

**BEFORE THE  
FLORIDA PUBLIC SERVICE COMMISSION**

**DOCKET NO. 070602-EI  
FLORIDA POWER & LIGHT COMPANY**

**IN RE: FLORIDA POWER & LIGHT COMPANY'S  
PETITION TO DETERMINE NEED FOR  
EXPANSION OF ELECTRICAL POWER PLANTS**

**DIRECT TESTIMONY & EXHIBITS :**

**LEONARDO E. GREEN**

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1                   **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2                   **FLORIDA POWER & LIGHT COMPANY**

3                   **TESTIMONY OF LEONARDO E. GREEN**

4                   **DOCKET NO. 07\_\_\_\_-EI**

5                   **SEPTEMBER 17, 2007**

6

7   **Q.    Please state your name and business address.**

8    A.    My name is Leonardo E. Green, and my business address is 9250 West Flagler  
9        Street, Miami, Florida 33174.

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

11   A.    I am employed by Florida Power & Light Company (FPL) as the Manager of  
12        Load Forecasting within the Finance Business Unit.

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

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

16 **Q.    Please describe your educational background and professional experience.**

17   A.    I earned a Doctor of Philosophy Degree in Economics from the University of  
18        Missouri-Columbia in 1983. Prior to joining FPL, I was employed by Seminole  
19        Electric Cooperative as the Load Forecasting Supervisor in the Rates and  
20        Corporate Planning Department. In April of 1986, I joined FPL's Research,  
21        Economics and Forecasting Department, as a Senior Forecasting Analyst. My  
22        responsibilities included preparation, review, and presentation of the economic,  
23        customer, and load forecasts for FPL. In August of 1986, I was promoted to

1 Supervisor of Economics and Forecasting within the Research, Economics and  
2 Forecasting Department. In 1991, I became Manager of Load Forecasting within  
3 the Resource Assessment and Planning Business Unit. I am responsible for  
4 coordinating the entire economic and load forecasting effort at FPL.

5

6 In addition, I have held several Assistant Professorships of Economics and  
7 Statistics as well as research and teaching positions with the University of  
8 Missouri, Florida International University, and the University of South Florida.

9 **Q. Are you sponsoring any exhibits in this case?**

10 A. Yes. I am sponsoring Exhibits LEG-1 through LEG-12, which are attached to my  
11 direct testimony.

12 Exhibit LEG-1 Total Average Customers

13 Exhibit LEG-2 Summer Peak Load Per Customer

14 Exhibit LEG-3 Summer Peak Load

15 Exhibit LEG-4 Winter Peak Load Per Customer

16 Exhibit LEG-5 Winter Peak Load

17 Exhibit LEG-6 Summer Peak Weather

18 Exhibit LEG-7 Florida Real Personal Income

19 Exhibit LEG-8 Net Energy for Load Use Per Customer

20 Exhibit LEG-9 Net Energy for Load

21 Exhibit LEG-10 Non-Agricultural Employment

22 Exhibit LEG-11 Real Price of Electricity

23 Exhibit LEG-12 Impact of the 2005 Energy Policy Act Adjustment

1 **Q. What is the purpose of your testimony?**

2 A. The purpose of my testimony is to describe FPL's load forecasting process,  
3 identify the underlying methodologies and assumptions, and present the forecasts  
4 used in this proceeding. I will also explain how these forecasts were developed  
5 and why they are reasonable.

6 **Q. Please summarize your testimony.**

7 A. My testimony addresses FPL's summer and winter peak demand forecasts, the  
8 energy sales forecast and the customer forecast. I explain how these forecasts are  
9 developed and why they are reasonable. My testimony also demonstrates that  
10 peak demand will continue to show strong growth in both summer and winter  
11 peaks. FPL is expected to add approximately 8,272 MW of summer peak demand  
12 and 9,626 MW of winter peak demand between 2006 and 2020. My testimony  
13 also shows that FPL is projecting continued strong customer growth in the next  
14 fifteen years, and energy sales to increase by 3.9% in 2007, and 3.8% in 2008.  
15 Over the longer-term, 2009 to 2020, the annual average growth rate in sales is  
16 estimated to be approximately 2.9%.

17

18 **DESCRIPTION OF FPL'S EXISTING CUSTOMER BASE**

19

20 **Q. Please describe FPL's service territory.**

21 A. FPL's service territory covers approximately 27,650 square miles within  
22 peninsular Florida, which ranges from St. Johns County in the north to Miami-

1 Dade County in the south, and westward to Manatee County. FPL serves  
2 customers in 35 counties within this region.

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

4 A. FPL currently serves more than 4.5 million customers, as shown on Exhibit LEG-  
5 1, and a population of more than 8 million people.

6

7 **FPL'S LOAD FORECASTING PROCESS AND RESULTS**

8

9 **Q. Please describe FPL's forecasting process.**

10 A. FPL relies on econometrics as the primary tool for projecting future levels of  
11 customer growth, energy sales, and peak demand. An econometric model is a  
12 numerical representation, obtained through statistical estimation techniques, of the  
13 degree of relationship between a dependent variable, e.g., the level of energy  
14 sales, and the independent (explanatory) variables, which I describe in the  
15 following paragraph. A change in any of the independent variables will result in a  
16 corresponding change in the dependent variable. On a historical basis,  
17 econometric models have proven to be highly effective in explaining changes in  
18 customer and load growth. These models have consistently been used by FPL for  
19 various planning purposes and the modeling results have been reviewed and  
20 accepted by this Commission in past regulatory proceedings.

21

22 Predicting the level of the dependent variable in future years requires assumptions  
23 regarding the levels of the explanatory variables. Explanatory variables include

1 assumptions on the future number of customers, projected economic conditions,  
2 weather, and the price of electricity, each of which is obtained from various  
3 sources. For example, the future number of customers is based on population  
4 projections produced by the University of Florida's Bureau of Economic and  
5 Business Research (BEBR). The projected economic conditions are secured from  
6 reputable economic forecasting firms such as Global Insight (formerly known as  
7 DRI-WEFA). The weather factors are obtained from the National Oceanographic  
8 and Atmospheric Administration (NOAA). The price of electricity reflects the  
9 Commission-approved base rates and adjustment clauses.

10 **Q. Does FPL assess the reasonableness of the explanatory variables?**

11 A. Yes. FPL has reviewed and assessed the assumptions regarding the explanatory  
12 variables and has concluded they are reasonable. This ensures that the forecast of  
13 customers, energy sales, and peak demand are both realistic and rational. A  
14 comparison of the historical growth in real personal income for Florida over  
15 different periods with Global Insight's projected real personal income is shown on  
16 Exhibit LEG-7. The comparison indicates that Global Insight's forecast of Florida  
17 real personal income for the period between 2006 and 2008 may not be in line  
18 with history. Based on this analysis, FPL concluded that the projected growth in  
19 real personal income for Florida produced by Global Insight was overly optimistic  
20 and would lead to incremental needs in capacity that may not be realistic. To  
21 account for this fact, in preparing this load forecast FPL used an annual growth in  
22 real personal income for Florida similar to the growth observed during the last  
23 five years, which averaged 3.2% per year.

1 **FPL'S CUSTOMER GROWTH FORECAST**

2

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

4 A. The growth in customers in FPL's service territory is the primary driver of the  
5 growth in the level of energy sales and peak demand. In order to project the  
6 growth in the number of customers, FPL relies on population projections  
7 produced by BEBR. Once a year, BEBR updates its population projections for  
8 the state of Florida on a county-by-county basis. FPL's customer growth forecast  
9 is based on BEBR's population projections for counties in FPL's service area,  
10 released in April of 2006. BEBR includes the potential effects of depressed  
11 customer growth as a result of the 2004 and 2005 hurricane seasons.

12 **Q. What is FPL's customer growth forecast?**

13 A. FPL is projecting an annual average increase of 84,768 new customers for the  
14 next 14 years as shown on Exhibit LEG-1. The annual average projected growth  
15 of 84,768 in new customers is slightly lower than the historical annual average of  
16 85,882 for the years 1996-2006. These historical customer growth numbers  
17 reflect the effect of the 2004 and 2005 hurricanes on customer growth. Absent  
18 the elevated number of hurricanes, the historical customer growth would have  
19 been higher. The projected customer growth is in line with the population growth  
20 assumptions prepared by the University of Florida.

21 **Q. In addition to population changes, what other factors are considered in**  
22 **projecting FPL's customer growth?**

1 A. Factors such as the performance of Florida's economy, affordability index, job  
2 opportunities, and international conflicts are also important determinants of  
3 growth in FPL's service territory. Florida is still experiencing a period of robust  
4 growth in population and this expansion has resulted in a surge of construction of  
5 new homes to house this population. The optimistic outlook in the housing  
6 market resulted in an over-building of new residences but given the strong growth  
7 in population, real estate experts agree that this excessive stock of homes should  
8 be absorbed in the next 12 to 18 months. Anecdotally, it is also mentioned that  
9 baby boomers are taking advantage of the relatively low mortgage rates to secure  
10 housing for their upcoming retirement. In addition, the value of the dollar vis-à-  
11 vis the Euro suggests that Florida's real estate market is attractive for foreign  
12 investors. This expanded demand for housing and the jobs created are responsible  
13 in part for the recent strong growth in the number of FPL customers. However,  
14 this increased demand, together with higher insurance costs, property taxes and  
15 the high price of housing in Florida, has drastically raised the cost of living and  
16 affordability index for Florida. This increase in the affordability index and higher  
17 inflation, primarily as a result of higher fuel prices, is limiting the potential  
18 growth in customers to a certain extent. This explains why projected customer  
19 growth is slightly lower than the customer growth experienced in recent years in  
20 the face of a more favorable state economy.



1 **Q. What is FPL's most current customer forecast?**

2 A. FPL's most current customer forecast is shown in Exhibit LEG-1. This is a result  
3 of an updated projection of population from BEBR as well as observed recent  
4 history of customer growth in the FPL service territory.

5 **Q. Is FPL's customer growth forecast reasonable?**

6 A. Yes. The forecast incorporates the latest available population projections by the  
7 University of Florida at the time the forecast was developed and the other factors I  
8 have discussed.

9

10 **FPL'S PEAK DEMAND FORECAST**

11

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

13 A. The rate of absolute growth in FPL system load has been a function of a larger  
14 customer base, weather conditions, continued economic growth, changing  
15 patterns of customer behavior (including an increasing stock of electricity-  
16 consuming appliances) and more efficient heating and cooling appliances. FPL  
17 developed the peak demand models to capture these behavioral relationships.

18

19 The summer peak forecast is developed using an econometric model. The model  
20 is a per-customer model that includes: the real price of electricity, Florida real  
21 personal income as an economic driver, average temperature on peak day and a  
22 heat buildup variable weather factor consisting of the sum of the cooling degree  
23 hours during the peak day and three prior days. The forecasted summer peak

1 usage per customer is shown on Exhibit LEG-2. The forecasted summer peak  
2 usage per customer is multiplied by the projected total customers to derive FPL's  
3 system summer peak as shown on Exhibit LEG-3.

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

5 A. Like the system summer peak model, the winter peak model is also an  
6 econometric model. The winter peak model is a per-customer model that includes  
7 two weather-related variables: the square of the minimum temperature on the  
8 peak day and Heating Degree Hours from the prior day until 9:00 a.m. of the peak  
9 day. In addition, the model also has an economic term, Florida real personal  
10 income. The winter peak usage per customer is shown on Exhibit LEG-4. The  
11 projected winter peak load per customer value is multiplied by the total customers  
12 to derive FPL's system winter peak as shown on Exhibit LEG-5.

13 **Q. What is FPL's process to forecast monthly peak demands?**

14 A. The forecasting process consists of the following:

- 15 - Development of the historical seasonal factor for each month by using  
16 ratios of historical monthly peaks to seasonal peak (summer = April-  
17 October; winter = November-March).
- 18 - Application of the monthly ratios to their respective seasonal peak forecast  
19 (summer and winter peaks) to derive the peak forecast by month. This  
20 process assumes that the seasonal factors remain unchanged over the  
21 forecasting period.

1 Monthly peak forecasts are used in generation planning and also provide  
2 information for the scheduling of maintenance for power plants and fuel  
3 budgeting.

4 **Q. What were FPL's actual peaks during 2006?**

5 A. FPL experienced a summer peak of 21,819 MW in 2006, which is 457 MW lower  
6 than the all time record peak for FPL's service territory of 22,276 MW  
7 experienced in 2005. This equates to a decrease of 2.1% from the 2005 summer  
8 peak, and is shown on Exhibit LEG-3. The winter peak for 2005/2006 was only  
9 19,682 MW, below the all time high winter peak of 2002/2003, which was 20,190  
10 MW, as shown on Exhibit LEG-5.

11 **Q. Please summarize the peak demand forecasts.**

12 A. Over 14 years the summer peak demand is projected to grow from 21,819 MW in  
13 2006 to 30,091 MW by the year 2020, or 8,272 MW in absolute terms as shown  
14 in Exhibit LEG-3. By the year 2018, the projected summer peak should reach  
15 28,737 MW, a growth of 6,918 MW relative to 2006. By 2020, the summer peak  
16 is expected to increase by 1,354 MW from 2018 as shown in Exhibit LEG-3. The  
17 winter peak grows from 19,682 MW in the winter of 2005/2006 to 27,994 MW in  
18 the winter of 2017/2018, or 8,312 MW in absolute terms as shown in Exhibit  
19 LEG-5. For the winter of 2019/2020 the winter peak demand is estimated to  
20 reach 29,308 MW, or a growth of 9,626 MW relative to 2006. The apparent  
21 accelerated growth in the winter peak forecast is a reflection of the fact that in the  
22 2005/2006 winter season, FPL's service territory did not experience a "normal"

1 winter peak, which diminishes the base value against which these projected peaks  
2 are compared.

3 **Q. What estimated impact did the 2005 Energy Policy Act have on FPL summer**  
4 **peak demand forecast?**

5 A. In 2005, Congress passed the Energy Policy Act mandating certain appliance  
6 efficiency standards and insulation for new construction, which is expected to  
7 reduce energy demand in the future. FPL estimated the 2005 Energy Policy Act  
8 would reduce the projected peak demand from approximately 133 MW in 2006 to  
9 as much as 1,256 MW in the year 2014. The annual estimated impact of the 2005  
10 Energy Policy Act is shown on Exhibit LEG-12. To arrive at FPL's projected  
11 peak demand values used in this proceeding, the estimated impacts were deducted  
12 as line item adjustments from the originally projected peaks for the corresponding  
13 years.

14 **Q. What weather assumptions does FPL assume for the summer peak**  
15 **projections?**

16 A. In putting together the summer peak demand forecast, FPL relies on a normal  
17 weather outlook. Normal weather is defined as an average of the hourly  
18 temperatures for summer peak days over the years 1948 through 2006. The actual  
19 temperature values for 1985 to 2006 and those projected from 2007 onward are  
20 shown on Exhibit LEG-6.

21 **Q. Is FPL's need for power driven by the demand forecast, the sales forecast, or**  
22 **both?**

23 A. FPL's need for power, i.e., the amount of resources needed, is driven by the peak

1 demand forecast because FPL's needs are currently determined by the summer  
2 reserve margin criterion. While FPL uses both reserve margin and Loss of Load  
3 Probability reliability criteria, the reserve margin criterion driven by the peak load  
4 forecast has established the magnitude of the resource need for many years.

5 **Q. Is FPL's load forecast reasonable for planning purposes?**

6 A. Yes. FPL's load forecast is based on reasonable assumptions, is consistent with  
7 historical experience, and is consistent with methodologies previously approved  
8 by the Commission.

9

10 **FPL'S ENERGY SALES FORECAST**

11

12 **Q. Please describe the process FPL used to forecast energy sales.**

13 A. The forecast of energy sales consists of three steps. First, an econometric model  
14 is developed for total Net Energy for Load (NEL), which is energy generated net  
15 of plant use. An econometric model for NEL is more reliable than models for  
16 billed energy sales because the explanatory variables can be better matched to  
17 usage. This is so because the NEL data does not have to be attuned to account for  
18 billing cycle adjustments, which might distort the real time match between the  
19 production and consumption of electricity.

20

21 Next, a line loss factor and a billing cycle adjustment are applied to the NEL to  
22 arrive at total use of electricity by the customer. Finally, revenue class models are

1 developed to distribute the forecast of total end-use sales of electricity to the  
2 different revenue classes, i.e., residential, commercial, and industrial.

3  
4 To project energy sales by revenue class, separate models for the residential,  
5 commercial, and industrial revenue classes are developed. These revenue class  
6 models are developed to obtain an objective allocation of the total energy sales  
7 among FPL's different revenue classes. The sum of the sales for all revenue  
8 classes will result in total energy sales. The energy sales for each revenue class  
9 are then adjusted to reflect the total energy sales derived from the NEL model.

10 **Q. What are the primary inputs to determine the growth in energy sales?**

11 A. The growth in energy sales comes from the overall growth in the number of new  
12 customers as shown on Exhibit LEG-1 and use per customer as shown on Exhibit  
13 LEG-8. The product of per capita use and the number of customers yields the  
14 NEL for a given period as shown in Exhibit LEG-9. The per capita use of  
15 electricity and the increased number of new customers are both linked directly to  
16 the performance of the local and national economies. When the economy is  
17 booming, the use of electricity increases in all sectors. A strong economy creates  
18 new jobs that attract new customers. Under these conditions, new households  
19 develop, including those of retirees from other states. However, the reverse also  
20 holds true. If the economy is performing poorly, customers with reduced incomes  
21 are more apprehensive as to expenditures and tend to restrict their consumption of  
22 goods and services. Electricity demand and sales slacken when incomes fall. Job  
23 contractions reduce the number of new customers coming to Florida seeking

1 employment opportunities, and new household formations are postponed. FPL  
2 relies on the outlook for the state and national economy produced by Global  
3 Insight.

4 **Q. What were the basic economic assumptions included in the forecast?**

5 A. Florida's economy has continued to grow at a strong pace and is expected to  
6 continue this trend into the foreseeable future. The strong population growth is  
7 largely due to baby boomers approaching retirement and the availability of jobs.  
8 Florida has been outperforming the national economy, as shown in Exhibit LEG-  
9 10, and that pattern is projected to continue. The strong population growth will  
10 result in increased demand for various services and new homes; thus, these two  
11 sectors are leading the growth for Florida's economy. This forecast also reflects  
12 that, as a consequence of the hurricanes in 2004 and 2005, there will still be  
13 substantial reconstruction activity and infusion of insurance funds into the local  
14 economy. Furthermore, the reconstruction activity fuels the manufacturing sector  
15 to service this reconstruction with construction material, furniture and  
16 transportation equipment.

17 **Q. What is the price of electricity assumed in the forecast?**

18 A. The real price of electricity assumed is shown in Exhibit LEG-11. The real price  
19 of electricity is substantially higher in the early and latter part of the projected  
20 period. The forecast of real price of electricity reflects the projected fuel prices  
21 and inflation factor used in this proceeding.

1 **Q. What is FPL's energy sales forecast?**

2 A. In 2006, due primarily to mild weather and high price of electricity, FPL's energy  
3 use per customer was - 0.4% below 2005, but with a projected increase of 1.9% in  
4 2007, and 1.7% in 2008, as shown in Exhibit LEG-8. The longer term compound  
5 annual average growth in use per customer is projected to be 1.2% annually after  
6 2009. Customer growth was projected at 2.0% for 2007 and 2.1% for 2008 and  
7 then an average of 1.7% for the next 12 years. Combining the energy use per  
8 customer and the growth in customers, yields a growth in energy sales estimated  
9 at 3.9% in 2007, and 3.8% in 2008, and then an average of 2.9% for the next 12  
10 years, as shown in Exhibit LEG-9.

11 **Q. Is FPL's forecast of energy sales reasonable?**

12 A. Yes. A forecast is considered reasonable if good judgment is used in estimating  
13 (availing oneself of the appropriate and most credible assumptions on hand) and  
14 in testing the model and if the results or outputs make sense when compared to  
15 prior similar situations. FPL followed this approach in preparing the forecast.

16

17 The models employed by FPL have good descriptive statistics with high degrees  
18 of statistical significance. FPL is confident that the relationship that exists  
19 between the level of energy sales and the economy, weather, customers, price of  
20 electricity, and other variables have been properly assessed and numerically  
21 quantified.

22 **Q. Does this conclude your direct testimony?**

23 A. Yes.



## TOTAL AVERAGE CUSTOMERS

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### AVERAGE ANNUAL GROWTH

HISTORY (1996 to 2006)	85,882	2.2%
FORECAST (2007 to 2020)	84,768	1.7%

### HISTORY

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		GROWTH	
		ABSOLUTE	%
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	87,668	2.0%

### FORECAST

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		GROWTH	
		ABSOLUTE	%
2007	4,498,169	88,606	2.0%
2008	4,590,561	92,393	2.1%
2009	4,683,749	93,188	2.0%
2010	4,775,460	91,710	2.0%
2011	4,864,831	89,371	1.9%
2012	4,951,957	87,126	1.8%
2013	5,037,427	85,471	1.7%
2014	5,121,200	83,772	1.7%
2015	5,203,878	82,678	1.6%
2016	5,285,732	81,854	1.6%
2017	5,366,787	81,055	1.5%
2018	5,446,324	79,536	1.5%
2019	5,524,219	77,895	1.4%
2020	5,600,152	75,933	1.4%

**SUMMER PEAK LOAD PER CUSTOMER (KW)**

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**AVERAGE ANNUAL GROWTH**

HISTORY (1996 to 2006)	0.04	0.9%
FORECAST (2007 to 2020)	0.03	0.6%

**HISTORY**

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		GROWTH	
		ABSOLUTE	%
1996	4.54	(0.10)	-2.1%
1997	4.60	0.06	1.4%
1998	4.88	0.27	5.9%
1999	4.80	-0.07	-1.5%
2000	4.70	-0.11	-2.2%
2001	4.76	0.06	1.4%
2002	4.77	0.01	0.3%
2003	4.78	0.01	0.1%
2004	4.85	0.07	1.5%
2005	5.15	0.30	6.2%
2006	4.95	-0.21	-4.0%

**FORECAST**

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		GROWTH	
		ABSOLUTE	%
2007	4.95	0.00	0.0%
2008	4.96	0.01	0.2%
2009	5.00	0.04	0.9%
2010	5.03	0.02	0.5%
2011	5.06	0.03	0.7%
2012	5.07	0.01	0.2%
2013	5.08	0.01	0.2%
2014	5.10	0.02	0.3%
2015	5.14	0.05	0.9%
2016	5.19	0.04	0.8%
2017	5.23	0.05	0.9%
2018	5.28	0.04	0.8%
2019	5.32	0.04	0.8%
2020	5.37	0.05	1.0%

## SUMMER PEAK LOAD (MW)

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### AVERAGE ANNUAL GROWTH

HISTORY (1996 to 2006)	576	3.1%
FORECAST (2007 to 2020)	602	2.3%

### HISTORY

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		GROWTH	
		ABSOLUTE	%
1996	16,064	-108	-0.7%
1997	16,613	549	3.4%
1998	17,897	1,284	7.7%
1999	18,040	143	0.8%
2000	18,086	46	0.3%
2001	18,754	668	3.7%
2002	19,219	465	2.5%
2003	19,668	449	2.3%
2004	20,545	877	4.5%
2005	22,276	1,731	8.4%
2006	21,819	-457	-2.1%

### FORECAST

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		GROWTH	
		ABSOLUTE	%
2007	22,259	440	2.0%
2008	22,770	511	2.3%
2009	23,435	665	2.9%
2010	24,003	568	2.4%
2011	24,612	609	2.5%
2012	25,115	503	2.0%
2013	25,590	475	1.9%
2014	26,100	510	2.0%
2015	26,772	672	2.6%
2016	27,410	638	2.4%
2017	28,079	669	2.4%
2018	28,737	658	2.3%
2019	29,391	654	2.3%
2020	30,091	700	2.4%

**WINTER PEAK LOAD PER CUSTOMER (KW)**

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**AVERAGE ANNUAL GROWTH**

HISTORY (1996 to 2006)	-0.07	-1.4%
FORECAST (2007 to 2020)	0.02	0.4%

**HISTORY**

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		GROWTH	
		ABSOLUTE	%
1996	5.14	0.39	8.3%
1997	4.78	-0.36	-6.9%
1998	3.55	-1.24	-25.8%
1999	4.47	0.92	26.1%
2000	4.43	-0.04	-0.9%
2001	4.62	0.19	4.3%
2002	4.38	-0.25	-5.3%
2003	4.90	0.53	12.0%
2004	3.49	-1.41	-28.8%
2005	4.26	0.76	21.9%
2006	4.46	0.21	4.8%

**FORECAST**

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		GROWTH	
		ABSOLUTE	%
2007	4.95	0.48	10.8%
2008	4.93	-0.02	-0.3%
2009	4.94	0.01	0.1%
2010	4.94	0.00	0.1%
2011	4.94	0.00	0.1%
2012	4.95	0.00	0.1%
2013	4.95	0.01	0.1%
2014	4.96	0.01	0.2%
2015	5.01	0.04	0.9%
2016	5.05	0.04	0.9%
2017	5.09	0.04	0.9%
2018	5.14	0.05	0.9%
2019	5.19	0.05	0.9%
2020	5.23	0.05	0.9%

## WINTER PEAK LOAD (MW)

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### AVERAGE ANNUAL GROWTH

HISTORY (1996 to 2006)	143	0.8%
FORECAST (2007 to 2020)	543	2.1%

### HISTORY

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		GROWTH	
		ABSOLUTE	%
1996	18,252	1,689	10.2%
1997	16,490	-1,762	-9.7%
1998	13,060	-3,430	-20.8%
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	19,682	1,574	8.7%

### FORECAST

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		GROWTH	
		ABSOLUTE	%
2007	22,247	2,565	13.0%
2008	22,627	381	1.7%
2009	23,115	488	2.2%
2010	23,587	472	2.0%
2011	24,047	460	1.9%
2012	24,498	451	1.9%
2013	24,952	454	1.9%
2014	25,416	464	1.9%
2015	26,048	632	2.5%
2016	26,692	644	2.5%
2017	27,342	650	2.4%
2018	27,994	652	2.4%
2019	28,649	655	2.3%
2020	29,308	659	2.3%

### Summer Peak Weather

<u>Year</u>	<u>Average Temperature</u>	<u>Sum of Cooling Degree Hours</u>
1985	84.5	1,020
1986	83.1	1,053
1987	85.7	1,228
1988	83.9	1,065
1989	85.0	1,164
1990	84.5	1,176
1991	84.7	1,129
1992	84.9	1,135
1993	86.2	1,279
1994	84.9	987
1995	84.5	1,013
1996	84.4	1,147
1997	84.8	1,136
1998	86.0	1,227
1999	83.1	1,196
2000	83.0	1,122
2001	84.5	1,141
2002	83.3	1,115
2003	84.1	1,133
2004	84.4	1,065
2005	86.9	1,257
2006	85.0	1,208
2007	84.7	1,143
2008	84.7	1,143
2009	84.7	1,143
2010	84.7	1,143
2011	84.7	1,143
2012	84.7	1,143
2013	84.7	1,143
2014	84.7	1,143
2015	84.7	1,143
2016	84.7	1,143
2017	84.7	1,143
2018	84.7	1,143
2019	84.7	1,143
2020	84.7	1,143

**Florida Real Personal Income**

Historical Growth Rates	Annual Average Growth (Millions)	CAAGR (%)
1985 - 2005	14,081	3.9
1995 - 2005	16,979	3.9
2001 - 2005	15,507	3.2
Global Insight's Forecast Growth Rates		
2006 - 2020	30,455	4.2
Assumed Growth Rates		
2006 - 2020	21,897	3.3

**NET ENERGY FOR LOAD USE PER CUSTOMER (KWH)**

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**AVERAGE ANNUAL GROWTH**

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HISTORY (1996 to 2006)	145	0.7%
FORECAST (2007 to 2020)	344	1.2%

**HISTORY**

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		GROWTH	
		ABSOLUTE	%
1996	23,937	-129	-0.5%
1997	24,022	86	0.4%
1998	25,177	1,155	4.8%
1999	24,350	-827	-3.3%
2000	24,943	593	2.4%
2001	25,006	63	0.3%
2002	25,907	901	3.6%
2003	26,326	418	1.6%
2004	25,587	-738	-2.8%
2005	25,759	172	0.7%
2006	25,657	-102	-0.4%

**FORECAST**

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		GROWTH	
		ABSOLUTE	%
2007	26,133	476	1.9%
2008	26,582	448	1.7%
2009	26,959	378	1.4%
2010	27,327	368	1.4%
2011	27,702	375	1.4%
2012	28,077	375	1.4%
2013	28,264	187	0.7%
2014	28,559	295	1.0%
2015	28,881	322	1.1%
2016	29,240	359	1.2%
2017	29,474	233	0.8%
2018	29,770	297	1.0%
2019	30,067	297	1.0%
2020	30,474	407	1.4%



## NET ENERGY FOR LOAD (GWH)

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### AVERAGE ANNUAL GROWTH

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HISTORY (1996 to 2006)	2,814	2.9%
FORECAST (2007 to 2020)	4,109	2.9%

### HISTORY

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		GROWTH	
		ABSOLUTE	%
1996	84,993	1,032	1.2%
1997	86,852	1,859	2.2%
1998	92,663	5,811	6.7%
1999	91,460	-1,203	-1.3%
2000	95,989	4,529	5.0%
2001	98,404	2,415	2.5%
2002	104,141	5,737	5.8%
2003	108,388	4,247	4.1%
2004	108,093	-294	-0.3%
2005	111,301	3,207	3.0%
2006	113,137	1,837	1.7%

### FORECAST

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		GROWTH	
		ABSOLUTE	%
2007	117,551	4,414	3.9%
2008	122,024	4,473	3.8%
2009	126,270	4,246	3.5%
2010	130,499	4,229	3.3%
2011	134,766	4,267	3.3%
2012	139,038	4,273	3.2%
2013	142,379	3,341	2.4%
2014	146,257	3,878	2.7%
2015	150,291	4,035	2.8%
2016	154,556	4,264	2.8%
2017	158,179	3,623	2.3%
2018	162,140	3,961	2.5%
2019	166,097	3,957	2.4%
2020	170,661	4,563	2.7%



**REAL PRICE OF ELECTRICITY (¢/KWH)**

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**AVERAGE ANNUAL GROWTH**

HISTORY (1996 to 2006)	0.08	1.6%
FORECAST (2007 to 2020)	-0.03	-0.6%

**HISTORY**

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		GROWTH	
		ABSOLUTE	%
1996	4.71	0.39	8.3%
1997	4.59	-0.12	-2.5%
1998	4.37	-0.22	-4.9%
1999	4.10	-0.27	-6.1%
2000	3.98	-0.12	-2.9%
2001	4.55	0.56	14.1%
2002	4.07	-0.48	-10.5%
2003	4.32	0.25	6.2%
2004	4.43	0.11	2.4%
2005	4.55	0.12	2.7%
2006	5.53	0.98	21.6%

**FORECAST**

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		GROWTH	
		ABSOLUTE	%
2007	5.25	(0.28)	-5.0%
2008	4.89	-0.36	-6.9%
2009	4.40	-0.48	-9.9%
2010	4.22	-0.18	-4.2%
2011	3.86	-0.36	-8.5%
2012	3.84	-0.02	-0.5%
2013	3.94	0.10	2.5%
2014	3.97	0.03	0.7%
2015	4.03	0.06	1.5%
2016	4.25	0.22	5.4%
2017	4.38	0.14	3.2%
2018	4.56	0.18	4.2%
2019	4.77	0.20	4.4%
2020	4.85	0.08	1.8%

**IMPACT OF THE 2005 ENERGY POLICY ACT  
ADJUSTMENT**

	MW
2006	133
2007	259
2008	387
2009	518
2010	660
2011	806
2012	953
2013	1103
2014	1256
2015	1256
2016	1256
2017	1256
2018	1256
2019	1256
2020	1256