

ORIGINAL

BEFORE THE FLORIDA
PUBLIC SERVICE COMMISSION

DOCKET NO. 070098 -EI
FLORIDA POWER & LIGHT COMPANY

IN RE: FLORIDA POWER & LIGHT COMPANY'S
PETITION TO DETERMINE NEED FOR
FPL GLADES POWER PARK UNITS 1 AND 2
ELECTRICAL POWER PLANT

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DIRECT TESTIMONY & EXHIBIT OF:

C. DENNIS BRANDT

DOCUMENT NUMBER-DATE

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FPSC-COMMISSION CLERK

1 **BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

2 **FLORIDA POWER & LIGHT COMPANY**

3 **DIRECT TESTIMONY OF C. DENNIS BRANDT**

4 **DOCKET NO. 07 _____ - EI**

5 **JANUARY 29, 2007**

6

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

8 A. My name is C. Dennis Brandt, and my business address is 9250 West
9 Flagler Street, Miami, Florida 33174.

10 **Q. By whom are you employed and what position do you hold?**

11 A. I am employed by Florida Power & Light Company (FPL) as Director
12 of Product Management and Operations.

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

14 A. I am responsible for the life cycle management of FPL's products and
15 services. This includes overseeing the implementation and tracking of
16 the various Demand Side Management (DSM) programs offered to
17 residential and business customers.

18 **Q. Please describe your education and professional experience.**

19 A. I received a Bachelor of Science Degree in Industrial Engineering
20 from the University of Miami in 1978. I received my Masters Degree
21 in Industrial Engineering from the University of Miami in 1984. I am a
22 certified Professional Engineer in the State of Florida. I was hired by
23 FPL in 1979 in the Materials Management department and have

1 worked in positions of increasing responsibility in the areas of Load
2 Management, Commercial and Industrial Marketing, Residential and
3 General Business Marketing and Sales & Marketing Product Support.
4 In 1991, I was promoted to the position of Manager of Residential and
5 General Business Marketing Support. I held this position until 1993,
6 when I became the Manager of Commercial/Industrial Marketing
7 Support. In late 1996, I became the Manager of Sales & Marketing
8 Product Support, and in 1999, I assumed my current position.

9 **Q. Are you sponsoring an exhibit in this case?**

10 A. Yes. I am sponsoring an exhibit consisting of the following documents
11 which are attached to my direct testimony:

- 12 • Document No. DB-1 FPL Current FPSC DSM Goals
- 13 • Document No. DB-2 FPL DSM Programs & Measures

14 **Q. Are you sponsoring any part of the Need Study in this proceeding?**

15 A. Yes. I am co-sponsoring Section VII, Non-Generating Alternatives of
16 the Need Study, with Dr. Sim. In addition, I am sponsoring Appendix
17 L of the Need Study.

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

19 A. My testimony has five main points. First, I will provide a historical
20 overview of FPL's DSM initiatives. Second, I will discuss the current
21 maturity of DSM and its potential on FPL's system. Third, I will
22 outline the process used for setting DSM Goals. Fourth, I will provide
23 an overview of FPL's current DSM and demand-side renewable

1 efforts, including recent Commission-approved modifications to FPL's
2 DSM programs that have the effect of substantially increasing demand
3 and energy savings going forward. Fifth, I will advise whether there
4 are any available demand-side options that could eliminate the 2013
5 and 2014 capacity needs.

6

7 **I. Historical Overview of FPL's DSM Initiatives**

8

9 **Q. What is Demand Side Management?**

10 A. Demand Side Management, as used in my testimony, is the planning,
11 implementation and monitoring of utility programs designed to reduce
12 customer usage of electricity during peak demand periods in a cost-
13 effective manner. Utility programs falling under the umbrella of DSM
14 include load management, conservation, energy audits for all classes
15 of customers and research and development (R&D).

16

17 FPL uses both of the Commission-approved cost-effectiveness tests to
18 determine which DSM programs to offer to our customers – the Rate
19 Impact Measure (RIM) test and the Participant test. By offering only
20 those programs that are cost-effective, as measured by the RIM test, all
21 customers benefit by avoiding or deferring the need for new capacity
22 that results in lower electric rates than they would have otherwise had
23 in absence of the programs. In addition, DSM programs that are cost-

1 effective as measured by the Participant test ensure that the program
2 makes economic sense for customers who choose to participate in it.

3 **Q. When did FPL begin its DSM efforts?**

4 A. FPL has a long history of identifying, developing and implementing
5 DSM resources to cost-effectively avoid or defer the construction of
6 new power plants. FPL first began offering DSM programs in the late
7 1970s with the introduction of its Watt-Wise Home Program. FPL has
8 continued to develop and offer to our customers additional DSM
9 programs. These programs have included both conservation and load
10 management programs, targeting the residential and business markets.

11 **Q. Have FPL's DSM efforts progressed over time?**

12 A. Yes. FPL's portfolio of DSM programs has evolved over time. FPL
13 continually looks for new DSM opportunities as part of our research
14 and development activities. When a new DSM opportunity is
15 identified and projected to be cost-effective, FPL attempts to either
16 implement a new DSM program or incorporate this DSM opportunity
17 into one or more of our existing DSM programs. In addition, FPL has
18 modified DSM programs over time in order to maintain the cost-
19 effectiveness of the programs. This allows FPL to continue to offer the
20 most cost-effective programs available. On occasion, FPL has also
21 terminated DSM programs that were no longer cost-effective and
22 could not be modified to become cost-effective.

1 **Q. How effective has FPL been in implementing DSM, and what are**
2 **the resulting impacts of these efforts?**

3 A. FPL has been very successful in cost-effectively avoiding or deferring
4 new power plant construction using cost-effective DSM. Since the
5 inception of our programs, through the end of 2005, we have achieved
6 3,519 MW (at the generator) of summer peak demand reduction, 2,734
7 MW (at the generator) of winter peak demand reduction, 33,981 GWh
8 (at the generator) of energy savings and completed over 2,192,000
9 energy audits of our customers' homes and businesses.

10

11 This amount of peak demand reduction has eliminated the need for the
12 equivalent to ten power plants of 400 MW summer capacity each
13 (including the impacts for reserve margin requirements). Most
14 importantly, FPL has achieved this level of demand reduction without
15 penalizing customers who are non-participants in our DSM programs.
16 FPL has been able to avoid penalizing non-participating customers by
17 offering only DSM programs that reduce electric rates for all
18 customers, DSM participants and non-participants alike.

19 **Q. How do FPL's DSM efforts compare to those of other utilities?**

20 A. The U.S. Department of Energy reports on the effectiveness of utility
21 DSM efforts through its Energy Information Administration. Based on
22 the most current data available, which is for the year 2005, FPL is

1 ranked number one nationally for cumulative conservation
2 achievement and number four in load management.

3

4 **II. Current Maturity of DSM and Its Potential on FPL's System**

5

6 **Q. Of the potential markets available to FPL for DSM initiatives, are**
7 **there technologies or market segments that have limited potential?**

8 A. Yes. There are several areas where DSM-related technologies are
9 reaching market saturation and this directly impacts FPL's ability to
10 increase participation in many of our DSM programs. For FPL's load
11 management programs, it is critical to determine how much load
12 management is actually "usable" for an individual utility.
13 Consideration must be given to the system load shapes and
14 characteristics of load management measures, including control
15 strategies, length of the control periods and the payback effects once
16 load control is released. Based on this analysis, FPL's projected
17 amount of annual load management capability is very close to the
18 maximum usable amount.

19

20 Another area reaching saturation is installation of ceiling insulation for
21 residential customers. FPL's research has found that for the vast
22 majority of our customers, ceiling insulation levels above R-19
23 provide minimal additional energy savings. In 1982, the State of

1 Florida Energy Code was changed to require all new homes have at
2 least R-19 levels of ceiling insulation. FPL's residential building
3 envelope program has focused on that finite market of homes built
4 prior to this code change. As a consequence, the eligible market
5 shrinks as more pre-1982-built homes participate in our program.

6
7 Lastly, FPL's heating, ventilating and air conditioning (HVAC)
8 programs for residential and business customers are designed to
9 encourage customers to install equipment that is more efficient than
10 the State Energy Code. The goal of a utility HVAC program should be
11 to encourage customers to install more efficient equipment than they
12 would without the program. When the Code minimum efficiency level
13 becomes the same as the utility's program, then the impact of the
14 utility program is greatly diminished because the baseline energy
15 efficiency level is raised. This results in smaller impacts for
16 incremental efficiency gains for the utility program at a relative
17 increased cost. In 2006, the minimum efficiency standards for HVAC
18 equipment were increased significantly. For instance, the minimum
19 seasonal energy efficiency rating (SEER) for residential type air
20 conditioners increased from 10 to 13.

21 **Q. Has FPL continued to look for new DSM opportunities?**

22 **A.** Yes. FPL performs extensive DSM research and development. FPL
23 uses our Conservation Research and Development program as the

1 primary vehicle to examine a wide variety of technologies. From that
2 research FPL has been able to develop new programs that help further
3 the objectives of the Florida Energy Efficiency Conservation Act
4 (FEECA) by cost-effectively reducing the growth rate of weather
5 sensitive peak demand, reducing and controlling the growth rate of
6 energy consumption, increasing the conservation of expensive
7 resources and increasing the efficiency of the electrical system.
8 Several of the new programs that have emerged as a result of FPL's
9 Conservation Research and Development program include Residential
10 New Construction, Business Building Envelope and Business On Call.

11

12 **III. FPL/FPSC DSM Goal Setting Process**

13

14 **Q. Why are DSM goals established?**

15 A. FPL establishes annual DSM goals to meet the requirements of
16 FEECA and the Florida Administrative Code. Further, DSM Goals are
17 established for use in planning to cost-effectively meet the future
18 capacity needs of our customers. Our DSM goals are key inputs into
19 FPL's annual Integrated Resource Planning (IRP) process, which is
20 discussed in the testimony of Dr. Sim.

21 **Q. How frequently are FPL's DSM goals established?**

22 A. Every five years each utility submits for Commission approval, goals
23 for a ten year period that address overall residential kw and kwh goals

1 and overall business kW and kWh goals. FPL currently has
2 Commission-approved goals for the years 2005 through 2014.

3 **Q. When were FPL's current Commission-approved DSM goals**
4 **established?**

5 A. FPL's current goals were approved on August 9, 2004, in FPSC Order
6 No. PSC-04-0763-PAA-EG issued in Docket No. 040029-EG
7 (Consummating Order 04-0850-CO-EG issued September 1, 2004).

8 **Q. What are FPL's current DSM goals and how is the Company**
9 **performing?**

10 A. My Document No. DB-1 shows FPL's current Commission-approved
11 DSM goals and actual cumulative performance through 2005 (at the
12 meter). FPL was successful in meeting the summer peak MW
13 reduction and GWh energy reduction goals in 2005. From a capacity
14 planning perspective, the summer peak MW reduction goal is the most
15 critical because summer peak demand is the key driver of the need for
16 new capacity for FPL. FPL fell short of the winter peak MW
17 reduction goal in 2005 primarily because there were fewer participants
18 in the Residential Building Envelope program than planned, in part
19 due to limited resources resulting from an active hurricane season.
20 FPL expects to meet all approved DSM goals going forward.

21 **Q. How were FPL's current Commission-approved DSM goals**
22 **developed?**

23 A. FPL used a multi-step process to develop DSM goals. The first step

1 was to determine which measures should be evaluated for cost-
2 effectiveness. A total of 329 separate DSM measures were identified
3 for screening. In the next step of the process, all selected measures
4 were then screened for cost-effectiveness utilizing the RIM test for
5 cost-effectiveness with an assumption of no incentives. The
6 assumption of no incentives gives each measure the highest probability
7 of passing the RIM test. The RIM passing incentive level was next
8 determined for each measure and cost-effectiveness was then
9 determined using the Participant test. For those measures that were
10 found to be cost-effective as determined by the RIM and Participant
11 tests, annual market acceptance rates, or the achievable potential, was
12 identified based on cost-effective incentive levels. The results obtained
13 in this phase of the process were further analyzed to identify the most
14 cost-effective DSM portfolio for FPL's customers as part of FPL's IRP
15 process.

16
17 In summary, the goals FPL developed reflected the cost-effective
18 achievable potential projected by FPL for utility program measures
19 analyzed under the RIM and Participant tests.

20 **Q. What is the timing for the next FPSC DSM goal setting process?**

21 A. Although there has not been any formal communication from the
22 Commission in regards to a new goal setting procedure, the Florida
23 Administrative Code requires goals to be re-assessed every five years.

1 Our current goals cover the time period 2005 through 2014, with 2009
2 being the fifth year. Based on past experience, FPL expects the goal
3 setting process to be started no later than 2008.

4

5 **IV. FPL's Current DSM and Renewables Initiatives**

6

7 **Q. How has the Company endeavored to achieve the Commission-**
8 **approved DSM goals?**

9 A. As part of the goals setting process just discussed, FPL found 92
10 measures to be cost-effective under the RIM and Participant tests.
11 Those measures were packaged into comprehensive FPL programs as
12 part of the Company's DSM plan, which was also approved by the
13 Commission. FPL's DSM plan to meet our 2005-2014 goals was
14 approved by the Commission in Order Nos. PSC-05-0162-PAA-EG,
15 issued February 9, 2005 (Consummating Order No. PSC-05-0323-CO-
16 EG, issued March 21, 2005) and PSC-06-0025-FOF-EG, issued
17 January 10, 2006, in Docket No. 040029-EG.

18 **Q. Has FPL made any significant changes to its DSM plan that was**
19 **approved in Order Nos. PSC-05-0162-PAA-EG and PSC-06-0025-**
20 **FOF-EG?**

21 A. Yes. As previously discussed, FPL continually investigates additional
22 cost-effective DSM opportunities and requests Commission approval
23 of revisions to our DSM plan as appropriate. In 2005, FPL's forecast

1 of customer demand increased significantly. There were also changes
2 to minimum equipment efficiency standards and changing market
3 conditions. As a result of these changes, FPL performed a
4 comprehensive review of all our DSM programs, as well as other
5 potential measures.

6
7 In addition, in Order No. PSC-06-0555-FOF-EI, issued on June 28,
8 2006, in Docket No. 060225-EI, Petition for Determination of Need
9 for West County Units 1 and 2 in Palm Beach County, FPL agreed, as
10 a condition of approval of these two power plants, to file new and
11 revised DSM programs to increase demand and energy savings on our
12 system.

13 **Q. What were the results of FPL's comprehensive review of its DSM**
14 **programs?**

15 A. For the time period from 2006 through 2015, FPL identified an
16 additional 564 MW (at the generator) of summer demand reduction
17 impact – or greater than the equivalent of a medium-sized power plant.
18 Adding this 564 MW to FPL's current Commission approved DSM
19 goals of 802 MW, (at the generator) for 2006 through 2014, results in
20 1,366 MW of DSM summer peak demand reduction from 2006
21 through 2015.

1 To produce these savings, FPL requested Commission approval of
2 modifications to eight of our existing DSM programs. These
3 modifications included changing the minimum qualifying SEER for air
4 conditioners to reflect minimum mandated levels by the U.S.
5 Department of Energy, modifying incentive levels for numerous
6 program measures, enhancing program operating parameters and
7 adding new measures to existing programs. In addition, FPL requested
8 Commission approval of two new DSM programs -- Business Water
9 Heating and Business Refrigeration. FPL's R&D initiatives resulted in
10 adding demand control ventilation, light colored roof membranes and
11 refrigeration technologies to these DSM offerings.

12 **Q. Did the Commission approve FPL's request for approval of these**
13 **modifications?**

14 A. Yes. On June 26, 2006, the Commission issued Order No. PSC-06-
15 0535-PAA-EG in Docket No. 060286-EG (Consummating Order No.
16 PSC-06-0624-CO-EG issued July 20, 2006), approving changes to
17 FPL's residential and business HVAC programs. On September 1,
18 2006, the Commission issued Order No. PSC-06-0740-TRF-EI in
19 Docket No. 060408-EI (Consummating Order No. PSC-06-0801-CO-
20 EI, issued September 26, 2006) approving the remaining modifications
21 to FPL's DSM plan. The Commission found that approval of the
22 proposed modifications to FPL's DSM plan was expected to increase
23 FPL's system demand and energy savings, and would enable FPL's

1 DSM Plan to continue to meet the policy objectives of FEECA and
2 continue to be monitorable and cost-effective. My Document No. DB-
3 2 shows FPL's current Commission-approved DSM programs and
4 their corresponding measures.

5 **Q. Has FPL identified any other non-firm load that could help avoid**
6 **future capacity needs?**

7 A. Yes. FPL has several curtailable rate schedules. Historically, these
8 rate schedules required only a one-year commitment from a customer
9 who elected to receive service under its terms. With only a one-year
10 commitment, the peak load reduction from this group of customers
11 could not be used for capacity deferral because there was not adequate
12 time to plan for meeting the capacity needs of customers discontinuing
13 this non-firm service option. Recently, however, the Commission
14 approved FPL's request to increase the minimum term under these
15 rates to three years in Order No. PSC-06-0660-TRF-EI issued August
16 7, 2006 in Docket No. 060407-EI (Consummating Order PSC-06-
17 0736-CO-EI, issued August 31, 2006). The Commission found that
18 increasing the minimum term to three years would allow the demand
19 reduction capability of this group of customers to be treated as non-
20 firm load for capacity resource planning because FPL would have the
21 ability to plan and respond when non-firm load that was being deferred
22 by the avoided unit returns to the FPL system, thus helping to avoid or
23 defer the need for additional new capacity.

1 **Q. Did the change to curtailable rates identify additional non-firm**
2 **load for capacity resource planning?**

3 A. Yes. Based on FPL's current projections, curtailable rates will provide
4 an additional 39 MW (at the generator) of peak demand reduction
5 through 2015. This 39 MW is included in FPL's plan of 1,366 MW of
6 summer peak demand reduction through 2015.

7 **Q. What are FPL's current Commission-approved DSM programs?**

8 A. FPL's current DSM Plan consists of seven residential DSM programs
9 and ten business DSM programs.

10

11 The residential DSM programs are as follows:

12 **Residential Conservation Service:** This is an energy audit program
13 designed to assist residential customers in understanding how to make
14 their homes more energy-efficient through the installation of
15 conservation measures/practices.

16 **Residential Building Envelope:** This program encourages the
17 installation of energy-efficient ceiling insulation, reflective roofs and
18 roof membranes in residential dwellings that utilize whole-house
19 electric air conditioning.

20 **Duct System Testing and Repair:** This program encourages demand
21 and energy conservation through the identification of air leaks in
22 whole-house air conditioning duct systems and by the repair of these
23 leaks by qualified contractors.

1 **Residential Air Conditioning:** This is a program to encourage
2 customers to purchase higher efficiency central cooling and heating
3 equipment.

4 **Residential Load Management (On-Call):** This program offers load
5 control of major appliances/household equipment to residential
6 customers in exchange for monthly electric bill credits.

7 **New Construction (BuildSmart):** This program encourages the
8 design and construction of energy-efficient homes that cost-effectively
9 reduce coincident peak demand and energy consumption.

10 **Residential Low Income Weatherization:** This program addresses
11 the needs of low-income housing retrofits by providing monetary
12 incentives to various housing authorities, including weatherization
13 agency providers (WAPS), non-weatherization agency providers (non-
14 WAPS) and other providers approved by FPL. The incentives are used
15 by these providers to leverage their funds to increase the overall
16 energy efficiency of the homes they are retrofitting.

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FPL's business DSM programs are as follows:

Business Energy Evaluation: This program encourages energy efficiency in both new and existing businesses by identifying DSM opportunities and providing recommendations to business customers.

Business Heating, Ventilating and Air Conditioning: This program encourages the use of high-efficiency HVAC systems for business customers.

Business Efficient Lighting: This program encourages the installation of energy-efficient lighting measures for business customers.

Business Custom Incentive: This program encourages business customers to implement unique energy conservation measures or projects not covered by other FPL programs.

Commercial/Industrial Load Control: This program reduces peak demand by controlling customer loads of 200 kW or greater during periods of extreme demand or capacity shortages in exchange for monthly electric bill credits. (This program was closed to new participants in 2000).

Commercial Demand Reduction: This program, which started in 2002, is similar to the Commercial/Industrial Load Control program mentioned above. It reduces peak demand by controlling customer loads of 200 kW or greater during periods of extreme demand or capacity shortages in exchange for monthly electric bill credits.

Business Building Envelope: This program encourages the

1 installation of energy-efficient building envelope measures such as
2 roof/ceiling insulation, reflective roof coatings and window treatments
3 for business customers.

4 **Business On Call:** This program offers load control of central air
5 conditioning units to both small non-demand-billed and medium
6 demand-billed business customers in exchange for monthly electric
7 bill credits.

8 **Business Water Heating:** This program encourages the installation of
9 energy-efficient water heating equipment such as heat pump water
10 heaters and heat recovery units for business customers and will be
11 effective February 1, 2007.

12 **Business Refrigeration:** This program encourages the installation of
13 qualifying controls and equipment that reduce electric strip heater
14 usage in refrigeration equipment for business customers and will be
15 effective February 1, 2007.

16 **Q. Has FPL engaged in demand-side activities in support of**
17 **renewables?**

18 A. Yes. My testimony focuses on demand-side renewables. Mr. Silva's
19 testimony discusses FPL's supply-side renewables activities. FPL has
20 been a leader in examining ways to utilize renewable energy
21 technologies to meet our customers' current and future needs. FPL's
22 Conservation Water Heating Program, first implemented in 1982,
23 offered incentive payments to customers choosing solar water heaters.

1 Before the program was ended (due to the fact that it was no longer
2 cost-effective), FPL paid incentives to approximately 48,000
3 customers who installed solar water heaters.

4
5 In the mid-1980s, FPL introduced another renewable energy program.
6 FPL's Passive Home Program was created in order to broadly
7 disseminate information about passive solar building design
8 techniques which are most applicable in Florida's climate. During its
9 existence, this program was popular and received a U.S. Department
10 of Energy award for innovation. The program was eventually phased
11 out due to revisions of the Florida Model Energy Building Code. The
12 revision was brought about in part by FPL's Passive Home Program.

13
14 In early 1991, FPL received approval from the Commission to conduct
15 a research project to evaluate the feasibility of using small
16 photovoltaic (PV) systems to directly power residential swimming
17 pool pumps. This research project was completed with mixed results.
18 Some of the performance problems identified in the test may be
19 solvable, particularly when new pools are constructed. However, the
20 high cost of PV, the significant percentage of sites with unacceptable
21 shading and various customer satisfaction issues remain as barriers to
22 wide acceptance and use of this particular solar application.

1 More recently, FPL has analyzed the feasibility of encouraging
2 utilization of PV in another, potentially much larger way. FPL's basic
3 approach did not require all of our customers to bear PV's high cost,
4 but allowed customers who are interested in facilitating the use of
5 renewable energy the means to do so. FPL's initial effort to
6 implement this approach allowed customers to make voluntary
7 contributions into a separate fund that FPL used to make PV purchases
8 in bulk quantities. FPL began the effort in 1998 and received
9 approximately \$89,000 in contributions (that significantly exceeded
10 the goal of \$70,000). FPL purchased PV modules and installed them at
11 FPL's Martin Plant site.

12
13 In 2000, FPL launched the Photovoltaic Research, Development and
14 Education Project. This demonstration project's objectives were to:
15 increase the public awareness of roof tile PV technologies, provide
16 data to determine the durability of this technology and its impact on
17 FPL's electric system, collect demand and energy data to better
18 understand the coincidence between PV roof tile system output and
19 FPL's system peaks (as well as the total annual energy capabilities of
20 roof tile PV systems) and assess the homeowner's financial benefits
21 and costs of PV roof tile systems. This project was completed in 2003.

1 In November of 2004, FPL launched its Green Power Pricing Research
2 Project (GPPRP), that was marketed as the Sunshine Energy®
3 program. The object of the project was to allow residential customers
4 to sign up voluntarily and pay for energy produced by renewable
5 resources, thus fostering the development of supplies of renewable
6 energy that would not otherwise be developed. GPPRP participants
7 paid a monthly premium of \$9.75 per month for a 1,000 kWh block of
8 renewable energy attributes. To supply the renewable energy for the
9 GPPRP, FPL entered into a contract with a supplier for the purchase of
10 tradable renewable energy credits (TRECs). In addition, for every
11 10,000 participants, FPL agreed to have built 150 kw of photovoltaic
12 capacity in Florida.

13
14 In its short two and one half year history, the GPPRP became one of
15 the top five programs in the country with more than 25,000 customers
16 enrolled. The GPPRP purchased almost 225 GWhs of TRECs as of
17 year end 2005 making it the fourth largest renewable energy program
18 in the country. It also received the 2005 Green Power Leadership
19 Award from the U.S. Department of Environmental Protection and the
20 Department of Energy.

21
22 Solar photovoltaic projects are being built through the GPPRP.
23 Construction of a 250 kW site in Sarasota is currently in the permitting

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process with construction expected to be completed in early 2007. There are also several other smaller projects underway that will add additional photovoltaic capacity.

On September 17, 2006 FPL filed a petition with the Commission to convert the GPPRP to a permanent program and to extend the program to business customers. On December 1, 2006, the Commission issued Order No. PSC-06-0924-TRF-EI in Docket No. 060577-EI approving this request.

Q. Are there any other major initiatives that FPL has taken into account to address energy conservation?

A. The United States Energy Policy Act of 2005 mandates specific energy efficiency standards and is expected to result in the avoidance of as much as 1,256 MW of capacity needs for FPL by 2014. As Dr. Green describes in his testimony, this was taken into account in determining FPL's capacity needs.

V. Conclusion - Ability to satisfy capacity need through DSM

Q. Has FPL identified all of the cost-effective demand-side option potential for the 2006 through 2015 time frame?

A. Yes. As discussed above, FPL recently completed a comprehensive review of all our DSM programs. This has resulted in Commission

1 approval of extensive modifications to eight DSM programs, as well as
2 two new programs. In addition, the Commission has approved
3 modifications to FPL's curtailable rates so that they can now be
4 considered in FPL's IRP process, thus helping to avoid or defer the
5 need for additional new capacity. These changes have resulted in
6 1,366 MW (at the generator) of non-generation potential from 2006
7 through 2015.

8 **Q. Has FPL identified any conservation, load management or**
9 **demand-side renewables options that would lead to a significant**
10 **increase in demand-side options potential in sufficient time to**
11 **defer capacity identified in this determination of need?**

12 A. No. FPL has already identified all our reasonably achievable DSM
13 potential and used this as input to our system reliability assessment.
14 FPL has also implemented changes to non-DSM rate options to
15 increase the potential of the demand-side options. While there has
16 been a small increase in the penetration of demand-side renewables,
17 the economics of the various technologies has not yet reached the level
18 necessary to make any significant impact on FPL's summer peak.
19 FPL's analysis therefore has already captured all the cost-effective
20 demand-side potential available on FPL's system, and it was
21 determined that FPL still needs additional capacity resources. In order
22 to meet FPL's 2013 and 2014 needs an additional 1,371 MW (at the
23 generator) of demand-side resources would have to be identified.

1 Even if there were some modest potential for additional non-
2 generation potential on FPL's system, it is unrealistic to conclude that
3 FPL could add significant incremental quantities in time to mitigate
4 the 2013 and 2014 need. Therefore, there is no available additional
5 cost-effective demand-side potential that could mitigate the need for
6 additional capacity in 2013 and 2014.

7 **Q. Please summarize your testimony.**

8 A. FPL has been very successful in cost-effectively avoiding or deferring
9 new power plant construction using DSM. In fact, the U.S. Department
10 of Energy, which reports on the effectiveness of utility DSM efforts
11 through its Energy Information Administration, ranks FPL number one
12 nationally for cumulative conservation achievement and number four
13 in load management based on the most current data available (2005
14 data).

15
16 Through year-end 2005, FPL has implemented 3,519 MW (at the
17 generator) of DSM – or the equivalent of 10 medium-sized power
18 plants. In 2004, FPL received Commission approval of DSM goals
19 that will add 802 MW (at the generator) of additional DSM from 2006
20 through 2015.

21
22 FPL continually investigates additional cost-effective DSM
23 opportunities and requests Commission approval of revisions to our

1 DSM plan as appropriate. FPL recently received Commission
2 approval of significant changes to our DSM plan offerings that added
3 another 564 MW (at the generator) of summer demand reduction
4 impact – greater than the equivalent of one medium-sized power plant
5 – to FPL’s Commission-approved goals.

6
7 FPL’s accomplishments and future commitments to DSM are
8 significant. With 3,519 MW of DSM implemented through 2005 and
9 an additional 1,366 MW of DSM being added in the 2006 through
10 2015 time frame, FPL will have avoided 5,862 MW of generation
11 capacity (including the impacts for reserve margin requirements) by
12 2015. This is three times the size of the FPL Glades Power Park.
13 However, despite these outstanding accomplishments, there is still not
14 enough additional cost-effective DSM to avoid or defer the need for
15 the 2013 and 2014 units.

16 **Q. Does this conclude your testimony?**

17 **A. Yes.**

FPL Current FPSC DSM Goals

| Residential and Commercial/Industrial | | | | | | | | | |
|---------------------------------------|---------------------------|-------------------------------------|------------|---------------------------|-------------------------------------|------------|---------------------------|-------------------------------------|------------|
| Year | Winter Peak mW Reduction | | | Summer Peak mW Reduction | | | gWh Energy Reduction | | |
| | Cumulative Total Achieved | Cumulative Commission Approved Goal | % Variance | Cumulative Total Achieved | Cumulative Commission Approved Goal | % Variance | Cumulative Total Achieved | Cumulative Commission Approved Goal | % Variance |
| 2005 | 36.3 | 38.8 | -6% | 92.5 | 74.0 | 25% | 184.2 | 121.8 | 51% |
| 2006 | | 79.3 | | | 141.7 | | | 216.8 | |
| 2007 | | 122.5 | | | 211.9 | | | 306.0 | |
| 2008 | | 170.6 | | | 287.2 | | | 401.1 | |
| 2009 | | 221.5 | | | 365.9 | | | 501.2 | |
| 2010 | | 275.2 | | | 447.9 | | | 606.1 | |
| 2011 | | 330.9 | | | 532.1 | | | 714.3 | |
| 2012 | | 388.5 | | | 618.8 | | | 825.8 | |
| 2013 | | 448.1 | | | 707.9 | | | 940.5 | |
| 2014 | | 512.4 | | | 801.7 | | | 1,058.6 | |

The Winter Peak, Summer Peak and Energy Reductions represent the Residential and Commercial/Industrial combined DSM effort.

| Residential | | | | | | | | | |
|-------------|---------------------------|-------------------------------------|------------|---------------------------|-------------------------------------|------------|---------------------------|-------------------------------------|------------|
| Year | Winter Peak mW Reduction | | | Summer Peak mW Reduction | | | gWh Energy Reduction | | |
| | Cumulative Total Achieved | Cumulative Commission Approved Goal | % Variance | Cumulative Total Achieved | Cumulative Commission Approved Goal | % Variance | Cumulative Total Achieved | Cumulative Commission Approved Goal | % Variance |
| 2005 | 21.4 | 26.0 | -18% | 49.8 | 47.8 | 4% | 91.6 | 90.3 | 1% |
| 2006 | | 55.6 | | | 91.9 | | | 166.0 | |
| 2007 | | 89.2 | | | 140.6 | | | 246.9 | |
| 2008 | | 127.3 | | | 194.6 | | | 333.3 | |
| 2009 | | 168.0 | | | 252.1 | | | 424.1 | |
| 2010 | | 211.3 | | | 313.2 | | | 519.5 | |
| 2011 | | 256.3 | | | 377.1 | | | 617.9 | |
| 2012 | | 303.3 | | | 443.6 | | | 719.3 | |
| 2013 | | 352.0 | | | 512.8 | | | 823.7 | |
| 2014 | | 405.1 | | | 586.9 | | | 931.0 | |

| Commercial/Industrial | | | | | | | | | |
|-----------------------|---------------------------|-------------------------------------|------------|---------------------------|-------------------------------------|------------|---------------------------|-------------------------------------|------------|
| Year | Winter Peak mW Reduction | | | Summer Peak mW Reduction | | | gWh Energy Reduction | | |
| | Cumulative Total Achieved | Cumulative Commission Approved Goal | % Variance | Cumulative Total Achieved | Cumulative Commission Approved Goal | % Variance | Cumulative Total Achieved | Cumulative Commission Approved Goal | % Variance |
| 2005 | 14.9 | 12.8 | 16% | 42.7 | 26.3 | 62% | 92.6 | 31.5 | 194% |
| 2006 | | 23.7 | | | 49.8 | | | 50.8 | |
| 2007 | | 33.3 | | | 71.3 | | | 59.1 | |
| 2008 | | 43.2 | | | 92.6 | | | 67.8 | |
| 2009 | | 53.5 | | | 113.8 | | | 77.0 | |
| 2010 | | 63.9 | | | 134.6 | | | 86.5 | |
| 2011 | | 74.4 | | | 155.1 | | | 96.4 | |
| 2012 | | 85.1 | | | 175.2 | | | 106.5 | |
| 2013 | | 96.1 | | | 195.1 | | | 116.9 | |
| 2014 | | 107.3 | | | 214.9 | | | 127.6 | |

FPL DSM Programs & Measures

| Residential Programs | Measures |
|--|---|
| Residential Conservation Service | On-site Energy Audit |
| | Telephone Energy Audit |
| | On-line Energy Audit |
| Residential Building Envelope | Ceiling Insulation - Cooling Ony |
| | Ceiling Insulation - Heat Pump |
| | Reflective Roof |
| | Multi-family Roof Coating |
| | Multi-family Reflective Roof |
| Duct System Testing & Repair | Duct Repair - Cooling Ony |
| | Duct Repair - Heat Pump |
| Residential Air Conditioning | Air Conditioning - Cooling Only |
| | Heat Pumps |
| | Ground Source Heat Pump |
| | Proper Sizing - Cooling Ony |
| | Proper Sizing - Heat Pump |
| | Plenum Repair - Cooling Ony |
| | Plenum Repair - Heat Pump |
| | Electronically Commutated Motor - Cooling Ony |
| Electronically Commutated Motor - Heat Pump | |
| Residential Load Management (On Call) | Air Conditioning Cycle |
| | Air Conditioning Shed |
| | Space Heating Cycle |
| | Space Heating Shed |
| | Water Heating |
| | Pool Pump |
| Residential New Construction (BuildSmart) | Prescriptive |
| | Flexible |
| Residential Low Income Weatherization | Room Air Conditioner |
| | Air Conditioner Maintenance |
| | Reduced Infiltration |

FPL DSM Programs & Measures

| Business Programs | Measures |
|--|---|
| Business Energy Evaluation | New Construction Energy Audit |
| | Existing Construction Energy Audit |
| Business Heating, Ventilating & Air Conditioning | Chillers |
| | Direct Expansion Air Conditioner |
| | Room / PTAC Air Conditioner |
| | Thermal Energy Storage |
| | Demand Control Ventilation - Heat |
| | Demand Control Ventilation - No Heat |
| | Electronically Commutated Motor |
| | Energy Recovery Ventilator - Strip Heat No Bypass |
| | Energy Recovery Ventilator - Strip Heat Active Bypass |
| | Energy Recovery Ventilator - No Heat No Bypass |
| Energy Recovery Ventilator - No Heat Active Bypass | |
| Business Efficient Lighting | Standard High Efficiency Retrofit |
| | Low Mercury High Efficiency Retrofit |
| Business Custom Incentive | Customer Specific Measure \geq 25 kw |
| Commercial/Industrial Load Control | Load Reduction \geq 200 kw |
| Commercial Demand Reduction | Load Reduction \geq 200 kw |
| Business Building Envelope | Roof Insulation |
| | Reflective Roof Coating |
| | Ceiling Insulation |
| | Window Treatments |
| Business On Call | Air Conditioning Cycle |
| Business Water Heating | Heat Recovery Units |
| | Heat Pump Water Heaters |
| Business Refrigeration | Anti-Condensate Heat Control |