BEFORE THE
FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 160021-EI
FLORIDA POWER & LIGHT COMPANY
AND SUBSIDIARIES

IN RE: PETITION FOR RATE INCREASE BY
FLORIDA POWER & LIGHT COMPANY
AND SUBSIDIARIES

DIRECT TESTIMONY & EXHIBITS OF:
ROSEMARY MORLEY
BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

DIRECT TESTIMONY OF ROSEMARY MORLEY

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MARCH 15, 2016
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I. INTRODUCTION

Q. Please state your name and business address.
A. My name is Rosemary Morley, 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 Director of Resource Assessment and Planning.

Q. Please describe your duties and responsibilities in that position.
A. I am responsible for overseeing the development of FPL’s peak demand, energy, customer and economic forecasts, as well as the Company’s integrated resource plan, including quantifying the need for future resource additions.

Q. Please describe your educational background and professional experience.
A. I hold a Bachelor of Arts ("B.A.") degree with honors in economics from the University of Maryland and a Master of Arts ("M.A.") degree in economics from Northwestern University. In 2005, I received a Doctorate in Business Administration ("D.B.A.") from Nova Southeastern University. I began my career with FPL in 1983 as an Assistant Economist. I have since held a variety of positions in the forecasting, planning, and regulatory areas. I assumed the position of Director of Load Forecasting in 2007 and was promoted to my current position in 2015. I am a member of the National
Association for Business Economics and am certified as a Six Sigma Black Belt.

Q. Are you sponsoring any exhibits in this case?
A. Yes. I am sponsoring the following exhibits:

- Exhibit RM-1 MFRs and Schedules Sponsored and Co-sponsored by Rosemary Morley
- Exhibit RM-2 Weather-normalized Retail Delivered Sales per Customer
- Exhibit RM-3 Summary of FPL’s Historical and Forecasted Sales
- Exhibit RM-4 Change in Typical Bill vs. Other Consumer Costs

Q. Are you sponsoring or co-sponsoring any Minimum Filing Requirements (“MFRs”) filed in this case?
A. Yes. Exhibit RM-1 shows my sponsorship and co-sponsorship of MFRs.

Q. What is the purpose of your testimony?
A. The purpose of my testimony is to describe FPL’s load forecasting process, identify the underlying methodologies and assumptions, and present the results of FPL’s forecasts. These forecasts include net energy for load, retail delivered sales, peak demands, and customers and sales by revenue class.

Q. Please summarize your testimony.
A. My testimony begins by providing an overview of FPL’s load forecast. The load forecast presented in this case is FPL’s official forecast for all planning purposes, including resource planning. FPL’s load forecasting process relies on statistically sound methods and inputs from leading industry experts.
Moreover, FPL has developed a record of providing accurate, reliable forecasts in recent rate cases. In fact, actual weather-normalized net energy for load for the 2013 test year was within 0.35% of FPL’s forecasted net energy for load projected in the last rate case.

My testimony then addresses the specifics of FPL’s forecast of customers and sales. Overall, FPL’s forecast shows moderate customer and sales growth. The number of customers is expected to grow at a compound annual rate of 1.5% a year between 2015 and 2020, comparable to, but up slightly from the 1.4% increase experienced in 2015. With this steady growth, significant cumulative increases in the number of customers are expected. By 2020, the cumulative increase in customers since 2013 is expected to reach more than one-half million.

The forecasted growth rate in weather-normalized retail delivered sales is also consistent with recent trends. Weather-normalized retail delivered sales grew at a compound annual rate of 0.8% between 2011 and 2015. Weather-normalized retail delivered sales are forecasted to grow at a similar 0.7% compound annual rate between 2015 and 2017. The trend of positive sales growth is expected to continue through 2020, with a compound annual rate of 0.7% projected between 2015 and 2020. The cumulative increase in retail delivered sales over time is expected to be significant. By 2020, the
cumulative increase in weather-normalized retail delivered sales since 2013 is expected to be close to 6,500 Gigawatt Hours ("GWh").

My testimony next discusses the methodologies supporting FPL’s forecast of customers and sales by revenue class, along with FPL’s forecast of peak demands. These forecasts are consistent with the forecasts of total company sales and customers presented in this testimony. In addition, the forecasts of customers and sales by revenue class are based on sound statistical methods and inputs provided by industry experts. The same reliance on sound statistical methods and inputs provided by industry experts holds true for FPL’s forecast of peak demands. FPL’s forecasts of customers, sales, and peak demands rely on a consistent set of assumptions regarding weather, the economy, and other critical drivers.

My testimony concludes by presenting FPL’s inflation forecast. FPL relies on industry expert IHS Global Insight as the source for its inflation forecast. This forecast calls for moderate increases in the consumer price index ("CPI"). Between 2015 and 2020, CPI is projected to increase at a compound annual rate of 2.5% a year.
II. GENERAL OVERVIEW

Q. Please describe the objective of FPL’s load forecasting process.
A. The objective of FPL’s load forecast is to project future levels of customer growth, sales, and peak demands.

Q. Please clarify how customer growth, sales and peak demands are defined.
A. Customer growth is based on the net change in the total number of active FPL accounts and reflects the net impact of new service installations combined with other factors, including changes in the number of inactive accounts. Net energy for load, a measure of sales, takes into account the Megawatt Hours ("MWh") FPL generates and the net flow of interchange sales into and out of the FPL system. Retail delivered sales, another measure of sales, removes the effect of losses and wholesale sales from net energy for load. Peak demands refers to the highest hourly integrated net energy for load in a given period, for example, a year or month.

Q. What criteria have the Florida Public Service Commission ("FPSC" or "the Commission") used in evaluating utilities’ load forecasts in recent years?
A. In recent years, the FPSC has evaluated utilities’ load 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 FPSC has also considered
whether a load forecast is applied consistently; that is, whether a load 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 FPSC has considered a utility’s record in terms of forecasting accuracy when evaluating load forecasts (Order No. PSC-16-0032-FOF-EI).

Q. Does FPL’s load forecast rely on statistically sound methods?

A. Yes, FPL’s load forecast was developed using statistically sound methods. FPL relies on econometrics as the primary tool for forecasting customer growth, net energy for load, and peak demands. An econometric model is a numerical representation, obtained through statistical estimation techniques, of the degree of relationship between a dependent variable, e.g., the level of net energy for load, and the independent (explanatory) variables. A change in any of the independent variables will result in a corresponding change in the dependent variable. On an historical basis, econometric models have proven to be highly effective in explaining changes in the level of customer or load growth. FPL has consistently relied on econometric models for various forecasting purposes, and the modeling results have been reviewed and accepted by this Commission in past proceedings.

Q. Does FPL’s load forecast incorporate reasonable input assumptions?

A. Yes, FPL’s load forecast incorporates reasonable input assumptions. FPL has found that population growth, weather, the economy, and energy efficiency codes and standards are the primary drivers of future electricity needs. Accordingly, the models used to forecast customer growth, net energy for
load, and peak demand rely on independent variables representing these various drivers. FPL relies on leading industry experts for projections of these independent variables. Demographic and economic projections are from IHS Global Insight, a leading economic forecasting firm. The impact from energy efficiency codes and standards is provided by ITRON, a leading consultant on energy issues.

Q. Is reliance on leading industry experts for specific inputs into the load forecast an accepted industry practice within your field?
A. Yes.

Q. Is the load forecast supported in this proceeding FPL’s official load forecast for all business purposes?
A. Yes. The load forecast supported in this proceeding is the Company’s official forecast for all planning and budgeting purposes. Consequently, it is the same forecast utilized for generation planning purposes. More specifically, the load forecasting models supported in this proceeding are the same models used to develop an updated load forecast for the Company’s most recent need determination filing (Order No. PSC-16-0032-FOF-EI at p. 23) as an updated assumption.

Q. Please explain how the load forecasting models supported in this proceeding were utilized in the Company’s most recent need determination.
A. In filing for the Okeechobee Need Determination, the Company relied on the 2015 Ten Year Site Plan load forecast, which was the Company’s official load
forecast at the time the filing was made. However, in responding to
discovery in November 2015, the Company relied on the more recent October
2015 load forecast. The evidence presented to the Commission in the
Okeechobee Need Determination docket was updated to reflect this October
2015 load forecast.

Q. Are there any differences between the load forecast supported in this
proceeding and the October 2015 load forecast utilized in the Okeechobee
Need Determination proceeding?

A. With the exception of a new price of electricity projection, which I discuss
later in my testimony, the models and assumptions incorporated into the
October 2015 load forecast are identical to those utilized in the load forecast
supported in the current proceeding.

Q. How does FPL’s load forecast compare with recent trends?

A. Consistent with recent trends, FPL’s load forecast shows moderate customer
and sales growth over the 2015 to 2020 time period. The number of
customers is expected to grow at a compound annual rate of 1.5% a year
between 2015 and 2020, comparable to, but up slightly from the 1.4%
increase experienced in 2015. While there were some year-to-year
fluctuations, weather-normalized retail-delivered sales grew at a 0.8%
compound annual rate between 2011 and 2015. Weather-normalized retail-
delivered sales are forecasted to grow at a similar 0.7% compound annual rate
between 2015 and 2020.
Q. Does FPL have a record of providing accurate, reliable load forecasts in recent rate cases?

A. Yes. FPL has established a record of providing accurate, reliable forecasts in recent rate cases. In the last rate case, FPL forecasted net energy for load of 112,201 GWh for the year 2013. The actual weather-normalized net energy for load in 2013 was 111,806 GWh. Thus, FPL’s projection in the last rate case was within 0.35% of the actual weather-normalized net energy for load for the year. This represents a high degree of forecasting accuracy and supports FPL’s forecasting methodology. As discussed later in my testimony, FPL’s methodology for forecasting net energy for load in the last rate case is fundamentally the same methodology used in this proceeding.

Q. Are actual weather-normalized sales the appropriate gauge of forecasting accuracy?

A. Yes. Actual weather-normalized sales are a better reflection of trends in electricity usage than the unadjusted level of actual sales, which may be influenced by erratic and unpredictable weather fluctuations. Quite simply, actual weather-normalized sales are based on the average weather conditions experienced for a given month based on historical data. Likewise, forecasted electricity sales are based on the assumption of normal weather conditions; that is, the weather conditions that have occurred on average historically. A variance analysis comparing actual weather-normalized sales with forecasted sales creates an “apples to apples” comparison. As a result, it is standard industry practice to use actual weather-normalized sales in determining
forecasting accuracy. For example, electric utilities in Florida have routinely relied on weather-normalized sales variances in their rate filings consistent with the FPSC's policy that rates be based on weather-normalized sales (Order No. PSC-11-0103-FOF-EI).

Q. How did actual weather conditions in 2013 compare with normal weather conditions?

A. While cooling degree hours in 2013 were very close to the historical averages used to determine normal weather, heating degree days were substantially below the historical averages used to determine normal weather. Taking into account both cooling degree hours and heating degree days, actual weather conditions in 2013 were mild relative to normal weather conditions. Due to milder than normal weather conditions, the unadjusted actual level of 2013 net energy for load was lower than the weather-normalized actual net energy for load for that year. The unadjusted actual level of net energy for load in 2013 was 111,655 GWh versus the weather-normalized actual net energy for load of 111,806 GWh for that year.

Q. Is FPL's method of computing weather-normalized actual sales consistent with standard industry practice?

A. Yes. FPL relies on a 20-year history in order to determine normal weather patterns. This is the same time period utilized by Gulf Power and Tampa Electric Company in their most recent rate proceedings. It should also be noted that the 20-year horizon is also the same period utilized to determine weather conditions in FPL's load forecast. Thus, the method of computing
weather-normalized actual sales is consistent with the weather outlook assumed in the load forecast.

Q. Has the Commission approved FPL’s load forecast in other recent cases?
A. Yes. The Commission approved FPL’s load forecast in Order Nos. PSC-16-0032-FOF-EI, PSC-13-0505-PAA-EI, PSC-11-0293-FOF-EU and PSC-12-0187-FOF-EI. While FPL’s load-forecasting process continues to reflect refinements over time, the load forecast in those prior proceedings reflects the same general methodology and drivers incorporated into the current load forecast.

Q. How was FPL’s 2013 load forecast used in the last rate case?
A. The Commission-approved settlement in the last rate case implemented a change in rates based on the test year billing determinants derived from FPL’s load forecast.

III. CUSTOMER GROWTH FORECAST

Q. How many customers receive their electric service from FPL?
A. FPL currently serves about 4.8 million customers. This represents a population of almost ten million Floridians. FPL’s service area extends from St. Johns County in the north to Miami-Dade in the south, and westward to Manatee County. Thirty-five counties across the state are served wholly or partially by FPL.
Q. What are the primary drivers of FPL's customer growth?

A. FPL serves about one-half of the state’s population. Thus, Florida’s population growth is the primary driver of FPL’s customer growth.

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

A. Yes. In recent years, FPL conducted a program utilizing smart grid technology to reduce the number of unknown usage (“UKU”) premises. A UKU premise is a location where electricity is being consumed, but no active customer account exists. Under this program, FPL notified the occupants of these UKU premises that electric service would be terminated unless a valid customer account was opened for the premise at issue. In order to maintain electric service, many of the occupants of these UKU premises elected to open a customer account. The program began addressing the majority of UKU premises in the last half of 2013. The new customer accounts associated with UKU premises produced a one-time year-over-year increase in customer growth beginning in late 2013 and extending into 2014.

Q. What has FPL’s customer growth been in recent years?

A. FPL’s number of customers increased by 1.1% in 2013 and 1.8% in 2014, driven, in part, by the impact of smart grid technology described above. In 2015, FPL’s rate of customer growth returned to a more sustainable 1.4%.

Q. Please explain the development of FPL’s customer growth forecast.

A. The growth of customers in FPL’s service territory is forecasted using an econometric model. This econometric model uses Florida’s population and an
indicator variable for the UKU program described above as explanatory variables. Florida’s projected population growth is provided by IHS Global Insight.

Q. Is the customer forecast based on an econometric model with excellent diagnostic statistics?

A. Yes. One of the most important diagnostic statistics is a model’s “goodness of fit.” Goodness of fit refers to how closely the predicted values of a model match the actual observed values. The model used to forecast FPL’s total number of customers has a strong goodness of fit as demonstrated by the model’s adjusted R-squared of 99.98%. This means that 99.98% of the variability in the number of customers is explained by the model. In addition, the coefficients for all of the variables have the expected sign (+/-) and are statistically significant. This indicates that the variables influencing customer growth have been properly identified and their predicted impact is statistically sound. Finally, the model has a Durbin-Watson statistic of 2.015, which indicates the absence of significant autocorrelation. The absence of significant autocorrelation is a desirable quality in a well-constructed model. Overall, the model has excellent diagnostic statistics.

Q. Does IHS Global Insight have a record of providing accurate population projections for Florida?

A. Yes. Since 2010, IHS Global Insight’s Florida population forecasts have averaged a forecasting variance of approximately 0.2%. This represents an excellent level of forecasting accuracy.
Q. Could FPL’s customer forecast be improved in any significant way by using a population forecast by county versus the state of Florida as a whole?

A. No. As just discussed, FPL’s customer model has an adjusted R-squared of 99.98%. In other words, 99.98% of the variation in total customers is explained by FPL’s customer model. This suggests that the variables incorporated into the current model, including population for the state of Florida as a whole, are appropriate.

Q. Are there any other factors favoring the use of a statewide population forecast as opposed to a population forecast by county?

A. Yes. In the aggregate, the projected growth rates for the 35 counties served wholly or partially by FPL mirror the statewide projections. Actual statewide population figures, on the other hand, are available on a timelier basis relative to county-specific figures. It is also important to point out that in some cases FPL only serves a small portion of a county’s population. Finally, the use of statewide population figures ensures consistency with the statewide economic projections that are incorporated into the sales forecast.

Q. What rate of population growth is IHS Global Insight projecting?

A. IHS Global Insight is projecting a 1.4% average annual increase in Florida’s population between 2015 and 2020. This projected rate of growth is consistent with the 1.4% actual average annual growth experienced between 2012 and 2015.
Q. What is FPL’s forecasted customer growth?

A. FPL’s number of customers is expected to grow by approximately 70,000 or 1.5% in 2016 and 72,000 or 1.5% in 2017. In 2018, the number of customers is forecasted to grow by approximately 73,000 or 1.5%. With a steady rate of population growth, annual customer growth is also projected to average 1.5% between 2015 and 2020. Significant cumulative increases in the number of customers are expected. By 2017, the cumulative increase in customers from 2013 is expected to reach more than 290,000, an increase of 6.3%. By 2019, the number of FPL customers is projected to surpass the five million mark, and by 2020, the cumulative increase in customers since 2013 is expected to reach over one-half million.

Q. How do FPL’s projected customer growth rates compare with the growth rates experienced in recent years?

A. FPL’s projected customer-growth rates are comparable to the growth rates experienced since 2012. Between 2012 and 2015, average annual customer growth was 1.4%, while the projected average annual growth between 2015 and 2020 is comparable at 1.5%.

Q. Is FPL’s projected customer growth reasonable?

A. Yes. FPL’s projected customer growth incorporates population projections from IHS Global Insight, a leading economic forecasting firm with a strong record of reliable population projections. FPL’s projected customer growth also relies on the forecasting methods previously reviewed and accepted by
the Commission, and is consistent with recent historical trends in customer
growth.

Q. What is FPL's forecast of new service accounts?
A. FPL is projecting 57,000 new service accounts ("NSAs") in 2016 and 67,000
NSAs in 2017. This represents an increase relative to the 48,000 NSAs
recorded in 2015. The cumulative number of NSAs since 2013 is projected to
be close to 220,000 by 2017. In 2018, NSAs are projected to reach 74,000.
By 2020, the cumulative number of NSAs since 2013 is expected to reach
more than 450,000. FPL's forecast of NSAs takes into account projected
trends in construction activity and recent actuals.

Q. Is FPL's forecast of NSAs consistent with its forecasted customer growth?
A. Yes. FPL is projecting average annual customer growth of 72,000 between
2015 and 2020 and average annual NSAs of 71,000 during the same period.
This indicates that the forecasts of NSAs and customer growth are consistent
over this time period.

IV. FORECAST OF NET ENERGY FOR LOAD

Q. What are the primary determinants of net energy for load?
A. In addition to customer growth, the primary determinants of net energy for
load include the economy, weather, and energy efficiency codes and
standards. Accordingly, FPL forecasts net energy for load per customer using
an econometric model with explanatory variables representing these factors.
Q. **How are weather conditions incorporated into the net energy for load per customer model?**

A. The weather variables included in the net energy for load per customer model are cooling degree hours using a base of 72 degrees and winter heating degree days using a base of 66 degrees. In addition, a second measure of heating degree days is included using a base of 45 degrees in order to capture the additional heating load resulting from sustained periods of unusually cold weather. As previously discussed, the forecast assumes normal weather conditions based on the historical average of the last twenty years.

Q. **Why is the net energy for load forecast based on normal weather conditions using the 20-year historical average?**

A. Normal weather conditions are assumed in the net energy for load forecast in order to reflect the most likely weather conditions based on twenty years of historical data. In addition, the 20-year period for determining normal weather is also utilized in the annual summer and winter peak forecasts. As a result, using the 20-year historical average to estimate normal weather conditions for net energy for load forecast ensures consistency with the weather assumptions utilized in the long-term peak forecasts that help determine future resource needs. Accordingly, FPL has consistently relied on a twenty-year weather outlook in the last two rate cases and in its last five need determination filings.
Q. Please describe economic conditions in Florida in recent years.

A. While the most recent recession, often referred to as the Great Recession, took an especially heavy toll on the state, Florida’s economy has been consistently expanding for the last five years. This is most clearly illustrated in terms of job growth. Between 2007 and 2010, Florida lost more than 900,000 jobs, equivalent to a cumulative reduction of over 10%. Positive year-over-year job growth did not return until mid-2010, and the recovery in employment then gradually accelerated in 2011. The pace of job growth has since been on firmer footing, with progressively stronger employment growth experienced in 2012, 2013, and 2014. By April 2015, Florida had recovered all of the more than 900,000 jobs lost during the Great Recession. Indeed, the rate of job growth in 2015 was the state’s highest since 2005.

Q. Has Florida’s economic expansion lagged in any respects?

A. Yes. The state’s labor force participation rate, defined as the percent of the population in the workforce, has been declining and, as of late 2015, was at its lowest rate in decades. In addition, there is concern that some of the employment growth in Florida has been concentrated in lower-paying industries. Both factors could hamper the state’s long-term growth potential.

Q. What economic outlook is assumed in FPL’s energy use per customer model?

A. FPL’s economic assumptions are provided by leading economic forecasting firm, IHS Global Insight. Although IHS Global Insight’s forecast shows positive gains in income and employment, some deceleration in the pace of
growth is evident in its projections. After expanding by 3.2% in 2014 and
3.3% in 2015, the number of jobs in Florida is expected to grow by 2.6% in
2016 and 2.0% in 2017. The lower rates of growth continue through 2020,
with employment expected to increase at a compound annual rate of 1.8%
between 2015 and 2020. A similar pattern is found in IHS Global Insight’s
forecast of real per capita income. After increasing at an estimated rate of
3.2% in 2015, the state’s real per capita income is expected to increase at a
compound annual rate of 2.4% between 2015 and 2017. Between 2015 and
2020, real per capita income is expected to increase at a compound annual rate
of 2.1%.

Q. **What accounts for the forecasted deceleration in employment and income
growth in Florida?**

A. According to IHS Global Insight, some deceleration in growth may be
expected as the economic recovery matures. To an extent, the economic
growth rates projected for the next few years represent a return to more
normal rates of growth. In particular, the forecasted growth in real per capita
income between 2015 and 2020 is comparable to the average growth rates
experienced from the early 1990s through 2004.

Q. **How are economic conditions incorporated into the net energy for load
per customer model?**

A. The impact of the economy is captured through a composite variable based on
Florida’s real per capita income and the percent of the state’s population that
is employed. Thus, this composite economic variable encompasses two of the
primary drivers of the economy: employment and income levels. Florida’s real per capita income and employment levels are provided by IHS Global Insight. This composite economic variable increased by 3.9% in 2014 and 5.1% in 2015. Solid, but more modest increases of 3.2% and 3.0% are forecasted for 2016 and 2017, respectively. The composite economic variable is forecasted to increase at a compound annual rate of 2.4% between 2015 and 2020.

Q. How does FPL capture the impact that prices have on electricity consumption?

A. FPL uses two variables for the impact that prices have on electricity consumption. One variable is based on increases in the real price of electricity over time while another variable is based on decreases in the real price of electricity over time. By using two different price variables, the net energy for load per customer model reflects the fact that consumers may have a proportionately different response to price increases than they do to price decreases.

Q. What assumptions regarding clause adjustment factors are incorporated into FPL’s price of electricity projections?

A. FPL’s price of electricity projections are based on the Company’s fuel projections developed in January 2016. These are the same fuel projections incorporated into the mid-course correction filed in February 2016 and approved on March 1, 2016.
Q. How does FPL capture the impact from energy efficiency codes and standards in its forecast?

A. Estimates of savings from energy efficiency codes and standards are developed by ITRON, a leading expert in this field. These estimates include savings from federal and state energy efficiency codes and standards, including the 2005 National Energy Policy Act, the 2007 Energy Independence and Security Act, and the savings resulting from the use of compact fluorescent bulbs and light-emitting diodes ("LEDs"). The input from ITRON represents the savings from energy efficiency codes and standards based strictly on an engineering analysis of the equipment at issue. The net impact on usage, including any behavioral changes, is captured by applying the model coefficient to the input from ITRON. It should be noted that the impact from energy efficiency codes and standards as discussed here does not include the prospective impact from utility-sponsored demand-side management ("DSM") programs. The impact of that incremental DSM is discussed later in my testimony.

Q. Are any other variables included in the net energy for load per customer model?

A. Yes. The net energy for load per customer model includes an indicator variable for leap year. The leap-year variable captures the fact that the extra day associated with leap year results in a higher level of net energy for load than would otherwise be the case.
Q. How is the output from the net energy for load per customer model incorporated into the net energy for load forecast?

A. The output from the net energy for load use per customer model is multiplied by the forecasted number of customers. The result is a preliminary estimate of net energy for load. Adjustments are then made to this preliminary estimate of the forecasted net energy for load in order to reflect factors not otherwise reflected in FPL’s historical load level, but which are expected to affect future levels of net energy for load. These adjustments are made for changes in net energy for load resulting from wholesale sales, plug-in electric vehicles, distributed solar generation, DSM, and FPL’s economic development tariffs.

Q. Why are adjustments to FPL’s net energy for load forecast made for wholesale requirements sales?

A. FPL’s net energy for load forecast is adjusted for wholesale loads served under full and partial requirements contracts that provide other utilities all or a portion of their load requirements at a level of service equivalent to the Company’s own native load customers. Individual contracts to sell wholesale requirements sales may be initiated, terminated, modified, or expanded over time. As a result, the net energy for load forecast is adjusted for wholesale requirements sales in order to reflect changes in load not otherwise captured in FPL’s historical load levels. Specific forecasts are developed for wholesale requirements customers and then used as adjustments to the net energy for load forecast.
Q. **What contracts are included in the wholesale requirements sales forecast?**

A. The largest of these contracts provides full requirements service to the Lee County Electric Cooperative ("LCEC"), a not-for-profit electric distribution cooperative serving a five-county area in Southwest Florida. FPL served LCEC as a partial requirements customer in 2010 through 2013. Since 2014, FPL has served LCEC as a full-requirements customer under a multi-decade contract. FPL has also made a 200-MW requirements sale to Seminole Electric Cooperative since June 2014. In addition, effective May 2011, FPL began serving the Florida Keys Electric Cooperative ("FKEC") as a full-requirements customer. The wholesale sales forecast also includes a number of smaller contracts including service to Blountstown, Wauchula, New Smyrna Beach, Winter Park, Quincy, and Homestead. FPL only includes executed and approved wholesale contracts in its sales forecast.

Q. **How is the forecast of wholesale requirements sales developed?**

A. LCEC and FKEC, the largest contracts served by FPL, each provide their own forecast of projected wholesale requirements. The forecasted wholesale requirements sales for other contracts reflect customer-specific inputs and historical usage. Expected changes in service including the initiation and/or termination of a contract are also incorporated into the forecast, along with any known changes in the terms of service that would affect the projected amount of requirements sales.
Q. **What is the forecast for wholesale requirements sales?**

A. The net energy for load from wholesale requirements sales is projected to be 6,536 GWh in 2016, a decline of about 2.9% from the 2015 level. The decline in wholesale requirements sales in 2016 is driven by decreases in projected sales provided by LCEC and FKEC. The net energy for load from wholesale requirements sales is projected to decline by another 9.0% in 2017 as a result of the terminations of the sales to Wauchula and Blountstown as well as modifications to other contracts. After 2017, the level of wholesale requirements sales is expected to increase modestly as a result of the steady increase in sales to LCEC and FKEC. Between 2017 and 2020, wholesale requirements sales are expected to increase at a compound annual rate of 1.2%, reaching 6,162 GWh by 2020.

Q. **How does the forecast of wholesale requirements sales compare to recent actuals?**

A. Wholesale requirements sales are projected to decline at a compound annual rate of about 6.0% between 2015 and 2017, and then grow by about 1.2% a year between 2017 and 2020. By contrast, wholesale requirements sales in 2014 and 2015 experienced unusually large increases. There were two contract changes that substantially increased the amount of wholesale requirements sales in 2014 and 2015. With the initiation of full requirements sales to LCEC in 2014, the level of wholesale sales increased from 2,152 GWh in 2013 to 5,597 GWh in 2014, a 160% increase. Due to the inclusion of a full year of service under the new Seminole contract, the level of wholesale
requirements sales increased another 20% in 2015 to 6,730 GWh. While the forecast of wholesale requirements sales includes some recently executed contracts, these contracts are very small relative to the increase in sales resulting from LCEC or Seminole. Moreover, a number of contracts will be terminated or modified, resulting in a decline in wholesale requirements sales in 2016 and 2017.

Q. Why is an adjustment to FPL’s net energy for load forecast being made for plug-in electric vehicles?

A. The net energy for load forecast is adjusted for plug-in electric vehicles in order to reflect additional load not otherwise captured in FPL’s historical load levels. As of mid-2015, there were estimated to be over 9,000 plug-in electric vehicles in FPL’s service area, adding approximately 40 GWh to FPL’s net energy for load. By 2020, more than 70,000 additional plug-in vehicles are projected, resulting in an additional 333 GWh in net energy for load.

Q. How is the load from plug-in electric vehicles projected?

A. Projections of the U.S. market for plug-in electric vehicles were first developed based on a review of multiple forecasts from leading experts and discussions with knowledgeable professionals in the automotive industry. Florida’s share of the U.S. market for plug-in electric vehicles was then estimated based on data from the Florida Department of Motor Vehicles for registered plug-in vehicles in the state. Using the same Department of Motor Vehicles data for counties served by FPL, FPL’s share of plug-in vehicles was then estimated. The contribution to net energy for load from plug-in electric
vehicles was then derived from the vehicle forecast using an estimate of
kilowatt-hours per vehicle.

Q. Why is an adjustment to FPL’s net energy for load forecast being made
for FPL’s economic development tariffs?

A. The net energy for load forecast is adjusted for FPL’s economic development
trails in order to reflect additional load not otherwise captured in FPL’s
historical load levels. FPL’s economic development tariffs consist of the
Economic Development Rider, the Existing Facilities Economic Development
Rider, and the Commercial/Industrial Service Rider. Under all three tariffs,
customers are provided discounts for adding new or incremental load. To
qualify for any of the tariffs, customers are required to verify that the
availability of the rider was a significant factor in their location or expansion
decision. Based on estimates developed by FPL’s Economic Development
group and in conjunction with the Customer Service and Regulatory Business
Units, the Economic Development Rider, the Existing Facilities Economic
Development Rider, and the Commercial/Industrial Service Rider are
collectively projected to add about 279 GWh to net energy for load in 2017.
This amount is expected to rise to 378 GWh in 2020.

Q. Why is an adjustment to FPL’s net energy for load forecast being made
for the impact of new distributed solar generation?

A. The net energy for load forecast is adjusted for new distributed solar
generation in order to reflect the load impact not otherwise captured in FPL’s
historical load levels. The impact of new distributed solar generation is
estimated to reduce 2016 net energy for load by 38 GWh. The amount is
expected to increase to 63 GWh in 2017 and to 218 GWh by 2020. For
clarification, distributed solar generation in this context is refers to customer-owned or leased photovoltaics, such as rooftop solar.

Q. How are the adjustments for new distributed solar generation determined?

A. A forecast of installed distributed solar generation capacity for the state of Florida is obtained from Greentech Media ("GTM") Research, one of the leading sources of market research and statistics on green technology. FPL’s share of the state forecast is determined based on actual year-end 2014 FPL data for residential and commercial distributed solar generation. These shares, along with GTM Research’s state forecast, are used to develop FPL’s installed capacity of distributed solar generation. Megawatt hours of distributed solar are derived using a capacity factor, and hourly MWh values are then developed using solar profiles. Only the impact of distributed solar generation installed after mid-2015 is included as an adjustment to the net energy for load forecast.

Q. Why is an adjustment to FPL’s net energy for load forecast being made for the impact of incremental DSM?

A. An adjustment is made for the impact of incremental DSM in order to reflect reductions in load not otherwise reflected in history. The effects of DSM energy efficiency programs that occurred through mid-2015 are assumed to be embedded in actual usage data for forecasting purposes. The impact of
incremental DSM that FPL plans to implement in the future is treated as a
line-item reduction to the forecast. The impact of incremental DSM is
consistent with the goals established by the Commission in Order No. PSC-
14-0696-FOF-EU and incorporates estimated actuals through year-end 2015.
The amount of incremental DSM is projected to increase by approximately 46
GWh in 2016 and by another 48 GWh in 2017. Between 2015 and 2020, the
level of incremental DSM is expected to increase by approximately 50 GWh
per year.

Q. Have the types of adjustments to the net energy for load forecast just
described been incorporated into prior forecasts?

A. Yes. The 2015 Ten Year Site Plan forecast incorporated adjustments for
wholesale load, plug-in electric vehicles, economic development tariffs, and
distributed solar generation. In addition, the resource planning process has
treated incremental DSM as a line-item reduction to the sales forecast for
several years.

Q. What is FPL’s forecasted net energy for load?

A. FPL is forecasting net energy for load of 119,625 GWh in 2016, an increase of
about 1.4% over weather-normalized actual 2015. A decline in 2017 is
projected with net energy for load slipping to 118,832 GWh in 2017, a drop of
0.7% from 2016. Nonetheless, the underlying trend remains one of positive
growth, with the level of net energy for load in 2017 up by 7,026 GWh, or
6.3% over its weather-normalized 2013 level. Moreover, weather-normalized
net energy for load is projected to increase at a positive 0.4% compound
annual growth rate between 2015 and 2017. In 2018, net energy for load is
forecasted to reach 119,563 GWh, a 0.6% increase over its projected 2017
level. As shown in Exhibit RM-3, weather-normalized net energy for load is
projected to grow at a 0.6% compound annual growth rate between 2015 and
2020.

Q. **How do FPL's forecasted growth rates in net energy for load compare
with recent actuals?**

A. Substantial increases in the volume of wholesale requirements sales in 2014
and 2015 resulted in larger increases in net energy for load than would
otherwise be the case. As a result, weather-normalized net energy for load
increased at a compound annual rate of 2.7% between 2013 and 2015. Absent
similarly large increases in wholesale requirements sales, the weather-
normalized net energy for load between 2015 and 2017 is projected to
increase at a compound annual rate of 0.4%. As I discuss later in my
testimony, the forecasted growth in retail delivered sales, which excludes the
fluctuations associated with wholesale requirements sales, is more consistent
with recent trends.

Q. **Why is a decrease in weather-normalized net energy for load projected
between 2016 and 2017?**

A. Consistent with the year-to-year fluctuations in net energy for load
experienced historically, there are a number of factors that are projected to
reduce the level of net energy for load in 2017 relative to the 2016 level.
Wholesale requirements sales are projected to decline between 2016 and 2017.
for the reasons discussed earlier in my testimony. In addition, the projected impact of energy efficiency codes and standards and incremental DSM are higher in 2017 relative to 2016. At the same time, the pace of the economic expansion is forecasted to moderate in 2017. The price of electricity is also projected to increase in 2017. Finally, the absence of the extra day of sales associated with leap year is projected to reduce net energy for load in 2017 relative to 2016.

Q. Is FPL's methodology for forecasting net energy for load the same methodology utilized by the Company in its last rate case?

A. Fundamentally, yes. Both forecasts rely on econometric models and inputs representing the major factors influencing electric sales, including weather, the economy, energy efficiency codes and standards, and so forth. Some refinements have been made. The most significant of these include how energy prices and the housing market are treated. In the last rate case, CPI for energy was used to capture the impact of rising energy prices on electricity consumption. Many customers need to budget for their total energy purchases, not just electricity, particularly when rising energy prices, such as those for gasoline, exceed the overall cost of living. However, with the significant monthly fluctuations in the CPI for energy experienced in 2015, the linkage between the CPI for energy and short-term electricity consumption has weakened. Accordingly, the CPI for energy is no longer used in the current net energy for load per customer model.
Q. How has FPL's methodology for forecasting net energy for load evolved in terms of the housing market?

A. The increase in empty homes resulting from the housing crisis helped spur the state's economic decline during the Great Recession. To capture this impact, FPL's net energy for load per customer models began to include an adjustment for empty homes, effective with the Company's 2009 Ten Year Site Plan load forecast. A statistically supported variable for empty homes was incorporated into the 2012 Ten Year Site Plan forecast, the same forecast used in the Company's last rate case. The empty-homes variable remained a statistically significant variable in FPL's net energy for load per customer models up through the 2014 Ten Year Site Plan. However, as the housing market recovered and the number of empty homes fell, the statistical significance of the empty-homes variable waned. Apparently, the decline in the number of empty homes did not have the positive impact on electricity usage suggested by the negative impact of usage that had resulted from the rise in the number of empty homes during the Great Recession. Effective with its 2015 Ten Year Site Plan forecast, FPL does not include a variable for the number of empty homes in its net energy for load per customer model.

Q. Is FPL's net energy for load forecast based on an econometric model with excellent diagnostic statistics?

A. Yes. The energy use per customer model used to forecast FPL's net energy for load has a strong goodness of fit, as demonstrated by the model's adjusted R-squared of 99.4%. This means 99.4% of the variability in energy use per
customer is explained by the model. In addition, the coefficients for all of the variables have the expected sign (+/-) and are statistically significant. This indicates that the variables influencing net energy for load have been properly identified, and their predicted impact is statistically sound. Finally, the model has a Durbin-Watson statistic of 1.957, which indicates the absence of significant autocorrelation. The absence of significant autocorrelation is a desirable quality in a well-constructed model. Overall, the model has excellent diagnostic statistics.

Q. **Is FPL's net energy for load forecast reasonable?**

A. Yes. FPL’s net energy for load forecast is based on assumptions developed by industry experts and relies on methodologies that have proven to be accurate based on actual weather-normalized net energy for load. FPL’s net energy for load forecast is based on an econometric model with a strong goodness of fit and a high degree of statistical significance. FPL is confident the relationship that exists between the level of net energy for load and the economy, weather, customers, energy efficiency codes and standards, and other variables have been properly assessed and numerically quantified. FPL’s net energy for load forecast should be approved.
V. DELIVERED AND BILLED SALES

Q. How do delivered sales differ from billed sales?
A. Because meters are read throughout the month, billed sales in any given month reflect a mix of usage from the current and prior month. Delivered sales, on the other hand, are based on customer usage in the current month. Delivered sales are derived from net energy for load less losses. Delivered sales are a component of billed sales, but billed sales also reflect the changes in unbilled sales (i.e., sales delivered in one month, but not billed until the following month).

Q. How is FPL’s forecast of delivered sales developed?
A. Historical patterns in monthly losses are first examined. Based on recent actuals, monthly loss factors are then projected. The forecast of delivered sales was then developed by applying these projected monthly loss factors to the forecast of net energy for load.

Q. How is FPL’s forecast of billed sales developed?
A. Billed sales are based on delivered sales plus the unbilled sales for the prior month minus the unbilled sales for the current month. Unbilled sales are estimated based on the historical pattern between unbilled sales and net energy for load by month.

Q. What is FPL’s forecast of retail delivered sales?
A. Retail delivered sales are expected to reach 107,429 GWh in 2016, an increase of 1.6% from the level of weather-normalized retail delivered sales in 2015.
In 2017, retail delivered sales are projected to be 107,261 GWh, a minimal 0.2% decline from the 2016 level. The minimal decline in 2017 relative to 2016 reflects a number of factors including moderating economic growth, higher electricity prices, a higher level of incremental DSM, the continued impact from energy efficiency codes and standards, and the absence of the additional day of consumption associated with leap year. The projected 2015 to 2017 growth provides a better indication of the underlying trend in retail delivered sales. Weather-normalized retail delivered sales are projected to grow at a compound annual rate of 0.7% between 2015 and 2017. Retail delivered sales are forecasted to grow by another 0.6% between 2017 and 2018, reaching 107,888 GWh. Between 2015 and 2020, a 0.7% a compound annual growth rate is projected.

Q. How does the forecasted growth in retail delivered sales compare with recent trends?

A. The 0.7% compound annual rate of increase in weather-normalized retail delivered sales between 2015 and 2017 is similar to the 0.8% growth in weather-normalized retail delivered sales between 2011 and 2015. The 0.7% compound annual rate of growth in weather-normalized retail delivered sales between 2015 and 2020 is also comparable to the growth in weather-normalized retail delivered sales between 2011 and 2015.
Q. What is the forecast for weather-normalized retail delivered sales per customer?

A. Between 2015 and 2017, weather-normalized retail delivered sales per customer is projected to decline at a compound annual rate of 0.7%. The longer-term trend is similar. Between 2015 and 2020, weather-normalized retail delivered sales per customer is projected to decline at a compound annual rate of 0.7%.

Q. Is the decline in weather-normalized retail delivered sales per customer a short-term anomaly?

A. Not at all. As Exhibit RM-2 shows, the general trend in recent years has been one of declining weather-normalized retail delivered sales per customer. Declining weather-normalized retail delivered sales per customer have been experienced for nine out of eleven years since 2005. Moreover, a positive year-over-year increase in weather-normalized retail sales per customer has not been experienced since 2012.

VI. CUSTOMERS AND SALES BY REVENUE CLASS

Q. How does FPL forecast customers by revenue class?

A. Preliminary forecasts of customers for each revenue class are developed using econometric models and customer-specific information. Econometric models are developed to forecast customers in the residential, commercial, industrial, and street & highway lighting revenue classes. Customer forecasts for the
wholesale, railroads & railways, and other revenue classes are based on class-specific information. The sum of the preliminary forecasts of customers by revenue class is then compared with FPL's total customer forecast, described earlier in my testimony. The preliminary forecasts of residential and commercial customers are then adjusted for the difference between the sum of the revenue classes and FPL's total customer forecast. This adjustment is made to the residential and commercial customer forecast because these customers account for the vast majority of FPL's customers. By making this adjustment, consistency between the total customer forecast and customer by revenue class forecast is assured.

Q. **How does FPL forecast billed sales by revenue class?**

A. Preliminary forecasts of billed sales for each revenue class are developed using econometric models and customer-specific information. Separate econometric models are developed for the residential, commercial, and industrial revenue classes. Sales forecasts for the wholesale, street & highway lighting, railroads & railways, and other revenue classes are based on class-specific information. The sum of the preliminary forecasts of billed sales by revenue class is then compared with FPL's total billed-sales forecast derived from the net energy for load forecast described earlier in my testimony. The preliminary residential and commercial sales forecasts are then proportionately adjusted for the difference between the sum of the revenue classes and the overall billed sales derived from the total net energy for load forecast. This adjustment is made to the residential and commercial forecast.
because residential and commercial customers account for over 96% of FPL’s retail sales. This adjustment assures consistency within the forecast.

Q. Instead of adjusting residential and commercial sales, would it be appropriate to adjust total FPL sales to match the sum of the individual revenue class forecasts?

A. No. The econometric model supporting the net energy for load forecast is superior to the models supporting the individual revenue class forecasts in a number of respects. The net energy for load per customer model encompasses a richer array of variables relative to the individual revenue class models. For example, the net energy for load per customer model includes a variable for the impact of energy efficiency codes and standards. In addition, the net energy for load forecast includes adjustments for the impact of plug-in electric vehicles and distributed solar generation. Therefore, the impacts from energy efficiency codes and standards, plug-in electric vehicles, and distributed solar generation would not be included in the revenue class forecasts absent the adjustment to total billed sales resulting from FPL’s net energy for load forecast. The net energy for load per customer model also has the advantage of reflecting monthly weather conditions without the potential distortions created by the billing cycle. Accordingly, the net energy for load per customer model has better statistical diagnostics relative to the revenue class models. For example, the residential sales per customer model and small commercial sales per customer model have adjusted R-squared values of 93.7% and 94.8%, respectively. While each of these values represents a very 
good statistical fit, the net energy for load per customer model is substantially better with an adjusted R-squared value of 99.4%.

Q. Has FPL previously used this method of assuring consistency by adjusting residential and commercial sales so that the sum of the individual revenue classes matches total billed sales?

A. Yes. Adjusting residential and commercial sales so that the sum of the individual revenue classes matches total billed sales has been used for a number of years, including FPL’s last three rate cases. This method of assuring consistency has been reviewed and accepted by the Commission in multiple proceedings, including the proceeding concluded by Order No. PSC-10-0153-FOF-EI.

Q. Are the assumptions incorporated into the individual sales and customer forecasts by revenue class consistent with those used in the total customer and total billed sales forecast?

A. Yes. The specific assumptions regarding the weather, population growth, and the economy used in the individual sales and customer forecasts by revenue class are consistent with those used in the total customer and total billed sales forecast. As previously discussed, these assumptions are provided by leading industry experts.

Q. Are the forecasted shares of weather-normalized sales by revenue class consistent with recent history?

A. Yes. In 2015 residential sales accounted for approximately 53% of billed weather-normalized retail sales. For the forecasted 2016 to 2017 period,
residential sales are likewise projected to account for approximately 53% of
weather-normalized billed retail sales. The pattern in terms of commercial
sales is similar. In 2015, commercial sales accounted for about 43% of
weather-normalized billed retail sales. For the forecasted 2016 to 2017
period, commercial sales are projected to account for about 43% of weather-
normalized billed retail sales. Consistent with historical patterns, other
revenue classes (i.e., industrial, street & highway lighting, railroads &
railways, and other) are expected to account for 4% or less of weather-
normalized billed retail sales.

Q. Are weather-normalized sales the appropriate measure to use in
determining trends in sales by revenue class?

A. Yes. Deviations from normal weather conditions can create significant
variations in sales. Moreover, the impact of weather varies significantly by
revenue class. Residential sales, for instance, tend to be more sensitive to
weather conditions, particularly cold weather, relative to other revenue
classes. As a result, billed sales by revenue class that have not been weather-
normalized are subject to weather fluctuations that can distort underlying
trends.

Q. Is additional detail available on how the customer and sales forecasts by
revenue class are developed?

A. Yes. MFR F-5 provides additional detail on the forecasting models
supporting the customer and sales forecasts by revenue class.
Q. What is FPL's forecast of billed jurisdictional sales?

A. Billed jurisdictional sales or billed retail sales are defined as total billed sales less wholesale billed sales. FPL is forecasting billed jurisdictional sales of 107,374 GWh in 2016 and 107,246 GWh in 2017.

Q. Is FPL's forecast of billed jurisdictional sales reasonable?

A. Yes. The forecast is consistent with the forecasts of net energy for load and billed sales previously discussed. The forecast is based on sound statistical methods and inputs provided by industry experts. The forecast also incorporates recent trends in losses and billed and unbilled sales. FPL's forecast of billed jurisdictional sales should be approved.

VII. MONTHLY PEAK FORECAST

Q. How does FPL forecast monthly peaks?

A. Econometric models are developed to forecast the annual summer and winter peaks. The annual summer peak is assumed to occur in August because that month has historically accounted for the highest percentage of annual summer peak days. The annual winter peak is assumed to occur in January because that month has historically accounted for the highest percentage of annual winter peak days. The monthly peaks for other months are forecasted based on the historical relationship between the peaks in those months and the annual summer peak. The annual summer peak is used as the basis for projecting the monthly peaks in February through July and September through
December because the majority of the monthly peaks in those months are driven by warm weather.

Q. **How does FPL forecast the annual summer peak?**

A. FPL uses an econometric model to forecast summer peak per customer. This econometric model includes variables for the weather, energy prices, the economy, and energy efficiency codes and standards. The impact of the economy is captured through a real disposable income per household variable based on projections provide by IHS Global Insight. Energy prices are based on CPI for energy, also provided by IHS Global Insight. The impact of energy efficiency codes and standards is based on inputs provided by ITRON.

The summer peak per customer model also incorporates two weather series: the maximum temperature on the day of the summer peak and the sum of the cooling degree hours two days prior to the peak day. A preliminary forecast of the annual summer peak is obtained by multiplying the forecasted summer peak per customer from this model by the total number of customers.

Q. **Are any adjustments made to the annual summer peak forecast?**

A. Yes. The annual summer peak forecast is adjusted for wholesale requirements load, distributed solar generation, new load resulting from plug-in electric vehicles, and incremental load resulting from the FPL’s economic development tariffs.
Q. Is the annual summer peak forecast consistent with the net energy for load forecast previously discussed?

A. Yes. The annual summer peak forecast relies on inputs from the same leading industry experts utilized in the net energy for load forecast. Economic projections are provided by IHS Global Insight. The impact from energy efficiency codes and standards is based on estimates developed by ITRON, while projections from GTM Research are used to determine the impact from new distributed solar generation. The annual summer peak forecast also uses the same customer forecast incorporated into the net energy for load forecast. In addition, the annual summer peak forecast incorporates adjustments for factors also used as line item adjustments in the net energy for load forecast (i.e., wholesale requirements load, distributed solar generation, new load from plug-in electric vehicles, and incremental load resulting from FPL’s economic development tariffs).

Q. Is FPL’s summer peak demand forecast based on an econometric model with a strong goodness of fit and a high degree of statistical significance?

A. Yes. FPL’s summer peak model has a strong goodness of fit as demonstrated by the model’s adjusted R-squared of 98.3%. This means 98.3% of the variability in the summer peak per customer is explained by the model. In addition, the coefficients for all of the variables have the expected sign (+/-) and are statistically significant. This indicates the variables influencing the summer peak demand have been properly identified and their predicted impact is statistically sound. Finally, the model has a Durbin-Watson statistic of
1.980, indicating the absence of significant autocorrelation. The absence of significant autocorrelation is a desirable quality in a well-constructed model. Overall, the summer peak model has excellent diagnostic statistics.

**Q. How does FPL forecast the annual winter peak?**

**A.** Like the system summer peak model, the winter peak model is also an econometric model. The winter peak model is a per-customer model that includes two weather-related variables: the minimum temperature on the peak day and the square of heating degree hours from the prior day until 9:00 a.m. of the peak day. In addition, the model also includes a term for peaks occurring during the weekends as these tend to be lower than weekday peaks. The winter peak per customer model also includes an economic variable based on housing starts per capita. The projected winter peak load per customer value is multiplied by the total number of customers to derive a preliminary estimate of the forecasted winter peak.

**Q. Is the annual winter peak forecast consistent with the annual summer peak forecast and net energy for load forecast?**

**A.** Yes. The annual winter peak forecast relies on inputs from the same leading industry experts utilized in the annual summer peak forecast and net energy for load forecast. The annual winter peak forecast also uses the same customer forecast incorporated into the annual summer peak and net energy for load forecasts. In addition, the annual winter peak forecast incorporates adjustments for factors also used as line item adjustments in the annual summer peak and net energy for load forecast. The winter peak forecast is
adjusted for wholesale requirements loads, new load resulting from plug-in
electric vehicles, incremental load resulting from FPL’s economic
development tariffs, and the impact from new distributed solar generation. In
the case of the winter peak, the impact from new distributed solar is expected
to be minimal due to the timing of the peak.

Q. How are energy efficiency codes and standards treated in the winter peak forecast?

A. ITRON developed estimates of the impact that energy efficiency codes and
standards are likely to have on the winter peak, similar to the estimates
developed for the summer peak. The historical levels of the winter peak are
first increased to remove the historical impact of energy efficiency codes and
standards. The winter peak per customer model is based on these adjusted
historical levels. The future impact from energy efficiency codes and
standards is then treated as a line item adjustment reducing the level of the
winter peak forecast.

Q. Is FPL’s winter peak demand forecast based on an econometric model with a strong goodness of fit and a high degree of statistical significance?

A. Yes. FPL’s winter peak model has an adjusted R-squared of 95.6%, meaning
that 95.6% of the variability in the winter peak per customer is explained by
the model. This suggests a strong goodness of fit, particularly given that the
winter peak tends to be highly volatile from year to year. In addition, the
coefficients for all of the variables have the expected sign (+/-) and are
statistically significant. This indicates that the variables influencing the
winter peak demand have been properly identified and their predicted impact is statistically sound. Finally, the model has a Durbin-Watson statistic of 2.02 indicating the absence of significant autocorrelation. The absence of significant autocorrelation is a desirable quality in a well-constructed model. Overall, the winter peak model has excellent diagnostic statistics.

Q. Are the assumptions incorporated into the annual summer and winter peak forecasts consistent with those used in the total customer and total billed sales forecast?

A. Yes. The specific assumptions regarding the weather, population growth, and the economy used in the annual summer and winter peak forecasts are consistent with those used in the total customer and total billed sales forecasts. As previously discussed, these assumptions are provided by leading industry experts.

Q. What are FPL’s forecasted annual summer and winter peaks?


Q. Are FPL’s forecasted annual winter and summer peaks reasonable?

A. Yes. FPL’s forecasted annual summer and winter peaks are based on assumptions developed by industry experts and rely on the forecasting methods previously reviewed and accepted by the Commission. The models employed by FPL have a strong goodness of fit and a high degree of statistical significance. FPL is confident the relationships that exist among the levels of
peak demand, the weather, customers, energy efficiency codes and standards, and other variables have been properly assessed and numerically quantified. FPL’s forecasted annual winter and summer peaks should be approved.

VIII. INFLATION FORECAST

Q. What measures of inflation does FPL utilize in its budgeting process?
A. FPL utilizes a forecast of the CPI for all goods and services (or overall CPI) as part of the budgeting process. The same CPI forecast is also used in computing the Commission’s O&M Benchmark.

Q. What has been the cumulative impact of inflation over the last decade as measured by changes in the overall CPI?
A. Between January 2006 and January 2016, the overall CPI experienced a cumulative increase of 19.5%. This indicates the level of prices on goods and services on average rose by 19.5% during this period.

Q. Has the cumulative impact of inflation over the last decade varied by sector?
A. Yes. Exhibit RM-4 shows that while the overall CPI increased by 19.5% between January 2006 and January 2016, there was substantial variability by sector. For example, the CPI for food increased by 28.2% between January 2006 and January 2016. The CPI for medical care increased by 37.9% between January 2006 and January 2016, while the CPI for homeowners/renters insurance increased by 27.6% during the same period.
By way of comparison, as noted in FPL witness Cohen’s testimony, FPL’s typical 1,000-kWh residential customer bill declined by 14% between January 2006 and January 2016.

Q. What has been the trend in the overall CPI in recent years?
A. For the most part, the overall CPI in recent years has increased at a fairly moderate pace. Between 2010 and 2014 the overall CPI increased at a compound annual rate of 2.1% a year. Moreover, the annual increases in the overall CPI during this time were fairly steady, fluctuating between 3.1% and 1.5% a year.

Q. Did the pattern of moderate annual increases in the overall CPI continue in 2015?
A. No. The overall CPI in 2015 was virtually flat, with only a 0.1% increase from its 2014 level. This abrupt change in what had been a fairly steady rate of increase was driven by sharp declines in energy prices in 2015.

Q. How did energy prices impact the overall CPI in 2015?
A. The CPI for energy in 2015 was down nearly 17% from the prior year. This represents the largest decline in the CPI for energy since 2009. This substantial decline in energy prices helped limit any potential increase in the overall CPI in 2015.
Q. Does the fact that the overall CPI in 2015 was virtually unchanged from the prior year suggest the absence of any inflationary pressures going forward?

A. No. Data on the core CPI, which excludes the volatile energy and food sectors, indicate that inflationary pressures remain moderately positive. Because it excludes the volatile energy and food sectors, the core CPI is sometimes used as a measure of the underlying rate of inflation. The core CPI increased moderately in 2015 with a 1.8% gain compared to its 2014 level. The increase in the core CPI in 2015 is comparable to the increases experienced from 2011 to 2014. Moreover, the core CPI in January 2016 was up 2.2% from the prior year. Thus, the core CPI data continue to confirm a pattern of moderately positive inflationary pressures.

Q. What is the basis for FPL’s forecast for the overall CPI?

A. FPL relies on industry expert IHS Global Insight as the source for its CPI forecast. In addition, FPL reviews the forecasts developed by other sources and considers historical trends in order to assess the reasonableness of IHS Global Insight’s forecast.

Q. Does IHS Global Insight anticipate a continuation of the large declines in energy prices experienced in 2015?

A. No. IHS Global Insight is projecting that the CPI for energy will stabilize in 2016 and that the longer-term trend between 2015 and 2020 is one of positive increase. This suggests that while energy prices will remain low relative to
their historical highs, an eventual increase in energy prices can be expected following their sharp declines in 2015.

Q. What is FPL’s forecast of the overall CPI for 2016 and 2017?
A. Based on projections provided by IHS Global Insight, FPL is forecasting an increase in the overall CPI of 2.0% and 2.5% in 2016 and 2017, respectively. The forecasted increases in overall CPI are consistent with the consensus view that a moderately positive rate of inflation can be expected for the next few years. Contributing to this consensus view is the expectation that energy prices should eventually stabilize following their sharp declines in 2015.

Q. What is FPL’s longer term forecast of the overall CPI?
A. Consistent with a forecast of relatively moderate inflation, FPL is projecting an average annual increase in the overall CPI of 2.5% between 2015 and 2020. More specifically, FPL is forecasting a 2.6% increase in the overall CPI in 2018, followed by a 2.5% increase in 2019 and a 2.7% increase in 2020.

Q. What cumulative increase in the overall CPI is FPL forecasting?
A. By 2017, FPL is projecting a cumulative 6.3% increase in the overall CPI relative to its 2013 level. By 2020, the cumulative increase in the overall CPI from 2013 is expected to rise to 14.9%.

Q. How does FPL’s forecast of the overall CPI compare with the historical rate of inflation?
A. FPL’s forecast of the overall CPI is comparable to the long-term average rate of inflation. The overall CPI is forecasted to increase at a compound annual
rate of 2.5% between 2015 and 2020, the same rate experienced on average since the 1990s and up modestly from the 2.1% compound annual rate averaged between 2010 and 2014.

Q. How does FPL’s forecast of the overall CPI compare with inflation projections developed by other experts?

A. FPL’s forecast of the overall CPI is consistent with the inflation projections developed by other experts, including the Philadelphia Federal Reserve Banks Survey of Professional Forecasters and the National Association for Business Economics.

Q. Is FPL’s forecast of the overall CPI reasonable?

A. Yes. FPL’s forecast of the overall CPI is based on forecasts developed by IHS Global Insight, a leading economic forecasting firm. FPL’s CPI forecast is also consistent with projections developed by other professional forecasters. The projected increases in FPL’s CPI forecast are reasonable given long-term historical trends, expectations regarding energy prices, and the underlying rate of inflation recently experienced.

Q. Does this conclude your direct testimony?

A. Yes.
### Florida Power and Light Company

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<th>Historic</th>
<th>MONTHLY PEAKS</th>
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<th>FORECASTING MODELS - SENSITIVITY OF OUTPUT TO CHANGES IN INPUT DATA</th>
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<td>Test</td>
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<th>Historic</th>
<th>PERFORMANCE INDICES</th>
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<th>C-34</th>
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<th>STATISTICAL INFORMATION</th>
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<th>C-35</th>
<th>Historic</th>
<th>PAYROLL AND FRINGE BENEFIT INCREASES COMPARED TO CPI</th>
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<tr>
<td></td>
<td>Test</td>
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<table>
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<tr>
<th>C-36</th>
<th>Historic</th>
<th>NON-FUEL OPERATION AND MAINTENANCE EXPENSE COMPARED TO CPI</th>
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<table>
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<tr>
<th>C-37</th>
<th>Test</th>
<th>O&amp;M BENCHMARK COMPARISON BY FUNCTION</th>
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<table>
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<tr>
<th>E-09</th>
<th>Test</th>
<th>COST OF SERVICE - LOAD DATA</th>
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### Florida Power and Light Company

**MFRs AND SCHEDULES SPONSORED AND CO-SPONSORED BY ROSEMARY MORLEY**

<table>
<thead>
<tr>
<th>MFR/Exhibit</th>
<th>LatLng</th>
<th>Description</th>
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<tbody>
<tr>
<td>E-11</td>
<td>Test Subsequent Year Adjustment</td>
<td>DEVELOPMENT OF COINCIDENT AND NON COINCIDENT DEMANDS FOR COST STUDY</td>
</tr>
<tr>
<td>E-12</td>
<td>Test Subsequent Year Adjustment</td>
<td>ADJUSTMENT TO TEST YEAR REVENUE</td>
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<tr>
<td>E-15</td>
<td>Test Subsequent Year Adjustment</td>
<td>PROJECTED BILLING DETERMINANTS - DERIVATION</td>
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<td>E-16</td>
<td>Prior Test Subsequent Year Adjustment</td>
<td>CUSTOMERS BY VOLTAGE LEVEL</td>
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<tr>
<td>E-19a</td>
<td>Test Subsequent Year Adjustment</td>
<td>DEMAND AND ENERGY LOSSES</td>
</tr>
<tr>
<td>E-19b</td>
<td>Test Subsequent Year Adjustment</td>
<td>ENERGY LOSSES</td>
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<td>E-19c</td>
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<td>DEMAND LOSSES</td>
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<td>F-08</td>
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<td>ASSUMPTIONS</td>
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### Summary of FPL’s Historical and Forecasted Sales

<table>
<thead>
<tr>
<th>Year</th>
<th>Customers</th>
<th>Net Energy for Load</th>
<th>Retail Delivered Sales</th>
<th>Residential</th>
<th>Commercial</th>
<th>Industrial</th>
<th>Street &amp; Highway</th>
<th>Railroads &amp; Railways</th>
<th>Lighting</th>
<th>Other</th>
<th>Total</th>
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<tbody>
<tr>
<td>2007</td>
<td>4,496,589</td>
<td>114,225,713</td>
<td>105,013,791</td>
<td>55,531,823</td>
<td>45,785,417</td>
<td>3,774,578</td>
<td>436,892</td>
<td>91,442</td>
<td>52,813</td>
<td>105,672,964</td>
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<tr>
<td>2009</td>
<td>4,499,067</td>
<td>109,055,355</td>
<td>100,734,123</td>
<td>52,780,660</td>
<td>44,592,023</td>
<td>3,243,139</td>
<td>421,698</td>
<td>79,928</td>
<td>33,846</td>
<td>101,151,293</td>
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<tr>
<td>2010</td>
<td>4,520,328</td>
<td>110,704,589</td>
<td>101,400,074</td>
<td>52,479,109</td>
<td>44,202,186</td>
<td>3,127,56</td>
<td>430,802</td>
<td>81,325</td>
<td>27,620</td>
<td>100,348,799</td>
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<tr>
<td>2012</td>
<td>4,576,449</td>
<td>111,635,607</td>
<td>102,853,385</td>
<td>54,492,331</td>
<td>45,280,555</td>
<td>3,024,260</td>
<td>441,330</td>
<td>80,598</td>
<td>25,362</td>
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<tr>
<td>2013</td>
<td>4,626,934</td>
<td>111,806,187</td>
<td>103,198,402</td>
<td>54,722,918</td>
<td>45,318,352</td>
<td>2,956,005</td>
<td>441,529</td>
<td>87,847</td>
<td>27,630</td>
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<tr>
<td>2015</td>
<td>4,775,382</td>
<td>117,907,706</td>
<td>105,704,055</td>
<td>56,955,541</td>
<td>46,449,670</td>
<td>3,039,120</td>
<td>448,137</td>
<td>91,781</td>
<td>23,380</td>
<td>107,007,630</td>
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<tr>
<td>FORECAST 2017</td>
<td>4,917,036</td>
<td>118,831,903</td>
<td>107,261,283</td>
<td>57,025,197</td>
<td>46,363,406</td>
<td>3,255,349</td>
<td>488,393</td>
<td>91,208</td>
<td>22,924</td>
<td>107,246,477</td>
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<tr>
<td>FORECAST 2018</td>
<td>4,989,889</td>
<td>119,562,964</td>
<td>107,887,888</td>
<td>57,392,486</td>
<td>46,533,891</td>
<td>3,139,445</td>
<td>498,758</td>
<td>91,241</td>
<td>23,056</td>
<td>107,858,876</td>
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<td>FORECAST 2019</td>
<td>5,062,605</td>
<td>120,277,084</td>
<td>108,496,611</td>
<td>57,761,470</td>
<td>46,718,870</td>
<td>3,368,402</td>
<td>509,044</td>
<td>91,225</td>
<td>22,936</td>
<td>108,471,946</td>
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</table>

CAGR 2006-2015: 0.9%  0.3%  0.1%  0.3%  0.4%  -3.1%  0.7%  -0.2%  -8.0%  0.3%
CAGR 2015-2020: 1.5%  0.6%  0.7%  0.5%  0.3%  2.3%  3.0%  -0.1%  -0.4%  0.5%

Weather-normalized (WN)
Change in Typical Bill vs. Other Consumer Costs

Percent Change January 2006 to January 2016

50%
40%
30%
20%
10%
0%
-10%
-20%

19.5%
All Goods & Services

27.6%
Homeowners/Renters Insurance

28.2%
Food

37.9%
Medical Care

-14.0%
Typical 1,000-kWh Residential Customer Bill

Over the last ten years, the average cost for goods and services has increased by nearly 20%, while FPL's typical residential customer bill has decreased by 14%.

Source: Consumer price index values gathered from the Bureau of Labor Statistics (BLS.gov).