BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 110309-EI
FLORIDA POWER & LIGHT COMPANY

IN RE: FLORIDA POWER & LIGHT COMPANY'S PETITION TO DETERMINE NEED FOR MODERNIZATION OF PORT EVERGLADES PLANT

DIRECT TESTIMONY & EXHIBITS OF:

DR. ROSEMARY MORLEY

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FLORIDA POWER & LIGHT COMPANY

TESTIMONY OF DR. ROSEMARY MORLEY

DOCKET NO. _____-EI

NOVEMBER 21, 2011

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) as the Director of Load Forecasting and Analysis.

Q. Please describe your duties and responsibilities as FPL's Director of Load Forecasting and Analysis.

A. I am responsible for the development of FPL's peak demand, energy, customer, and economic forecasts.

Q. Please describe your educational background and professional experience.

A. I hold a bachelor's degree (B.A.) with honors in economics from the University of Maryland and a master's degree (M.A.) in economics from Northwestern University. In 2005, I earned 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 my current position in 2007. I have received designation as a certified professional forecaster (CPF) from the Institute of Business Forecasting and Planning and am a member of the National Association of Business Economists.

Q. Are you sponsoring any exhibits in this case?

A. Yes. I am sponsoring Exhibit Nos. RM-1 through RM-9, which are attached to my direct testimony.

Exhibit RM-1	Florida Population
Exhibit RM-2	Total Average Customers
Exhibit RM-3	Summer Peak Weather Variables
Exhibit RM-4	Weighted Real Per Capita Income
Exhibit RM-5	Energy Efficiency Standards (MW)
Exhibit RM-6	Real Price of Electricity (cents/kWh)
Exhibit RM-7	Summer Peak Load (MW)
Exhibit RM-8	Winter Peak Load (MW)
Exhibit RM-9	Calendar Net Energy for Load (GWh)

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 review the results of FPL's most current (September 2011) forecasts. These forecasts include long-term forecasts of customers, peak demands, and net energy for load through 2050. The September 2011 forecasts have replaced the forecasts that were presented in FPL's 2011 Ten Year Site Plan. The results of these updated forecasts have been utilized in the analyses discussed by FPL witnesses Enjamio and Silva in their direct testimonies.

Q. Please summarize your testimony.

A. My testimony addresses FPL's customer forecast, summer and winter peak demand forecasts, and the net energy for load forecast. My testimony explains how these forecasts are developed and why they are reasonable. As discussed in my testimony, FPL is expected to experience moderate growth in its customer base through 2021. By 2019 the number of FPL customer accounts (customers) is expected to surpass the five million mark and by 2021 the cumulative increase in customers from 2011 is expected to reach almost 640,000. Summer peak demands are also projected to increase at a moderate rate. Although the percentage growth rates projected for the summer peak are somewhat slower than those experienced historically, the absolute increases will remain significant. By 2021 the summer peak is projected to reach 25,960 MW, an increase of 4,341 MW relative to the 2011 summer peak which equates to a cumulative increase of approximately 20%. Finally, my testimony explains that a 20% cumulative increase in FPL's net energy for load is also expected between 2011 and 2021, a net increase in excess of 21,900 gigawatt-hours (GWh).

I. FPL'S EXISTING CUSTOMER BASE

Q. Please describe FPL's service territory.

A. FPL's service territory covers approximately 27,650 square miles within peninsular Florida, which ranges from St. Johns County in the north to Miami-Dade County in the south, and westward to Manatee County. FPL serves customers in thirty-five counties within this region.

Q. How many customers receive their electric service from FPL?

A. FPL currently serves over 4.5 million customers, as shown on Exhibit RM-2. This amounts to a population of almost nine million people.

Q. Geographically, where is the largest concentration of FPL's load?

A. The largest concentration of load is in Southeast Florida. Although FPL's service area covers thirty-five counties, two counties, Miami-Dade and Broward Counties have recently accounted for 44% of the company's summer peak load.

1. LOAD FORECASTING PROCESS AND RESULTS

Q. Please describe FPL's forecasting process.

A. FPL relies on econometrics as the primary tool for projecting future levels of customer growth, net energy for load, and peak demand. 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 a 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. How does FPL determine the independent variables that should be used to forecast customer growth, net energy for load, and peak demand?

A. FPL has found that population growth, the economy, appliance standards, and weather 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.

Q. What sources does FPL rely on for projections of these independent variables?

A. FPL relies on leading industry experts for projections of these independent variables. Population projections are produced by the University of Florida's Bureau of Economic and Business Research (BEBR) in conjunction with the Office of Economic and Demographic Research (EDR) of the state legislature. The projected economic conditions are from IHS Global Insight, a reputable economic forecasting firm. Estimates of appliance standards are provided by ITRON, one of the leading consultants on energy issues.

2. CUSTOMER GROWTH FORECAST

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

A. The growth of customers in FPL's service territory is a primary driver of the growth in the level of net energy for load and peak demand. In order to project the growth in the number of customers, FPL utilized the August 2011 population projections from EDR, the most current projections available at the time the forecast was developed.

Q. How do EDR's August 2011 population projections compare with its prior forecast?

A. Exhibit RM-1 shows that while short-term growth rates are somewhat lower, long-term percentage growth rates are generally in line with projections used in the 2011 Ten Year Site Plan forecast. The population growth rate projected for 2012 reflects a continuation of the low rates of population growth Florida has experienced since the start of the recession, followed by modestly higher rates of growth in 2013 and 2014. Increased population growth is projected beginning in 2015.

Q. What is FPL's projected customer growth?

A. The number of customers is expected to increase moderately, averaging a 1.3% rate of increase between 2011 and 2021. As can be seen in Exhibit RM-2, by 2019 the number of customers is expected to surpass the five million mark and by 2021 the cumulative increase in customers from 2011 is expected to reach almost 640,000.

Q. How do FPL's projected customer growth rates compare with the growth rates experienced historically?

A. Customer growth is projected to average close to 64,000 per year between 2011 and 2021, somewhat lower than the 66,000 customers per year FPL has averaged over the last 20 years. Nevertheless, the projected customer growth is considerably higher than the level of customer growth experienced between 2007 and 2010. Between 2007 and 2010, customer growth averaged less than 8,000 customers a year. Thus, the forecasted growth in customers represents a return to more historically typical growth rates following the recent economic downturn.

Q. Is FPL's customer forecast reasonable?

A. Yes. The forecast incorporates the most recent EDR population projections available at the time the forecast was developed, relies on the forecasting methods previously reviewed and accepted by the Commission, and is consistent with historical trends in customer growth.

3. SUMMER PEAK DEMAND FORECAST

Q. What is FPL's process to forecast summer peak demand?

A. Growth in FPL's peak demand has been a function of a larger customer base, weather conditions, economic growth, energy efficiency standards, and changing patterns of customer behavior. FPL has developed a peak demand per customer model to capture these relationships.

Q. What weather information does FPL utilize?

A. FPL utilizes information from four weather stations scattered throughout its service territory. Composite estimates of the hourly temperatures representative of the FPL system as a whole are developed by weighting the values by weather station with the proportion of sales served in that area.

Q. How are weather conditions incorporated into the summer peak per customer model?

A. The summer peak per customer model is calibrated using historical data on two weather series: the maximum temperature on the day of the summer peak and the sum of the cooling degree hours during the day prior to the peak day. In forecasting these weather variables, FPL relies on a normal weather outlook. Normal weather is based on historical averages over the last twenty years. Exhibit RM-3 shows the actual and forecasted values for the two weather variables included in the summer peak per customer model.

Q. How are economic conditions incorporated into the summer peak per customer model?

The impact of the economy is captured through a composite variable based on Florida 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 personal income and employment levels are provided by IHS Global Insight. The population forecast is provided by EDR. Exhibit RM-4 shows the actual and forecasted values for Florida real per capita income weighted by the percent of the population employed. Due to heavy employment losses during the recession, this composite variable declined between 2007 and 2010. With a modest improvement in the economy, a small increase in this variable is estimated for 2011, followed by stronger growth in 2012. Between 2011 and 2021, Florida real per capita income weighted by the percent of the population employed is expected to increase at an average annual rate of 2.6%. By contrast, Florida real per capita income weighted by the percent of the population employed only increased at an annual rate of 1.9% between 1982 and 2011. The projected growth in Florida real per capita income weighted by the percent of the population employed is influenced by the low starting value for this series as a result of declines experienced during the recent recession. Indeed, the 2.6% projected annual increase in this series between 2011 and 2021 suggests a fairly modest pace of recovery relative to the growth rates in the 1980s and 1990s which frequently exceeded 4% to 5% a year.

Q. How is the impact from energy efficiency standards incorporated into the summer peak per customer model?

A variable is included for the impact of energy efficiency standards based on end-use estimates developed by ITRON, a leading expert in this area. Included in ITRON's estimates are savings from federal and state energy efficiency standards, including the 2005 National Energy Policy Act, the 2007 Energy Independence and Security Act, and the savings occurring from the use of compact fluorescent bulbs. As shown in Exhibit RM-5, ITRON's estimates indicate that by 2021, the savings from energy efficiency standards are expected to reach 3,365 MW. It should be noted that the savings from energy efficiency standards discussed here do not include the impact from utility sponsored demand-side management (DSM) programs. The impact of incremental DSM is addressed in the resource planning process.

Q. What assumptions regarding the price of electricity were used in the summer peak per customer model?

The real price of electricity was developed based on fuel factors filed for approval with the Commission in September 2011. The price of electricity is also consistent with budgeted projections of clause-recoverable costs and with FPL's long-term resource plan. Exhibit RM-6 shows the historical real price of electricity along with its forecasted values.

Q. How is the output from the summer peak per customer model incorporated into the summer peak forecast?

A. The output from the summer peak per customer model is multiplied by the forecasted number of customers. The result is a preliminary estimate of the forecasted summer peak. Incremental wholesale loads are then added to this preliminary estimate of the forecasted summer peak.

Q. Why is the forecast adjusted to include incremental wholesale loads?

A. The forecast is adjusted for incremental wholesale loads in order to reflect additional load not otherwise reflected in FPL's historical load levels resulting from new or modified wholesale contracts. The largest of these contracts is the power sales contract to Lee County, a not-for-profit electric distribution cooperative serving a five-county area in Southwest Florida. In August 2007, the parties came to an agreement by which FPL will become Lee County's power supplier in two phases. In the short-term phase, FPL began providing partial requirements service to two of the three Lee County delivery points, which together serve approximately 25 percent of Lee County's load, for the term January 1, 2010 through December 31, 2013. In the long-term phase, which commences in January 2014, FPL will serve Lee County's full retail load. Based on information provided by the customer, Lee County's contribution to FPL's summer peak is expected to increase from 233 MW in 2012 to 833 in 2014, growing annually thereafter. Projections of Lee County's contribution to the summer peak are included as a line item adjustment increasing FPL's forecasted summer peak. To avoid any issue of double-counting, Lee County's contributions to FPL's 2010 and 2011 summer peaks are removed in developing the summer peak per customer model.

Q. Are adjustments made for any other new or expanded wholesale contracts?

A. Yes. FPL has been serving the Florida Keys Electric Cooperative under a partial requirements service agreement since January 1992. Effective May 2011, FPL began serving the Florida Keys Electric Cooperative as a full requirements customer. FPL is expected to serve approximately 35 MW of additional load as a result of the Florida Keys Electric Cooperative's change from a partial requirements customer to a full requirements customer. This additional load from the Florida Keys Electric Cooperative is also included as a line item adjustment to the summer peak forecast. In addition, FPL anticipates providing full requirements service to the City of Wauchula effective October 2011. Service to the City of Wauchula is expected to add an additional 13 MW to the summer peak between 2012 and 2016. Finally, FPL will begin making sales to the Seminole Electric Cooperative in June 2014 under a long-term agreement. Sales to Seminole Electric Cooperative under this agreement are expected to add an additional 200 MW to the summer peak.

Q. Are adjustments also made to reflect the expected termination of any existing wholesale contracts?

A. Yes. Existing contracts with the City of Key West and Metro-Dade County are scheduled to terminate in 2013. The termination of these contracts is expected to reduce the summer peak by approximately 46 MW.

Q. Are there any other adjustments to the summer peak forecast in addition to those for incremental wholesale load?

A. Yes. FPL includes an adjustment for the incremental load resulting from plug-in electric vehicles as well as adjustments for the new and incremental load resulting from its Economic Development Rider and Existing Facility Economic Rider.

Q. Why is an adjustment being made for plug-in electric vehicles?

A. The forecast is adjusted for plug-in electric vehicles in order to reflect additional load not otherwise captured in FPL's historical load levels. The current load from plug-in electric vehicles is estimated to be less than 1 MW. However, the long-term load contribution from plug-in electric vehicles is likely to be many times this level.

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

A. Projections on the number of plug-in electric vehicles in FPL's service territory were developed by the company's Customer Service Business Unit. 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. FPL's share of the U.S. market for plug-in electric vehicles was then estimated based on the share of U.S. hybrid electric vehicles (excluding plug-in electric vehicles) that is currently located in FPL's service area. The contribution to the summer peak load from plug-in electric vehicles was then derived from the vehicle forecast, an estimate of vehicle demand, and the proportion of vehicles expected to be charged during the summer peak. The load from plug-in electric vehicles is expected to be 30 MW by 2016, and to reach 163 MW by 2021.

Q. Why are adjustments being made for the Economic Development Rider and Existing Facility Economic Rider?

A. Under both the Economic Development Rider and Existing Facility Economic Rider, customers are provided discounts for adding new or incremental load. To qualify for either rider, customers are required to verify that the availability of the rider was a significant factor in their location or expansion decision. The Economic Development Rider was modified in July 2011 to allow customers with new or incremental load of at least 350 kW to qualify for the rider. Customers had previously been required to have at least 5000 kW of new or incremental load to qualify for the rider and there was very limited customer participation. The lower threshold is expected to result in a significant increase in customer participation on the rider. Effective July 2011, the Commission also approved a new rider specifically for customers adding at least 350 kW of new load by occupying a currently vacant premise. The Economic Development Rider and Existing Facilities Economic Development Rider are expected to add incremental load to the summer peak between 2013 and 2016. Based on estimates developed by FPL's Economic Development group in conjunction with the Customer Service and Regulatory Business Units, the Economic Development Rider and Existing Facilities Economic Development Rider are projected to add about 13 MW to the summer peak beginning in 2013. This figure is expected to rise to about 51 MW by 2016.

Q. Have adjustments to the summer peak forecast been incorporated into prior forecasts?

A. Yes. The 2011 Ten Year Site Plan forecast incorporated adjustments for incremental wholesale load and new load resulting from plug-in electric vehicles. In fact, these adjustments have been incorporated into FPL's long-term forecast since the 2009 Ten Year Site Plan. Because the changes to the Economic Development Rider and the addition of the Existing Facilities Economic Development Rider were only recently approved, their impact was not incorporated into prior forecasts.

Q. What is FPL's projected summer peak demand?

A. As shown on Exhibit RM-7, FPL is projecting an annual increase of 1.8% in the summer peak demand between 2011 and 2021. While the projected percentage growth is lower than the long term rate experienced historically, the absolute level of growth remains very large. An annual increase of 434 MW is projected between 2011 and 2021. By 2021, the summer peak is projected to reach 25,960 MW, a cumulative increase of 4,341 MW relative to the 2011 summer peak.

Q. How does FPL's summer peak demand forecast compare with that developed for the 2011 Ten Year Site Plan?

A. As shown in Exhibit RM-7, under the current forecast the summer peak is expected to grow at an annual rate of 1.8% between 2011 and 2021, somewhat lower than the 2.2% annual growth rate projected in the 2011 Ten Year Site Plan. The lower growth relative to the 2011 Ten Year Site Plan is primarily a result of lower customer growth and a less robust economic outlook.

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. Goodness of fit refers to how closely the predicted values of a model match the actual observed values. FPL's summer peak model has a strong goodness of fit as demonstrated by the model's adjusted R square of 92.6%. This means that 92.6% 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 that 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 2.045 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. Is FPL's projected summer peak demand reasonable?

A. Yes. FPL's projected summer peak demand is based on assumptions developed by industry experts, is consistent with historical experience, and relies on the forecasting methods previously reviewed and accepted by the Commission. The model employed by FPL has a strong goodness of fit and a high degree of statistical significance. FPL is confident that the relationship that exists between the level of summer peak demand and the economy, weather, customers, energy efficiency standards, and other variables have been properly assessed and numerically quantified.

4. WINTER PEAK DEMAND FORECAST

Q. What is FPL's process to forecast winter peak demand?

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 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. Are the same line item adjustments made to the summer peak forecast also made to the winter peak forecast?

A. Yes. The winter peak forecast is adjusted for incremental wholesale loads, new load resulting from plug-in electric vehicles, and incremental load resulting from the Economic Development Rider and Existing Facilities Economic Development Rider.

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

A. ITRON developed end-use estimates of the energy efficiency standards impacting the winter peak, similar to the estimates developed for the summer peak. As is the case in the development of the summer peak forecast, energy efficiency standards do not include utility-sponsored DSM programs as these are addressed in the resource planning process. Rather, energy efficiency standards refer to national and state efficiency standards as well as the savings resulting from compact fluorescent bulbs. The historical levels of the winter peak are first increased to remove the historical level of energy efficiency standards. The winter peak per customer model is based on these adjusted historical levels. The future impact from energy efficiency standards is then treated as a line item adjustment reducing the level of the winter peak forecast.

Q. What is FPL's projected winter peak demand?

A. As shown in Exhibit RM-8, the winter peak is projected to increase at an annual rate of 1.3% between 2011 and 2021. The annual growth in the winter peak between 2011 and 2021 is expected to be 283 MW a year. By 2021 the winter peak is expected to reach 23,952 MW, an increase of 2,826 MW over the 2011 winter peak.

Q. Why are FPL's projected winter peaks low relative to the 2010 winter peak?

A. The 2010 winter peak was the result of the extraordinary period of sustained cold weather experienced in January 2010. The day prior to the peak, January 10, 2010, was the third coldest day on record in the FPL service area based on records going back to 1948. Moreover, the cold weather had already been experienced almost continuously for more than a week prior to the January 2010 peak. Indeed, January 2010 holds the record for having the highest number of consecutive days below 40 degrees. Due to this period of sustained cold weather, a record peak of 24,346 MW was recorded on January 11, 2010. Projected winter peaks are based on the weather normally experienced on the day of the winter peak, as opposed to the record cold experienced in January 2010. As a result, the projected winter peaks through 2021 are not expected to exceed the 2010 winter peak.

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. Goodness of fit refers to how closely the predicted values of a model match the actual observed values. FPL's winter peak model has a strong goodness of fit as demonstrated by the model's adjusted R square of 80.2%. This means that 80.2% of the variability in the winter 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 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 1.904 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. Is FPL's winter peak demand reasonable?

A. Yes. FPL's projected winter peak demand is based on assumptions developed by industry experts, is consistent with historical experience, and relies on the forecasting methods previously reviewed and accepted by the Commission. The model employed by FPL has a strong goodness of fit and a high degree of statistical significance. FPL is confident that the relationship that exists between the level of winter peak demand, the weather, customers, energy efficiency standards and other variables have been properly assessed and numerically quantified.

5. NET ENERGY FOR LOAD FORECAST

Q. How does FPL forecast energy sales?

A. FPL forecasts energy sales using an econometric model for total net energy for load, which is energy generated net of plant use. An econometric model for net energy for load is more reliable than models for billed energy sales because the explanatory variables can be better matched to usage. This is so because the net energy for load data do not have to be attuned to account for billing cycle adjustments, which might distort the real time match between the production and consumption of electricity.

Q. What inputs does the econometric model used to forecast net energy for load rely on?

A. FPL has found that the customer base, the economy, weather, and energy efficiency standards are the principal factors influencing net energy for load. Accordingly, a net energy per customer model has been developed incorporating these variables.

Q. How are weather conditions incorporated into the net energy 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 occurred in January 2010.

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

A. Consistent with its use in the summer peak model, a composite variable based on Florida real per capita income weighted by the percent of the state's population employed is used as a measure of economic conditions. The net energy per customer model also includes a variable designed to measure the health of the housing industry based on the ratio of inactive to active meters. Finally, the detrimental impact higher energy prices have on electricity consumption is measured by the Consumer Price Index for energy prices, as forecasted by IHS Global Insight.

Q. How is the impact from energy efficiency standards incorporated into the net energy per customer model?

A. A variable is included for the impact of energy efficiency standards based on end-use estimates developed by ITRON. The impact of weather sensitive energy efficiency standards has been estimated by month based on the expected number of cooling degree hours by month and ITRON's annual estimates.

Q. Are the same line item adjustments made to the summer and winter peak forecasts also made to the net energy for load forecast?

A. Yes. The net energy for load forecast is adjusted for incremental wholesale loads, new load resulting from plug-in electric vehicles, and incremental load resulting from the Economic Development Rider and Existing Facilities Economic Development Rider.

Q. What is FPL's projected net energy for load?

A. As shown in Exhibit RM-9, FPL is projecting a 1.8% annual growth rate in net energy for load between 2011 and 2021. This projected annual growth in net energy for load reflects a somewhat slower rate of customer growth combined with additional load from Lee County. Owing to a larger customer base, the absolute level of increase in gigawatt-hours (GWh) is expected to be higher than that experienced historically. The forecast shows an annual increase in net energy for load of 2,191 GWh between 2011 and 2021, resulting in a cumulative increase of 21,911 GWh.

Q. How does FPL's projected net energy for load compare with the 2011 Ten Year Site Plan forecast?

A. As shown at the bottom of Exhibit RM-9, the projected long-run percentage growth rates are slightly lower than those of the 2011 Ten Year Site Plan. The current forecast shows a 1.8% annual growth rate in net energy for load between 2011 and 2021 whereas the 2011 Ten Year Site Plan showed a 2.0% annual growth rate during the same period. The reduction in the forecasted growth in net energy for load is driven in part by slower customer growth combined with lower expectations for the economy.

Q. Is FPL's net energy for load forecast based on an econometric model with strong goodness of fit and a high degree of statistical significance?

A. Yes. Goodness of fit refers to how closely the predicted values of a model match the actual observed values. FPL's net energy for load model has strong goodness of fit as demonstrated by the model's adjusted R square of 99.4%. This means that 99.4% of the variability in net energy for load per customer is explained by the model. In addition, the coefficients for all 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 2.062 indicating the absence of significant autocorrelation. The absence of significant autocorrelation is a desirable quality in a well-constructed model. Overall, the net energy for load model has excellent diagnostic statistics.

Q. Is FPL's net energy for load forecast consistent with the forecasts for summer and winter peak demands?

A. Yes. All three forecasts rely on the same set of assumptions regarding population and economic growth and rely on similar modeling techniques. Moreover, the summer peak and net energy for load forecasts are both projecting a 1.8% annual rate of growth between 2011 and 2021. Slower long-term growth is projected for the winter peak which tends to be more volatile and weather dependent.

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

A. Yes. FPL's projected net energy for load is based on assumptions developed by industry experts, is consistent with historical experience, and relies on the forecasting methods previously reviewed and accepted by the Commission. The model employed by FPL has a strong goodness of fit and high degrees of statistical significance. FPL is confident that the relationship that exists between the level of net energy for load and the economy, weather, customers, energy efficiency standards, and other variables have been properly assessed and numerically quantified.

Q. Does this conclude your direct testimony?

A. Yes.

FLORIDA POPULATION

AVERAGE ANNUAL GROWTH

History (1980 to 2011)	296,118	2.2%
History (1990 to 2011)	285,169	1.8%
Based on 2011 TYSP (2011 to 2021)	271,107	1.3%
Based on Current Forecast (2011 to 2021)	242,656	1.2%

HISTORY

		Growth	
		Absolute	%
1980	9,746,961	368,682	3.9%
1981	10,110,616	363,655	3.7%
1982	10,403,778	293,162	2.9%
1983	10,678,494	274,716	2.6%
1984	10,965,170	286,676	2.7%
1985	11,272,327	307,157	2.8%
1986	11,587,219	314,892	2.8%
1987	11,916,377	329,158	2.8%
1988	12,231,270	314,893	2.6%
1989	12,547,730	316,460	2.6%
1990	12,938,071	390,341	3.1%
1991	13,258,732	320,661	2.5%
1992	13,497,541	238,809	1.8%
1993	13,730,115	232,574	1.7%
1994	14,043,757	313,642	2.3%
1995	14,335,992	292,235	2.1%
1996	14,623,421	287,429	2.0%
1997	14,938,314	314,893	2.2%
1998	15,230,421	292,107	2.0%
1999	15,580,244	349,823	2.3%
2000	15,982,824	402,580	2.6%
2001	16,305,100	322,276	2.0%
2002	16,634,256	329,156	2.0%
2003	16,979,706	345,450	2.1%
2004	17,374,824	395,118	2.3%
2005	17,778,156	403,332	2.3%
2006	18,154,475	376,319	2.1%
2007	18,446,768	292,293	1.6%
2008	18,613,905	167,137	0.9%
2009	18,687,425	73,520	0.4%
2010	18,801,310	113,885	0.6%
2011	18,926,629	125,319	0.7%

FORECAST

	Based on 2011 TYSP	Growth		Current	Growth		Delta	
	Forecast	Absolute	%	Forecast	Absolute	%	Absolute	%
2012	19,133,572	206,943	1.1%	19,043,964	117,335	0.6%	-89,609	-0.5%
2013	19,408,037	274,465	1.4%	19,214,917	170,953	0.9%	-193,121	-1.0%
2014	19,722,592	314,555	1.6%	19,449,098	234,182	1.2%	-273,493	-1.4%
2015	20,036,130	313,538	1.6%	19,727,742	278,643	1.4%	-308,388	-1.5%
2016	20,331,365	295,235	1.5%	20,019,815	292,074	1.5%	-311,550	-1.5%
2017	20,606,798	275,433	1.4%	20,295,648	275,833	1.4%	-311,150	-1.5%
2018	20,868,976	262,178	1.3%	20,560,959	265,311	1.3%	-308,017	-1.5%
2019	21,124,879	255,903	1.2%	20,826,655	265,696	1.3%	-298,224	-1.4%
2020	21,380,337	255,459	1.2%	21,091,643	264,988	1.3%	-288,695	-1.4%
2021	21,637,696	257,359	1.2%	21,353,188	261,546	1.2%	-284,508	-1.3%

TOTAL AVERAGE CUSTOMERS

AVERAGE ANNUAL GROWTH

History (1980 to 2011)	76,232	2.4%
History (1990 to 2011)	66,159	1.8%
Based on 2011 TYSP (2011 to 2021)	67,860	1.4%
Based on Current Forecast (2011 to 2021)	63,760	1.3%

HISTORY

		Growth	
		Absolute	%
1980	2,184,974	110,647	5.3%
1981	2,285,187	100,214	4.6%
1982	2,358,167	72,980	3.2%
1983	2,429,688	71,521	3.0%
1984	2,520,523	90,835	3.7%
1985	2,617,556	97,033	3.8%
1986	2,723,555	105,999	4.0%
1987	2,840,207	116,651	4.3%
1988	2,953,663	113,457	4.0%
1989	3,064,436	110,773	3.8%
1990	3,158,817	94,381	3.1%
1991	3,226,455	67,638	2.1%
1992	3,281,238	54,783	1.7%
1993	3,355,794	74,556	2.3%
1994	3,422,187	66,393	2.0%
1995	3,488,796	66,609	1.9%
1996	3,550,747	61,951	1.8%
1997	3,615,485	64,738	1.8%
1998	3,680,470	64,985	1.8%
1999	3,756,009	75,539	2.1%
2000	3,848,350	92,341	2.5%
2001	3,935,281	86,931	2.3%
2002	4,019,805	84,523	2.1%
2003	4,117,221	97,416	2.4%
2004	4,224,509	107,289	2.6%
2005	4,321,895	97,386	2.3%
2006	4,409,563	87,667	2.0%
2007	4,496,589	87,027	2.0%
2008	4,509,730	13,141	0.3%
2009	4,499,067	-10,663	-0.2%
2010	4,520,328	21,261	0.5%
2011*	4,548,154	27,826	0.6%

*2011 is an estimated actual

FORECAST

	Based on 2011 TYSP	Growth		Current	Growth		Delta	
	Forecast	Absolute	%	Forecast	Absolute	%	Absolute	%
2012	4,594,191	46,037	1.0%	4,579,174	31,021	0.7%	-15,017	-0.3%
2013	4,663,131	68,940	1.5%	4,625,149	45,975	1.0%	-37,982	-0.8%
2014	4,742,529	79,398	1.7%	4,687,365	62,216	1.3%	-55,164	-1.2%
2015	4,821,867	79,338	1.7%	4,760,867	73,501	1.6%	-61,000	-1.3%
2016	4,896,672	74,805	1.6%	4,837,621	76,754	1.6%	-59,051	-1.2%
2017	4,966,477	69,805	1.4%	4,909,988	72,367	1.5%	-56,490	-1.1%
2018	5,032,864	66,386	1.3%	4,979,439	69,452	1.4%	-53,424	-1.1%
2019	5,097,548	64,685	1.3%	5,048,794	69,355	1.4%	-48,754	-1.0%
2020	5,161,981	64,433	1.3%	5,117,793	68,999	1.4%	-44,188	-0.9%
2021	5,226,753	64,772	1.3%	5,185,756	67,963	1.3%	-40,997	-0.8%

SUMMER PEAK WEATHER VARIABLES

HISTORY

	Maximum Temp on Day of Summer Peak	Sum of Cooling Degree Hours During the Day Prior to Summer Peak
1989	95	309
1990	95	306
1991	92	286
1992	91	315
1993	91	341
1994	92	248
1995	93	269
1996	90	274
1997	92	288
1998	94	279
1999	91	320
2000	90	287
2001	91	280
2002	91	274
2003	90	291
2004	92	269
2005	94	335
2006	92	307
2007	92	315
2008	91	300
2009	95	330
2010	93	335
2011	93	316

FORECAST

	Maximum Temp on Day of Summer Peak	Sum of Cooling Degree Hours During the Day Prior to Summer Peak
2012	92	299
2013	92	299
2014	92	299
2015	92	299
2016	92	299
2017	92	299
2018	92	299
2019	92	299
2020	92	299
2021	92	299

Real per Capita Income (Thousands 2005 $) Weighted by Percent of Population Employed

AVERAGE ANNUAL GROWTH

History (1982 to 2011)	0.2	1.9%
Based on Current Forecast (2011 to 2021)	0.4	2.6%

HISTORY

		Growth	
		Absolute	%
1982	7.8	-0.2	-2.4%
1983	8.2	0.4	4.9%
1984	9.0	0.8	9.6%
1985	9.5	0.5	5.5%
1986	9.9	0.4	4.1%
1987	10.3	0.4	4.2%
1988	10.7	0.5	4.5%
1989	11.3	0.5	4.9%
1990	11.1	-0.2	-1.4%
1991	10.5	-0.6	-5.6%
1992	10.5	0.0	-0.1%
1993	10.8	0.4	3.4%
1994	11.2	0.3	3.2%
1995	11.6	0.5	4.1%
1996	12.0	0.4	3.3%
1997	12.4	0.4	3.5%
1998	13.3	0.8	6.5%
1999	13.5	0.3	2.2%
2000	14.2	0.7	5.1%
2001	14.2	0.0	-0.2%
2002	14.0	-0.2	-1.1%
2003	14.0	-0.1	-0.6%
2004	14.7	0.8	5.5%
2005	15.4	0.7	4.9%
2006	16.2	0.8	4.9%
2007	16.1	-0.1	-0.7%
2008	15.2	-0.9	-5.8%
2009	13.7	-1.5	-9.7%
2010	13.4	-0.3	-2.0%
2011*	13.6	0.2	1.6%

*2011 is an estimated actual

FORECAST

	Current Forecast	Growth	
		Absolute	%
2012	13.9	0.3	2.2%
2013	14.3	0.3	2.4%
2014	14.8	0.6	4.0%
2015	15.5	0.7	4.4%
2016	16.0	0.5	3.4%
2017	16.4	0.4	2.2%
2018	16.6	0.3	1.7%
2019	17.0	0.3	2.0%
2020	17.3	0.3	2.0%
2021	17.6	0.3	1.8%

ENERGY EFFICIENCY STANDARDS (MW)

HISTORY

	Energy Efficiency
2005	26
2006	185
2007	367
2008	766
2009	958
2010	1,153
2011	1,359

FORECAST

	Energy Efficiency
2012	1,569
2013	1,827
2014	2,089
2015	2,362
2016	2,633
2017	2,887
2018	3,107
2019	3,322
2020	3,393
2021	3,365

REAL PRICE OF ELECTRICITY (CENTS/Kwh)- JULY OF EACH YEAR

AVERAGE ANNUAL GROWTH

History (1990 to 2011)	-0.06	-1.2%
Based on Current Forecast (2011 to 2021)	0.10	2.1%

HISTORY

		Growth	
		Absolute	%
1990	5.67	-0.01	-8.8%
1991	5.47	-0.20	-3.5%
1992	5.05	-0.42	-7.6%
1993	5.21	0.16	3.1%
1994	4.59	-0.62	-12.0%
1995	4.50	-0.09	-1.9%
1996	4.60	0.10	2.2%
1997	4.65	0.05	1.1%
1998	4.37	-0.29	-6.1%
1999	4.05	-0.32	-7.2%
2000	4.10	0.05	1.2%
2001	4.80	0.70	17.1%
2002	4.05	-0.75	-15.7%
2003	4.26	0.21	5.1%
2004	4.45	0.19	4.5%
2005	4.57	0.12	2.7%
2006	5.57	1.00	21.9%
2007	5.15	-0.41	-7.5%
2008	4.94	-0.21	-4.0%
2009	5.20	0.25	5.1%
2010	4.45	-0.74	-14.3%
2011	4.42	-0.04	-0.8%

FORECAST

	Current	Growth	
	Forecast	Absolute	%
2012	4.43	0.01	0.3%
2013	4.22	-0.21	-4.7%
2014	4.05	-0.17	-4.0%
2015	4.05	0.00	-0.1%
2016	4.02	-0.03	-0.7%
2017	4.46	0.44	10.8%
2018	4.99	0.54	12.0%
2019	5.12	0.13	2.6%
2020	5.23	0.11	2.2%
2021	5.42	0.19	3.6%

SUMMER PEAK LOAD (MW)

AVERAGE ANNUAL GROWTH

History (1980 to 2011)	387	2.6%
Based on 2011 TYSP (2011 to 2021)	521	2.2%
Based on Current Forecast (2011 to 2021)	434	1.8%

HISTORY

		Growth	
		Absolute	%
1980	9,623	973	11.2%
1981	9,738	115	1.2%
1982	9,862	124	1.3%
1983	10,676	814	8.3%
1984	10,270	-406	-3.8%
1985	10,654	384	3.7%
1986	11,022	368	3.5%
1987	12,394	1,372	12.4%
1988	12,382	-12	-0.1%
1989	13,425	1,043	8.4%
1990	13,754	329	2.5%
1991	14,123	369	2.7%
1992	14,661	538	3.8%
1993	15,266	605	4.1%
1994	15,179	-87	-0.6%
1995	15,813	634	4.2%
1996	16,064	251	1.6%
1997	16,613	549	3.4%
1998	17,897	1,284	7.7%
1999	17,615	-282	-1.6%
2000	17,808	193	1.1%
2001	18,754	946	5.3%
2002	19,219	465	2.5%
2003	19,668	449	2.3%
2004	20,545	877	4.5%
2005	22,361	1,816	8.8%
2006	21,819	-542	-2.4%
2007	21,962	143	0.7%
2008	21,060	-902	-4.1%
2009	22,351	1,291	6.1%
2010	22,256	-95	-0.4%
2011	21,619	-637	-2.9%

FORECAST

	Based on 2011 TYSP	Growth		Current	Growth		Delta	
	Forecast	Absolute	%	Forecast	Absolute	%	Absolute	%
2012	21,853	234	1.1%	21,623	4	0.0%	-230	-1.1%
2013	22,155	301	1.4%	21,931	308	1.4%	-224	-1.0%
2014	23,452	1,297	5.9%	23,243	1,312	6.0%	-208	-0.9%
2015	24,172	721	3.1%	23,786	543	2.3%	-386	-1.6%
2016	24,605	433	1.8%	24,315	528	2.2%	-291	-1.2%
2017	25,025	419	1.7%	24,529	214	0.9%	-496	-2.0%
2018	25,266	242	1.0%	24,674	145	0.6%	-592	-2.3%
2019	25,690	424	1.7%	25,041	367	1.5%	-649	-2.5%
2020	26,193	503	2.0%	25,499	458	1.8%	-694	-2.6%
2021	26,830	637	2.4%	25,960	460	1.8%	-871	-3.2%

WINTER PEAK LOAD (MW)

AVERAGE ANNUAL GROWTH

History (1980 to 2011)	368	2.5%
Based on 2011 TYSP (2011 to 2021)	347	1.5%
Based on Current Forecast (2011 to 2021)	283	1.3%

HISTORY

		Growth	
		Absolute	%
1980	9,732	941	10.7%
1981	11,360	1,628	16.7%
1982	11,345	-15	-0.1%
1983	9,280	-2,065	-18.2%
1984	11,050	1,770	19.1%
1985	12,533	1,483	13.4%
1986	12,139	-394	-3.1%
1987	10,779	-1,360	-11.2%
1988	12,372	1,593	14.8%
1989	12,876	504	4.1%
1990	16,046	3,170	24.6%
1991	11,868	-4,178	-26.0%
1992	13,319	1,451	12.2%
1993	12,932	-387	-2.9%
1994	12,594	-338	-2.6%
1995	16,563	3,969	31.5%
1996	18,252	1,689	10.2%
1997	17,298	-954	-5.2%
1998	13,060	-4,238	-24.5%
1999	16,802	3,742	28.7%
2000	17,057	255	1.5%
2001	18,199	1,142	6.7%
2002	17,597	-602	-3.3%
2003	20,190	2,593	14.7%
2004	14,752	-5,438	-26.9%
2005	18,108	3,356	22.7%
2006	19,683	1,575	8.7%
2007	16,815	-2,868	-14.6%
2008	18,055	1,240	7.4%
2009	20,081	2,026	11.2%
2010	24,346	4,265	21.2%
2011	21,126	-3,220	-13.2%

FORECAST

	Based on 2011 TYSP	Growth		Current	Growth		Delta	
	Forecast	Absolute	%	Forecast	Absolute	%	Absolute	%
2012	21,491	365	1.7%	20,889	-237	-1.1%	-602	-2.8%
2013	21,683	192	0.9%	21,101	212	1.0%	-582	-2.7%
2014	22,584	900	4.2%	21,959	858	4.1%	-624	-2.8%
2015	23,048	465	2.1%	22,412	453	2.1%	-636	-2.8%
2016	23,302	254	1.1%	22,675	263	1.2%	-627	-2.7%
2017	23,543	241	1.0%	22,902	227	1.0%	-641	-2.7%
2018	23,794	251	1.1%	23,151	249	1.1%	-643	-2.7%
2019	24,044	250	1.0%	23,403	252	1.1%	-641	-2.7%
2020	24,305	261	1.1%	23,667	264	1.1%	-638	-2.6%
2021	24,595	290	1.2%	23,952	285	1.2%	-643	-2.6%

CALENDAR NET ENERGY FOR LOAD (GWH)

AVERAGE ANNUAL GROWTH

History (1981 to 2011)	2,058	2.7%
Based on 2011 TYSP (2011 to 2021)	2,415	2.0%
Based on Current Forecast (2011 to 2021)	2,191	1.8%

HISTORY

		Growth	
		Absolute	%
1981	49,997	1,597	3.3%
1982	50,375	378	0.8%
1983	52,600	2,225	4.4%
1984	53,033	433	0.8%
1985	56,236	3,203	6.0%
1986	58,453	2,218	3.9%
1987	61,997	3,544	6.1%
1988	65,136	3,139	5.1%
1989	70,299	5,163	7.9%
1990	71,528	1,229	1.7%
1991	73,426	1,897	2.7%
1992	73,321	-105	-0.1%
1993	76,074	2,753	3.8%
1994	80,673	4,599	6.0%
1995	84,546	3,873	4.8%
1996	85,028	482	0.6%
1997	87,056	2,028	2.4%
1998	92,802	5,747	6.6%
1999	91,683	-1,119	-1.2%
2000	96,313	4,630	5.1%
2001	98,612	2,299	2.4%
2002	104,657	6,045	6.1%
2003	108,214	3,557	3.4%
2004	108,122	-93	-0.1%
2005	111,443	3,321	3.1%
2006	113,406	1,963	1.8%
2007	114,532	1,126	1.0%
2008	111,100	-3,432	-3.0%
2009	111,237	137	0.1%
2010	114,601	3,364	3.0%
2011*	111,735	-2,866	-2.5%

*2011 is an estimated actual

FORECAST

	Based on 2011 TYSP	Growth		Current	Growth		Delta	
	Forecast	Absolute	%	Forecast	Absolute	%	Absolute	%
2012	112,517	782	0.7%	111,156	-579	-0.5%	-1,360	-1.2%
2013	114,647	2,130	1.9%	112,487	1,331	1.2%	-2,160	-1.9%
2014	121,035	6,388	5.6%	117,982	5,495	4.9%	-3,052	-2.5%
2015	123,610	2,575	2.1%	121,407	3,425	2.9%	-2,203	-1.8%
2016	125,593	1,983	1.6%	123,310	1,903	1.6%	-2,283	-1.8%
2017	127,251	1,658	1.3%	124,806	1,496	1.2%	-2,445	-1.9%
2018	128,910	1,659	1.3%	126,270	1,464	1.2%	-2,640	-2.0%
2019	130,679	1,769	1.4%	127,918	1,648	1.3%	-2,761	-2.1%
2020	133,121	2,442	1.9%	130,631	2,713	2.1%	-2,490	-1.9%
2021	135,881	2,760	2.1%	133,646	3,015	2.3%	-2,235	-1.6%