. But if the number of persons per household is decreasing, then the household growth will be higher than population growth. A slight decrease in the number of persons per household is projected over the next few years as the economy is projected to begin to recover, and the result is that the number of households are projected to grow slightly faster than population growth.

Q. What was the source of the household growth projections?

A. The household growth projections used in the models were from the August 2020 economic projections provided by IHS Markit. Both FPL and Gulf have relied on economic projections from IHS Markit for a number of years, including the forecasts provided in the FPL/Gulf 2020 TYSP.

Q. Do the residential models rely on additional variables beyond households?

A. Yes. Along with households, the standalone FPL residential customer forecast regression model also included two lagged dependent variables, a variable for unknown usage premises (previously described in my testimony) and binary terms. The other variables included in the standalone Gulf residential customer forecast were a lagged dependent variable, a binary term, and two moving averages to address serial correlation in model residuals. A detailed list of all variables, including descriptions, is provided in MFR F-5.

Q. Are the residential models statistically sound?

A. Yes. Table JKP-2 summarizes the adjusted R-squared ("R^2"), MAPE, and Durbin-Watson ("D-W") statistics for the residential models.

Table JKP-2
Residential Customer Models

	R^2	MAPE	D-W
Standalone FPL	99.99%	0.05%	2.00
Standalone Gulf	99.94%	0.07%	1.87

These statistics indicate both models display excellent goodness of fit, have minimal model residuals, and have insignificant serial correlation.

Commercial Customer Forecasts

Q. How was the consolidated commercial customer forecast developed?

A. Similar to the residential customer forecast, the consolidated commercial customer forecast was developed by summing the standalone FPL and Gulf commercial customer forecasts. These standalone forecasts were developed using two exponential models and two regression models.

Q. Please describe the commercial customer exponential models.

A. One exponential model was used to forecast large commercial customers (customers on demand rates of 500 kW and above) for FPL, and another exponential model was used to forecast large commercial customers (customers 25 kW or greater) for Gulf.

Q. Please describe the commercial customer regression models.

A. One commercial regression model was used to forecast small/medium commercial customers (customers on energy only rates and demand rates less than 500 kW) for FPL, and another regression model was used to forecast small commercial customers (customers less than 25 kW) for Gulf. A detailed list of all model variables, including descriptions, is provided in MFR F-5.

Q. Are these commercial customer models statistically sound?

A. Yes. The statistics for the commercial customer models are shown in Table JKP-3.

Table JKP-3
Commercial Customer Models

		R^2	MAPE	D-W
Standalone FPL	Large	98.28%	0.34%	1.91
	Small/Medium	99.99%	0.04%	1.89
Standalone Gulf	Large	96.30%	0.15%	1.89
	Small	99.80%	0.26%	1.91

These statistical measures indicate the commercial customer models display excellent goodness of fit, have minimal model residuals, and have insignificant serial correlation.

Industrial Customer Forecasts

Q. How was the consolidated industrial customer forecast developed?

A. The consolidated industrial customer forecast was also developed by summing the standalone FPL and Gulf industrial customer forecasts. These standalone forecasts were developed using three exponential models and one regression model.

Q. Please describe the industrial customer exponential models.

A. One exponential model was used to forecast medium industrial customers (customers on demand rates less than 500 kW) for FPL, another exponential model was used to forecast large industrial customers (customers on demand rates 500 kW and above) for FPL, and a final exponential model was to forecast industrial customers for Gulf.

Q. Please describe the industrial customer regression model.

A. A regression model was used to forecast small industrial customers (customers on energy only rates) for FPL. The model variables were housing starts, lagged dependent variables, and historical binary terms. A detailed list of all model variables, including descriptions, is provided in MFR F-5.

Q. Are the industrial customer models statistically sound?

A. Yes. The statistics for the industrial customer models are shown in Table JKP-4.

Table JKP-4				
Industrial Customer Models				
		R^2	MAPE	D-W
Standalone FPL	Large	88.20%	0.75%	1.98
	Medium	94.96%	0.70%	2.00
	Small	99.78%	0.82%	1.96
Standalone Gulf	Industrial	95.96%	0.63%	2.00

These statistical measures indicate the standalone FPL and Gulf industrial models display excellent goodness of fit, have minimal model residuals, and have insignificant serial correlation.

Customer Forecasts for All Other Revenue Classes

Q. How were the consolidated forecasts for all other retail revenue classes developed?

A. The other retail revenue classes are street & highway lighting, railroads & railways, and other. The street & highway lighting class forecasts for both standalone companies were provided by FPL's Rate Development and Lighting teams regarding expected growth trends. The FPL customer forecasts for the railroads & railways and other revenue classes were developed using exponential models. Gulf does not have customers in the railroads & railways and other revenue classes.

New Service Accounts Forecast

Q. What is a new service account ("NSA"), and how is the NSA forecast used in this rate proceeding?

A. A NSA is when service is established for the first time at a new premise. The

NSA forecast is used by various departments, including Power Delivery and Financial Forecasting, as one of the indicators of future growth.

Q. What are the NSA forecasts for 2022 and 2023?

A. NSAs for 2022 and 2023 are forecasted to be 86,638 and 91,480, respectively. Cumulative NSA growth from 2019 through 2023 is forecasted to be 425,497.

Q. How was the consolidated NSA forecast developed?

A. The consolidated NSA forecast was developed by summing the standalone FPL and Gulf NSA forecasts. The standalone forecasts were developed using three regression models.

The standalone FPL residential NSA regression model included variables for income, housing starts, a binary term, and two autoregressive terms. The standalone FPL commercial NSA regression model included variables for housing starts, a lagged dependent variable, binary terms, and two autoregressive terms.

The standalone Gulf residential NSA regression model included variables for housing starts and an autoregressive term. The standalone Gulf commercial NSA forecast was developed by multiplying the Gulf residential NSA forecast by the FPL commercial versus residential NSA ratio.

Q. Are the NSA models statistically sound?

A. Yes. The statistics for the NSA models are shown in Table JKP-5.

Table JKP-5				
NSA Models				
		R^2	MAPE	D-W
Standalone FPL	Residential	92.67%	12.96%	2.09
	Commercial	91.94%	10.75%	2.00
Standalone Gulf	Residential	79.96%	21.37%	2.37

These statistical measures indicate the NSA models display excellent goodness of fit, have acceptable model residuals, and have little serial correlation.

IV. ENERGY SALES FORECAST

Energy Sales Forecast Overview

Q. What is the objective of the energy sales forecast process?

A. The objective of the energy sales forecast process is to produce reliable, unbiased forecasts of all components of NEL. The components of NEL are retail delivered energy sales, wholesale delivered energy sales, and total losses including company use.

Q. What are the drivers of the NEL forecast?

A. The primary driver of the NEL forecast is the retail energy sales forecast because retail energy is the largest component of NEL. However, changes in wholesale requirements sales contracts can also affect the NEL forecast. Table JKP-6 summarizes the components that make up the consolidated NEL.

Table JKP-6		
Net Energy for Load Build Up		
Annual GWh	**2022**	**2023**
Retail Billed Sales	122,097	122,937
+ Retail Unbilled Sales	-13	44
= Retail Delivered Sales	122,083	122,980
+ Wholesale Delivered Sales	7,209	7,272
+ Losses	6,287	6,334
= NEL	135,579	136,586

Q. What are the consolidated retail energy sales forecasts for 2022 and 2023?

A. Table JKP-7 summarizes the retail energy sales forecasts by revenue class.

Table JKP-7		
Retail Billed and Unbilled Sales Forecasts		
Annual GWh	**2022**	**2023**
Residential Billed	65,361	65,602
+ Commercial Billed	51,411	51,887
+ Industrial Billed	4,858	5,006
+ Street & Highway Billed	362	337
+ Railroad & Railways Billed	85	85
+ Other Billed	20	20
= Retail Billed Sales	122,097	122,937
+ Retail Unbilled Sales	-13	44
= Retail Delivered Sales	122,083	122,980

Exhibit JKP-4 shows the consolidated retail delivered energy sales forecasts for years 2024 and 2025, along with weather-normalized historical energy sales data beginning 2010. The historical weather-normalized energy sales data was developed by summing the FPL and Gulf weather-normalized energy sales.

Q. How was the retail energy sales forecast developed?

A. Similar to the customer forecast, the retail energy sales forecast was developed using a "bottom-up" approach, where the total retail energy sales forecast was the sum of the energy sales forecasts for each of the retail revenue classes. The revenue class forecasts were primarily developed using econometric models.

Where appropriate, the model results were then adjusted for factors that were not otherwise captured in the respective model histories.

Q. What are the retail revenue classes used in the consolidated energy sales forecast?

A. The retail revenue classes are residential, commercial, industrial, street and highway lighting, railroads & railways, and other. FPL has customers in all classes, while Gulf has customers in all classes except railroads & railways and other.

Q. What factors drive the econometric models and model adjustments?

A. The econometric models are driven primarily by a combination of weather, economic conditions, electricity prices, and changes in equipment efficiencies. Some of the model results were adjusted for the impacts of new technologies such as electric vehicles, increased adoption of private solar generation, and Company-sponsored programs such as those included in the Companies' Commission-approved DSM plans. Detailed descriptions of the models and any adjustments are provided later in my testimony.

Q. Have there been any changes to the retail energy sales forecast methodology since the prior rate cases for either FPL or Gulf?

A. Yes, changes described below were made beginning with the forecasts presented in the FPL/Gulf 2020 TYSP. These changes are reasonable and ensure that the standalone FPL and Gulf energy sales forecast now rely on the same methodology.

In its 2016 rate case, FPL employed a "top-down" approach where forecasts were developed for NEL, retail energy sales, wholesale energy sales, and losses. The retail energy sales forecast was then adjusted to ensure the sum of the retail, wholesale, and losses forecasts matched the NEL forecast. The current forecast is based on Gulf's "bottom-up" approach where NEL is the sum of the forecasts for retail energy sales, wholesale energy sales, and losses. FPL's adoption of the bottom-up approach allows the energy sales forecast to reflect better the differences in energy usage patterns between the customer classes, such as the previously discussed usage changes which occurred as a result of the COVID-19 pandemic.

In its 2016 rate case, the industrial sales forecast for Gulf was primarily driven by inputs from Gulf's account representatives who identified expected load changes for the largest industrial customers. The current industrial sales forecast adopts FPL's approach and is based on the result of multiplying the forecast of customers by the forecast of energy usage per customer. Gulf's adoption of models for industrial usage improves productivity while still providing accurate forecasts.

Q. Does the current method provide accurate retail energy sales forecasts?

A. Yes. The accuracy of the current method is demonstrated by comparing the 2020 weather-normalized retail energy sales with the forecasts developed for the FPL/Gulf 2020 TYSP using the same method, which were within 1.5 and 1.2 percent for FPL and Gulf, respectively.

Residential Energy Sales Forecast

Q. How was the consolidated residential energy sales forecast developed?

A. The consolidated residential energy sales forecast was developed by summing the standalone FPL and Gulf residential sales forecasts. These sales forecasts were developed by multiplying the residential customer forecasts by the residential energy usage forecasts and average billing days. The residential usage forecasts were developed using two regression models, one for each company. The average billing days were developed using historical averages.

Q. What variables are included in the residential usage models?

A. The standalone FPL model incudes variables for cooling degree hours, heating degree hours, income, electricity prices, energy efficiency codes and standards, binary terms, and an autoregressive term. The standalone Gulf model includes variables for cooling degree hours, heating degree hours, electricity prices, energy efficiency codes and standards, binary terms, and an autoregressive term. A detailed list of all model variables, including descriptions, is provided in MFR F-5.

Q. Are these models statistically sound?

A. Yes. The statistics for the residential usage models are shown in Table JKP-8.

Table JKP-8
Residential Usage Models

	R^2	MAPE	D-W
Standalone FPL	99.09%	1.36%	1.91
Standalone Gulf	98.91%	1.72%	1.90

These statistical measures indicate both models display excellent goodness of fit, have minimal model residuals, and have insignificant serial correlation.

Q. Were any adjustments applied to the residential energy sales forecasts?

A. Yes. The residential energy sales forecasts were adjusted for unbilled energy, Commission-approved DSM plans, impacts from private solar, and impacts from plug-in electric vehicles.

The unbilled energy adjustments were needed to adjust billed energies to calendar or delivered energies. The residential models were developed using billed historical energy data that reflects staggered usage across both the current and prior months. The unbilled adjustment corrects for the staggered usage and results in delivered energy that aligns with a calendar month.

The DSM adjustments capture the incremental DSM energy savings that are above and beyond those already reflected in the historical data for FPL and Gulf. These impacts are consistent with the 2020-2029 DSM goals established by the Commission in Order No. PSC-2019-0509-FOF-EG and incorporate actuals through July 2020.

The private solar adjustment captures the load impacts from private solar generation located behind customers' meters that are not otherwise reflected in the historical data. The private solar adjustment starts with the forecast of installed solar capacity for the state of Florida provided by external consultant Wood Mackenzie. Next, the shares of solar capacity in the FPL and Gulf service areas were estimated using the historical proportion of solar capacity

within the service areas. Finally, the energy impacts are calculated using solar profiles from the National Renewable Energy Laboratory's PVWatts calculator.

The electric vehicle ("EV") adjustments capture the load impacts from EV charging that were not otherwise reflected in the historical data for FPL and Gulf. The EV adjustment starts with the Bloomberg New Energy Forecast of plug-in EVs for the U.S. Next, the share of EVs in the FPL and Gulf service areas were estimated using Florida Department of Motor Vehicles data for the counties in the service areas. Finally, the energy impacts are calculated using an estimate of kilowatt-hours per vehicle.

Commercial Energy Sales Forecast

Q. How was the consolidated commercial energy sales forecast developed?

A. The consolidated commercial energy sales forecast was developed by summing the standalone FPL and Gulf commercial sales forecasts. These standalone sales forecasts were developed by multiplying the commercial customer forecasts by the commercial energy usage forecasts and average billing days. The commercial usage forecasts were developed using four regression models. The two FPL commercial usage models were for small/medium commercial (energy only rates and demand rates less than 500 kW) and large commercial (demand rates 500 kW and above). The two Gulf commercial usage models were for small commercial (rates less than 25 kW) and large commercial (rates

25 kW or greater). The commercial class segments are consistent between the customer forecasts and energy usage forecasts.

Q. What variables are included in the commercial usage models?

A. The standalone FPL small/medium commercial usage model included variables for cooling degree hours, electricity prices, energy efficiency codes and standards, employment, binary terms, and an autoregressive term. The standalone FPL large commercial usage model included variables for cooling degree hours, electricity price, employment, binary terms, and an autoregressive term.

The standalone Gulf small commercial usage model included variables for cooling degree hours, heating degree hours, electricity prices, energy efficiency codes and standards, binary terms, and an autoregressive term. The standalone Gulf large commercial usage model included variables for cooling degree hours, heating degree hours, electricity prices, energy efficiency codes and standards, binary terms, and an autoregressive term.

A detailed list of all model variables, including descriptions, is provided in MFR F-5.

Q. Are these commercial usage models statistically sound?

A. Yes. The commercial usage models' statistics are shown in Table JKP-9.

Table JKP-9				
Commercial Usage Models				
		R^2	MAPE	D-W
Standalone FPL	Large	91.95%	1.49%	1.94
	Small/Medium	98.29%	0.95%	1.78
Standalone Gulf	Large	98.43%	1.32%	2.15
	Small	98.14%	1.92%	2.21

These statistical measures indicate the standalone FPL and Gulf models display excellent goodness of fit, have minimal model residuals, and have insignificant serial correlation.

Q. Were any adjustments applied to the commercial energy sales forecast adjustments?

A. Yes. The commercial energy sales forecasts were adjusted for unbilled energy, Commission-approved DSM plans, impacts from private solar, and impacts from economic development tariffs. The adjustments for unbilled energy, Commission-approved DSM plans, and impacts from private solar were described previously in my testimony. An adjustment for economic development tariffs was needed in order to capture the additional load to standalone FPL associated with economic development tariffs. These tariffs provide discounts to customers who are adding new or incremental load, which would not otherwise be reflected in the historical data. The additional load impact was provided by FPL's Rate Development and Economic Development teams.

Industrial Energy Sales Forecast

Q. How was the consolidated industrial energy sales forecast developed?

A. The consolidated industrial energy sales forecast was developed by summing the standalone FPL and Gulf industrial energy sales forecasts. The standalone FPL large industrial sales forecast was developed by multiplying the industrial customer forecasts by the industrial energy usage forecasts; the other standalone industrial sales forecasts were developed by multiplying the customer forecasts by the energy usage forecasts and average billing days. The industrial usage forecasts were developed using one regression model and three exponential models.

Q. Please describe the industrial usage models.

A. The standalone FPL industrial usage was forecasted using a regression model for small industrial customers, an exponential model for medium industrial customers, and an exponential model for large industrial customers. The standalone FPL small industrial regression model included variables for cooling degree hours, a binary term, and an autoregressive term. The standalone Gulf industrial usage was forecasted using an exponential model. A detailed list of all regression model variables, including descriptions, is provided in MFR F-5.

Q. Are the industrial usage models statistically sound?

A. Yes. The statistics for the industrial usage models are shown in Table JKP-10.

Table JKP-10				
Industrial Usage Models				
		R^2	**MAPE**	**D-W**
Standalone FPL	Large	56.55%	4.39%	2.04
	Medium	75.33%	1.67%	2.24
	Small	92.16%	3.40%	2.10
Standalone Gulf	Industrial	81.20%	4.58%	2.00

These statistical measures indicate the models generally display acceptable goodness of fit, have minimal model residuals, and have insignificant serial correlation. Compared to the residential and commercial classes, the medium and large industrial class customer usage is less homogenous across the class and more sensitive to unpredictable events due to the small number of customers in the class. These factors result in greater volatility in the historical data. The R-squared value describes the relationship between the movements of the included independent variables compared to the dependent variable. The R-squared value alone is not indicative of the overall model's reliability or ability to provide accurate forecasts; instead, it is simply an indication of how well the included independent variables capture the changes in the dependent variable. If the dependent variable is affected by factors that are not observable or not readily obtainable, such as unexpected industrial customer outages, the resulting model's R-squared value would be lower.

Energy Sales Forecasts for All Other Retail Revenue Classes

Q. How were the consolidated forecasts for the remaining retail revenue classes developed?

A. The street & highway lighting energy forecasts for both standalone companies

were provided by FPL's Rate Development and Lighting teams regarding expected growth trends. The FPL railroads & railways and other energy forecasts were developed by multiplying the forecasted number of customers by the forecasted energy usage. The railroads & railways energy usage forecast was developed using a regression model which included binary terms and an autoregression term. A detailed list of all variables in the regression model is provided in MFR F-5. The other energy usage forecast was developed using an exponential model. Gulf does not have customers in the railroads & railways and other revenue classes.

Energy Forecasts for Territorial Wholesale Sales, Losses, and NEL

Q. How were the energy forecasts for territorial wholesale sales, losses, and NEL developed?

A. The development of the wholesale energy sales forecasts began with information regarding which wholesale contracts are known. The energies associated with those contracts were then forecasted using a combination of contract terms, energy sales forecasts provided by the counterparty, and econometric modeling. The forecast of energy losses was developed using a historical loss factor. The forecast of NEL was developed by adding together the energy forecasts for retail sales, wholesale sales, and losses. Table JKP-6, shown earlier in my testimony, summarizes the components that add up to the NEL forecast.

V. PEAK DEMAND FORECAST

Peak Demand Forecast Overview

Q. What is the objective of the peak demand forecast process?

A. The objective of the peak demand forecast process is to provide reliable, unbiased projections of monthly system peak demands, where the system peak demand is the highest hourly demand by month.

Q. How were the peak demand forecasts developed?

A. The consolidated peak demand forecasts was developed by taking the highest hourly value in each month for the consolidated hourly load forecast. The consolidated FPL hourly load forecast was developed by combining the standalone FPL and Gulf hourly load forecasts. The standalone hourly forecasts were developed by first forecasting the monthly peak demands using econometric models and monthly ratios. Where appropriate, the model results were then adjusted for factors not otherwise reflected in model history. The adjusted monthly peak demands were then combined with the monthly NEL forecasts and historical hourly loadshapes to arrive at forecasted hourly loads. The monthly peak demands for the consolidated system were the highest hourly load in each month.

Q. Why was it necessary to combine the standalone FPL and Gulf hourly load forecasts as opposed to simply adding together the peak demand forecasts?

A. Simply adding the peak demand forecasts for the standalone companies will not capture the impacts of load diversity. Differences in hourly load profiles for

FPL and Gulf result in peak demands occurring in different hours for the standalone companies. These differences mean the consolidated peak demand will be lower than the sum of the standalone peak demand values. When the hourly load forecasts for the standalone companies are combined, the resulting highest hourly load for the consolidated system will capture the impacts of the differences in hourly load profiles.

Q. What is peak demand diversity?

A. Peak demand diversity is when the peak demand for a combined system is less than the sum of the peak demands for the individual components that make up the combined system. This reduction in the combined system peak demand is due to differences in the hourly load profiles, and these differences are typically due to different customer compositions, weather patterns, and time zones.

Q. What are the peak demand forecasts for 2022 and 2023?

A. The monthly peak demand forecasts, including incremental DSM, are provided in MFR E-18. The summer and winter peak demand forecasts for 2022 and 2023 are summarized in tables JKP-11 and JKP-12, along with the standalone peak demand forecasts and the peak demand reductions to the consolidated peak demands due to peak demand diversity. Finally, Exhibit JKP-5 provides the consolidated summer peak demand forecasts for years 2021 through 2025.

Table JKP-11
Summer Peak Demand Forecasts

MW	2022	2023
Standalone FPL	24,908	25,353
Standalone Gulf	2,428	2,441
Consolidated FPL	27,205	27,661
Diversity Benefit	-131	-133

Table JKP-12
Winter Peak Demand Forecasts

MW	2022	2023
Standalone FPL	20,289	20,672
Standalone Gulf	2,413	2,423
Consolidated FPL	22,436	22,826
Diversity Benefit	-267	-270

Q. When are the summer peak demands expected to occur?

A. The consolidated summer peak is expected to occur in August between 4-5 PM Eastern time zone. The consolidated summer peak is driven by both the FPL summer peak, which is also expected to occur in August between 4-5 PM Eastern, and the Gulf summer peak, which is expected to occur in July between the hours of 4-5 PM Eastern. The summer peak demand diversity for the consolidated system is due to the differences in the timing of the summer peaks for the standalone companies.

Q. When are the winter peak demands expected to occur?

A. The consolidated winter peak is expected to occur in January between 7-8 AM Eastern time zone. Like the consolidated summer peak, the winter peak is also driven by both the FPL winter peak, which is also expected to occur in January between 7-8 AM Eastern, and the Gulf winter peak, which is expected to occur in January between the hours of 7-8 AM Eastern. Although both standalone companies are expected to peak during the same month and hour, the day of the peaks are expected to be different because historically, the two standalone systems rarely experience their winter peaks during the same day. Because of this historical relationship, the consolidated winter peak demand does reflect diversity benefits.

Q. Has there been a change to the peak demand forecast methodology since the prior rate cases for FPL and Gulf?

A. The peak demand forecast methodology is the same methodology used in FPL's 2016 rate case. This methodology is a change from the peak demand forecast

methodology used by Gulf in its 2016 rate case. In its 2016 rate case, Gulf's peak demands were forecasted using a Southern Company proprietary model that developed individual class-level hourly loadshapes, which were then combined to arrive at the total system hourly. The monthly peak demands were the highest hourly load within each month. Beginning with the forecasts presented in the FPL/Gulf 2020 TYSP, the current standalone Gulf forecast method relies on regression models and is consistent with the FPL forecast method.

Q. Does the current method provide accurate peak demand forecasts?

A. Yes. The accuracy of the current method is demonstrated by comparing the 2020 weather-normalized summer peak demands with the forecasts developed for the FPL/Gulf 2020 TYSP using the same method, which were within 1.3 and 0.6 percent for FPL and Gulf, respectively.

Standalone Monthly Peak Demand Forecasts

Q. What is the method for developing the standalone monthly peak demand forecasts for FPL and Gulf?

A. The development of the standalone monthly peak demand forecasts begins with forecasting summer peak demands and winter peak demands using peak demand per customer regression models. Next, the model results were multiplied by the number of customers and then adjusted for factors that were not otherwise captured in the respective model histories. Finally, the monthly

peak demands for the other months are forecasted based on the historical relationships between the peaks in those months and the annual summer peak.

The standalone FPL summer peak demand forecast was developed using a regression model with variables for weather, employment, energy efficiency codes and standards, a binary term, and an autoregressive term. The winter peak demand forecast was developed using a regression model with variables for weather, employment, and historical binary terms. A detailed list of all model variables, including descriptions, is provided in MFR F-5. The historical relationships between the annual summer peak and the peaks for all other months excluding January were developed using the average of the past 20 years. Adjustments for wholesale requirements, private solar, plug-in electric vehicles, and the impact of economic development tariffs were made to the model results to arrive at the final monthly peak demand forecasts.

The standalone Gulf summer peak demand forecast was developed using a regression model with variables for weather, income, energy efficiency codes and standards, and a moving average term. The winter peak demand forecast was developed using a regression model with variables for weather, number of customers, energy efficiency codes and standards, a binary term, and two autoregressive terms. A detailed list of all model variables, including descriptions, is provided in MFR F-5. The historical relationships between the annual summer peak and the peaks for all other months excluding January were

developed using the average of the past 20 years. Adjustments for private solar and plug-in electric vehicles were made to the model results to arrive at the final monthly peak demand forecasts.

Q. Are these summer and winter peak demand models statistically sound?

A. Yes. The statistics for the summer and winter peak demand models are shown in Table JKP-13.

Table JKP-13
Peak Demand Models

		R^2	MAPE	D-W
Standalone FPL	Summer	88.43%	1.38%	1.89
	Winter	85.31%	4.08%	2.04
Standalone Gulf	Summer	95.50%	0.89%	1.58
	Winter	96.53%	1.52%	2.06

These statistics indicate both models display excellent goodness of fit, have minimal model residuals, and have insignificant serial correlation.

Q. Please describe the peak demand adjustments.

A. Both standalone FPL and Gulf monthly peak demand forecasts were adjusted for the impacts of incremental DSM, private solar, and plug-in electric vehicles. The adjustments for incremental DSM were based on the DSM plans which were approved by the Commission in Order No. PSC-2020-0291-CO-EG. The private solar and plug-in electric vehicle adjustments were calculated by FPL's Development team. Additionally, the FPL monthly peak demand forecasts were adjusted for wholesale requirements contracts and impacts from economic development tariffs.

Hourly Load Forecasts

Q. How were the hourly load forecasts developed?

A. The consolidated hourly load forecast was developed by adding together the standalone FPL and Gulf hourly load forecasts. The standalone hourly load forecasts were developed by applying the standalone FPL and Gulf respective forecasted monthly peak demands and NELs to an hourly seedshape, which is the hourly load profile template. The resulting hourly forecast will have an hourly profile similar to the seedshape, but the highest hourly load in each month will match the forecasted monthly peaks, and the sum of the hourly loads in each month will equal the forecasted monthly NEL. The seedshapes for each standalone company were selected by determining which historical month had weather that was most similar to normal weather. The hourly loads for that month were then adjusted to ensure the peak day occurs on a weekday, and this process was repeated for each of the companies. Additionally, the Gulf hourly seedshape was adjusted to reflect Eastern time zone.

VI. SUMMARY

Q. Please provide a summary of the forecasts for customers, energy sales, and peak demands for years 2022 and 2023.

A. Table JKP-14 summarizes the consolidated forecasts for customers, retail energy sales, and summer peak demands for years 2022 and 2023.

Table JKP-14		
Consolidated FPL Forecast Summary		
	2022	**2023**
Total Retail Customers (average)	5,717,534	5,785,456
Retail Delivered Sales (GWh)	122,083	122,980
Summer Peak Demand (MW)	27,205	27,661

These forecasts were developed using well-established methods that have consistently provided accurate and reliable forecasts that are used for all regulatory and planning purposes.

Q. Does this conclude your direct testimony?

A. Yes.

Florida Power & Light Company

CONSOLIDATED MFRs SPONSORED OR CO-SPONSORED BY JUN K. PARK

MFR	Period	Title
SOLE SPONSOR:		
C-40	Test Subsequent	O & M COMPOUND MULTIPLIER CALCULATION
E-18	Test Subsequent	MONTHLY PEAKS
F-06	Test Subsequent	FORECASTING MODELS - SENSITIVITY OF OUTPUT TO CHANGES IN INPUT DATA
F-07	Test Subsequent	FORECASTING MODELS - HISTORICAL DATA
CO-SPONSOR:		
C-12	Test Subsequent	ADMINISTRATIVE EXPENSES
C-13	Historic	MISCELLANEOUS GENERAL EXPENSES
C-14	Historic Test Subsequent	ADVERTISING EXPENSES
C-15	Historic Test Subsequent	INDUSTRY ASSOCIATION DUES
C-33	Test Subsequent	PERFORMANCE INDICES
C-34	Historic Subsequent	STATISTICAL INFORMATION
C-35	Test Subsequent	PAYROLL AND FRINGE BENEFIT INCREASES COMPARED TO CPI
C-36	Test Subsequent	NON-FUEL OPERATION AND MAINTENANCE EXPENSE COMPARED TO CPI
C-37	Test Subsequent	O & M BENCHMARK COMPARISON BY FUNCTION
E-09	Test Subsequent	COST OF SERVICE - LOAD DATA
E-11	Test Subsequent	DEVELOPMENT OF COINCIDENT AND NON COINCIDENT DEMANDS FOR COST STUDY

Florida Power & Light Company

CONSOLIDATED MFRs SPONSORED OR CO-SPONSORED BY JUN K. PARK

MFR	Period	Title
CO-SPONSOR:		
E-12	Test Subsequent	ADJUSTMENT TO TEST YEAR REVENUE
E-15	Test Subsequent	PROJECTED BILLING DETERMINANTS - DERIVATION
E-16	Prior Test Subsequent	CUSTOMERS BY VOLTAGE LEVEL
E-19a	Test Subsequent	DEMAND AND ENERGY LOSSES
E-19b	Test Subsequent	ENERGY LOSSES
E-19c	Test Subsequent	DEMAND LOSSES
F-05	Test Subsequent	FORECASTING MODELS
F-08	Test Subsequent	ASSUMPTIONS

Florida Power & Light Company

SUPPLEMENT 1 - FPL STANDALONE INFORMATION IN MFR FORMAT SPONSORED OR CO-SPONSORED BY JUN K. PARK

Schedule	Period	Title
SOLE SPONSOR:		
C-40	Test Subsequent	O & M COMPOUND MULTIPLIER CALCULATION
E-18	Test Subsequent	MONTHLY PEAKS
F-06	Test Subsequent	FORECASTING MODELS - SENSITIVITY OF OUTPUT TO CHANGES IN INPUT DATA
F-07	Test Subsequent	FORECASTING MODELS - HISTORICAL DATA
CO-SPONSOR:		
C-12	Test Subsequent	ADMINISTRATIVE EXPENSES
C-14	Test Subsequent	ADVERTISING EXPENSES
C-15	Test Subsequent	INDUSTRY ASSOCIATION DUES
C-33	Test Subsequent	PERFORMANCE INDICES
C-34	Subsequent	STATISTICAL INFORMATION
C-35	Test Subsequent	PAYROLL AND FRINGE BENEFIT INCREASES COMPARED TO CPI
C-36	Test Subsequent	NON-FUEL OPERATION AND MAINTENANCE EXPENSE COMPARED TO CPI
C-37	Test Subsequent	O & M BENCHMARK COMPARISON BY FUNCTION
E-09	Test Subsequent	COST OF SERVICE - LOAD DATA
E-11	Test Subsequent	DEVELOPMENT OF COINCIDENT AND NON COINCIDENT DEMANDS FOR COST STUDY

SUPPLEMENT 1 - FPL STANDALONE INFORMATION IN MFR FORMAT SPONSORED OR CO-SPONSORED BY JUN K. PARK

Schedule	Period	Title
CO-SPONSOR:		
E-12	Test Subsequent	ADJUSTMENT TO TEST YEAR REVENUE
E-15	Test Subsequent	PROJECTED BILLING DETERMINANTS - DERIVATION
E-16	Test Subsequent	CUSTOMERS BY VOLTAGE LEVEL
E-19a	Test Subsequent	DEMAND AND ENERGY LOSSES
E-19b	Test Subsequent	ENERGY LOSSES
E-19c	Test Subsequent	DEMAND LOSSES
F-05	Test Subsequent	FORECASTING MODELS
F-08	Test Subsequent	ASSUMPTIONS

Florida Power & Light Company

SUPPLEMENT 2 - GULF STANDALONE INFORMATION IN MFR FORMAT SPONSORED OR CO-SPONSORED BY JUN K. PARK

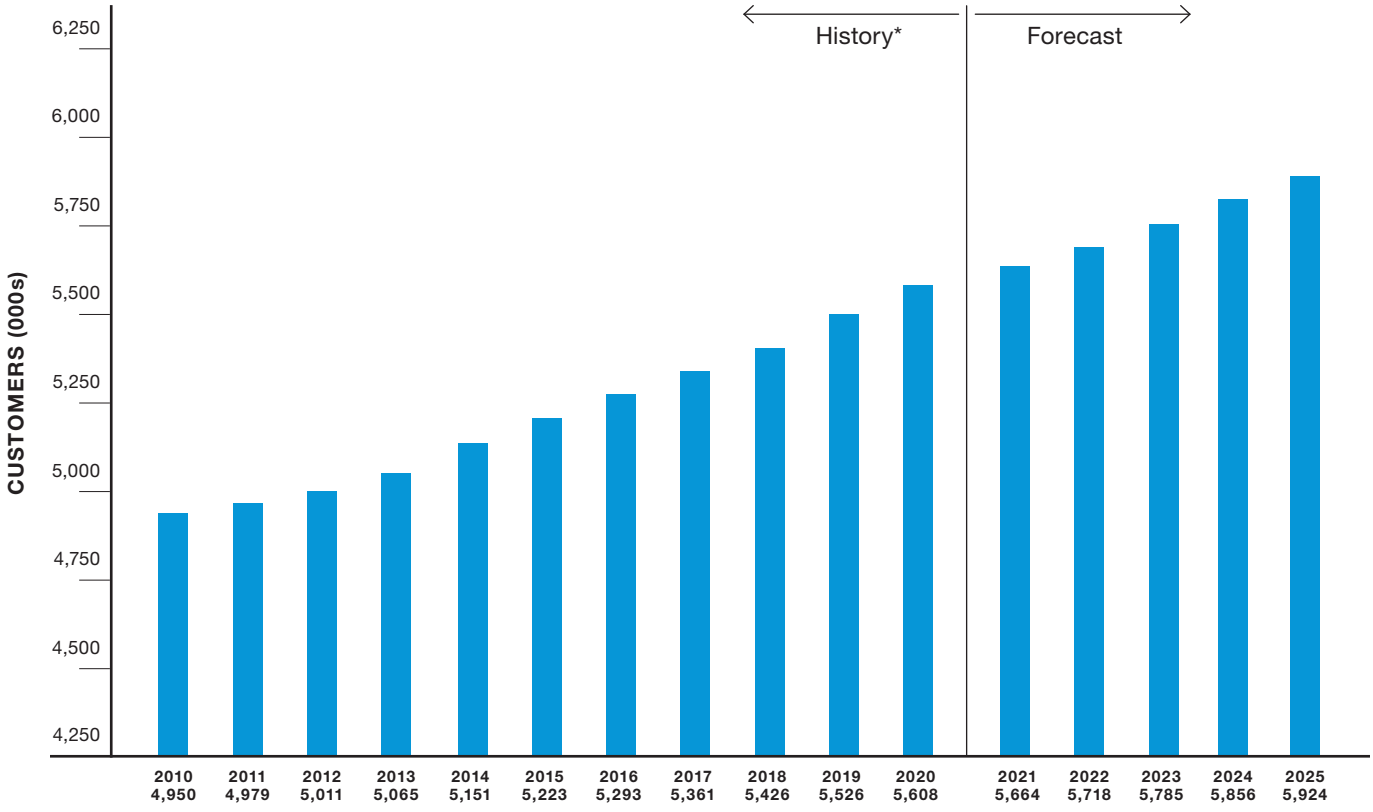
Schedule	Period	Title
SOLE SPONSOR:		
C-40	Test Subsequent	O & M COMPOUND MULTIPLIER CALCULATION
E-18	Test Subsequent	MONTHLY PEAKS
F-06	Test Subsequent	FORECASTING MODELS - SENSITIVITY OF OUTPUT TO CHANGES IN INPUT DATA
F-07	Test Subsequent	FORECASTING MODELS - HISTORICAL DATA
CO-SPONSOR:		
C-12	Test Subsequent	ADMINISTRATIVE EXPENSES
C-14	Test Subsequent	ADVERTISING EXPENSES
C-15	Test Subsequent	INDUSTRY ASSOCIATION DUES
C-33	Test Subsequent	PERFORMANCE INDICES
C-34	Subsequent	STATISTICAL INFORMATION
C-35	Test Subsequent	PAYROLL AND FRINGE BENEFIT INCREASES COMPARED TO CPI
C-36	Test Subsequent	NON-FUEL OPERATION AND MAINTENANCE EXPENSE COMPARED TO CPI
C-37	Test Subsequent	O & M BENCHMARK COMPARISON BY FUNCTION
E-09	Test Subsequent	COST OF SERVICE - LOAD DATA
E-11	Test Subsequent	DEVELOPMENT OF COINCIDENT AND NON COINCIDENT DEMANDS FOR COST STUDY

SUPPLEMENT 2 - GULF STANDALONE INFORMATION IN MFR FORMAT SPONSORED OR CO-SPONSORED BY JUN K. PARK

Schedule	Period	Title
CO-SPONSOR:		
E-12	Test Subsequent	ADJUSTMENT TO TEST YEAR REVENUE
E-15	Test Subsequent	PROJECTED BILLING DETERMINANTS - DERIVATION
E-16	Test Subsequent	CUSTOMERS BY VOLTAGE LEVEL
E-19a	Test Subsequent	DEMAND AND ENERGY LOSSES
E-19b	Test Subsequent	ENERGY LOSSES
E-19c	Test Subsequent	DEMAND LOSSES
F-05	Test Subsequent	FORECASTING MODELS
F-08	Test Subsequent	ASSUMPTIONS

Historical and Forecasted Consolidated FPL Customers

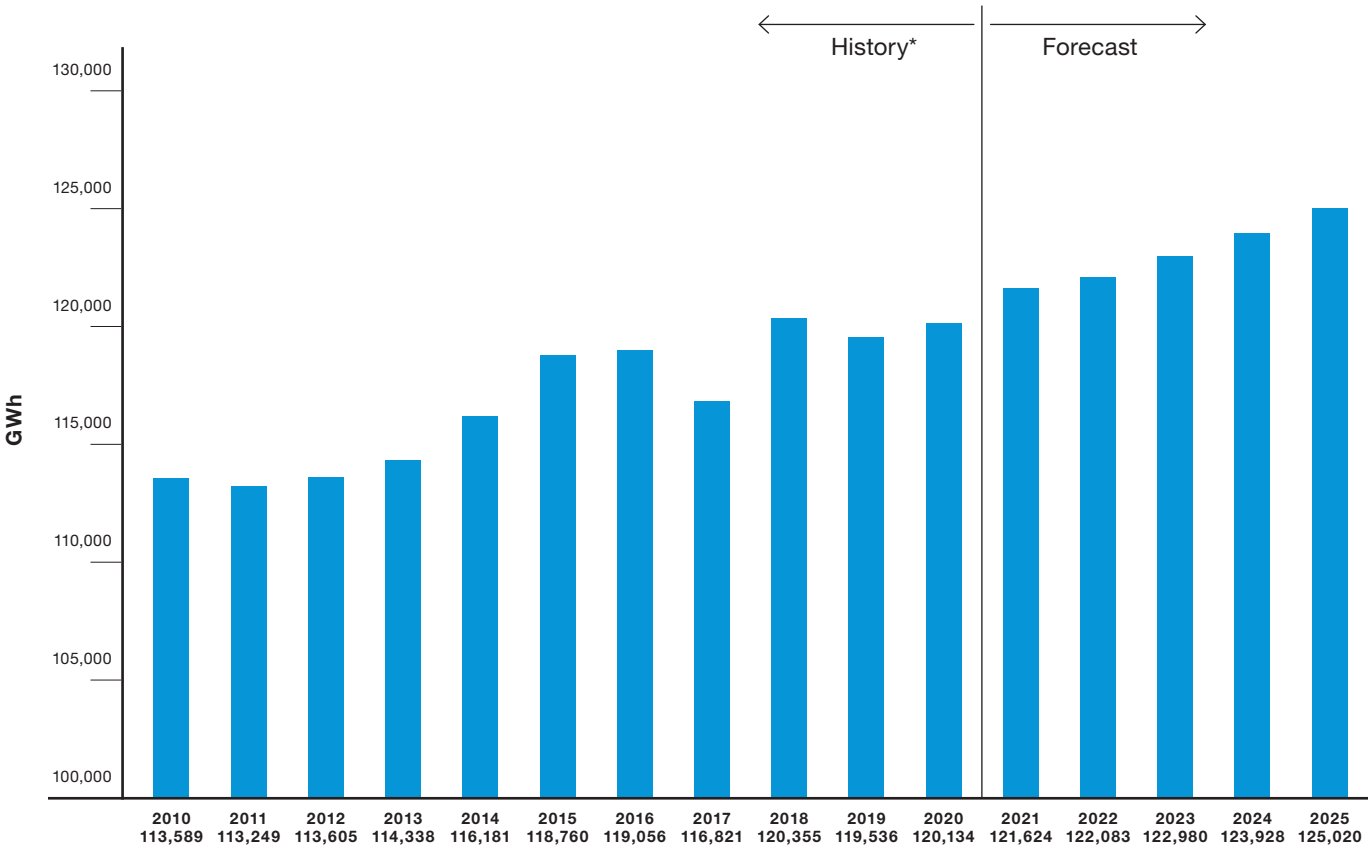
Consolidated FPL Customers (Annual Average, 000s)



Historical data for Consolidated FPL calculated as the sum of Legacy FPL and Legacy Gulf

Historical and Forecasted Consolidated FPL Retail Delivered Sales

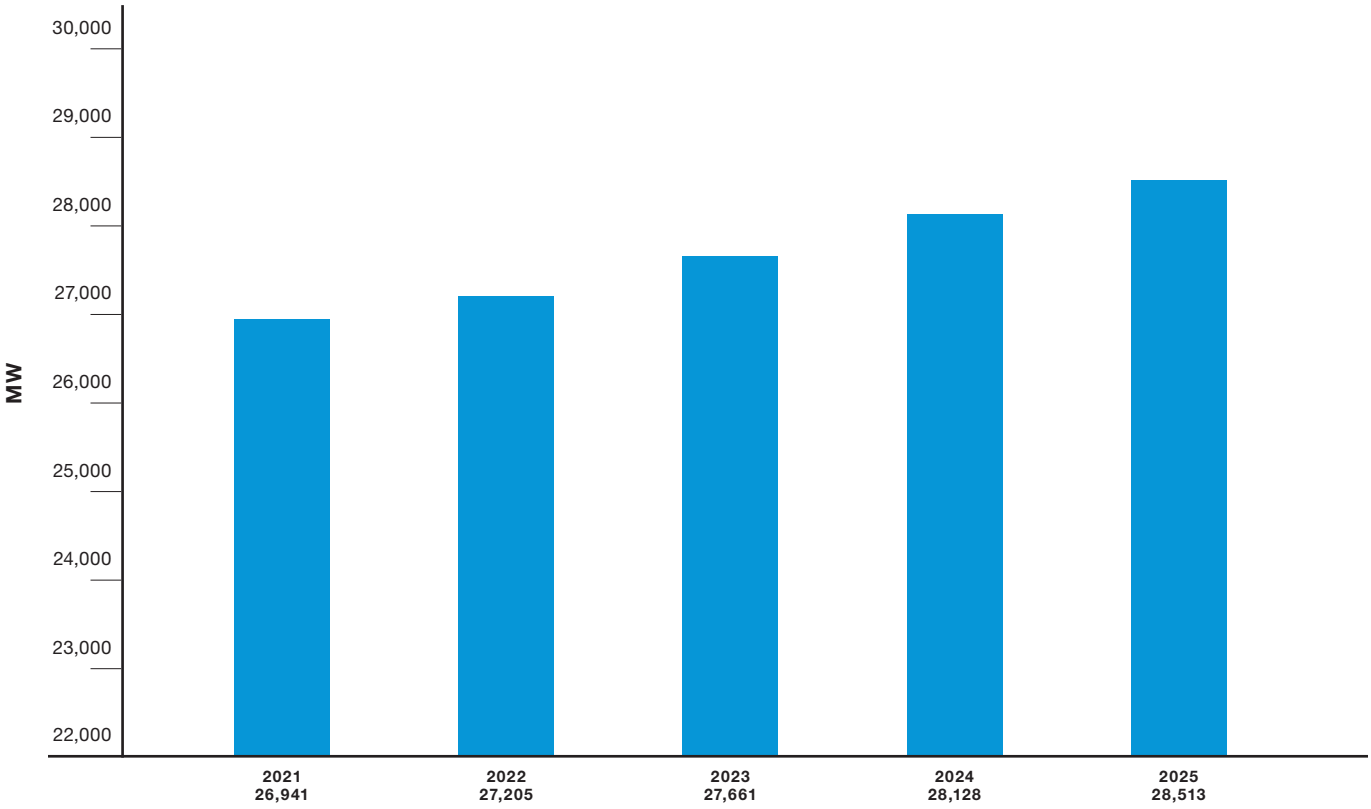
Consolidated FPL Retail Delivered Energy Sales (GWh)



Historical data for Consolidated FPL calculated as the sum of Legacy FPL and Legacy Gulf

Forecasted Consolidated FPL Summer Peak Demands

Consolidated FPL Summer Peak Demands (MW)



*Historical peak demand data for Consolidated FPL is not available.