

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

**In Re: Petition for Determination)
Of Need for Levy Units 1 and 2) Docket No: 080148-EJ
Nuclear Power Plants.)
Submitted for Filing: March 11, 2008**

**TESTIMONY
OF
JOHN A. MASIELLO
ON BEHALF OF
PROGRESS ENERGY FLORIDA**

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**IN RE: PETITION ON BEHALF OF PROGRESS ENERGY FLORIDA, INC.
FOR NUCLEAR NEED**

FPSC DOCKET NO. _____

**DIRECT TESTIMONY OF
JOHN A. MASIELLO**

I. INTRODUCTION AND QUALIFICATIONS

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

2 A. My name is John A. Masiello. My business address is 3300 Exchange Place,
3 Lake Mary, Florida 32746.

4
5 **Q. By whom are you employed and what position do you hold?**

6 A. I am employed by Progress Energy Florida, Inc. (PEF), hereafter referred to as
7 PEF or the Company, as Director of DSM & Alternative Energy Strategies.

8
9 **Q. Please describe your duties and responsibilities in that position.**

10 A. My responsibilities include the design, implementation and administration of the
11 Company's Demand-Side Management (DSM) programs, including all training,
12 budgeting, and accounting functions related to these programs. By DSM, I mean
13 direct load control and energy efficiency programs.

14
15 **Q. Please describe your education background and professional experience.**

1 A. I have a Masters of Business Administration degree from the University of
2 Central Florida. I received a Bachelor of Arts degree in Business Management
3 from Warner Southern College. In addition, I have received the following
4 energy-related certifications from the Association of Energy Engineers: Certified
5 Energy Manager (CEM), Certified Cogeneration Professional (CCP), Certified
6 Sustainable Development Professional (CSDP), Certified Business Energy
7 Professional (BEP), and Distributed Generation Certified Professional (DGCP). I
8 am also a Certified Energy Rater for the State of Florida. Prior to joining PEF in
9 July 1991, I served for ten years as the manager of an energy services company
10 that was recognized by the Carter Administration for its development of a model
11 energy efficiency program.

12
13 **Q. Are you sponsoring any section of the Company's Need Study, Exhibit No.**
14 **___ (JBC-1)?**

15 A. Yes. I am sponsoring Section IV, C., 4, the "Future Demand-Side Management"
16 subsection of the Need Study.

17
18 **Q. Are you sponsoring an exhibit in this case?**

19 A. Yes. I am sponsoring the following exhibits that I prepared or that were prepared
20 under my supervision and control. All of these exhibits are true and accurate and
21 are attached to my direct testimony:

- 1 ▪ Exhibit No. ____ (JAM-1), PEF Current Florida Public Service Commission
2 (FPSC) DSM Goals;
- 3 ▪ Exhibit No. ____ (JAM-2), PEF DSM Programs and Measures; and
- 4 ▪ Exhibit No. ____ (JAM-3), PEF DSM Implementation Graphs for residential
5 heat pump installations, duct repairs and insulation retrofits.

6

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

8 A. The purpose of my testimony is to summarize the Company's existing DSM
9 programs, including the 39 new measures recently approved by the Commission,
10 providing a total of 16 programs and over 100 measures, and to describe the
11 Company's future projections. My testimony contains the following components:

- 12 ▪ History of PEF's DSM initiatives;
- 13 ▪ Current status of DSM programs at PEF;
- 14 ▪ DSM goals setting process;
- 15 ▪ Overview of current DSM programs including the recently FPSC-approved
16 modifications; and
- 17 ▪ Conclusion.

18

19 **I. PEF's DSM Programs**

20 **Historical Overview**

21 **Q. Briefly describe PEF's Demand Side Management Programs.**

22 A. PEF defines DSM as the research, planning, implementation and monitoring of

1 programs designed to reduce electrical consumption during peak demand periods.
2 PEF's current DSM Plan is comprised of 16 individual programs, including seven
3 residential programs, seven commercial/industrial programs, a qualifying facilities
4 (cogeneration and small power production) program, and a research and
5 development program. PEF's objectives in offering these comprehensive DSM
6 programs to residential and commercial customer segments are to encourage
7 participation while cost-effectively reducing the growth rate of weather-sensitive
8 peak demand, reducing and controlling the growth rate of energy consumption,
9 increasing resource conservation, and increasing the efficiency of the electric
10 system. PEF has used the Commission-approved cost-effectiveness methodologies
11 required by Rule 25-17.008, Florida Administrative Code (F.A.C.), and the
12 *planning assumptions in PEF's 2006 – 2015 Ten-Year Site Plan to determine the*
13 *cost-effectiveness of the modified and new programs. By offering DSM programs*
14 *evaluated by Commission-approved methodologies, all customers benefit with*
15 *lower rates achieved through the deferral or avoidance of new generating capacity.*

16
17 **Q. When did PEF begin its DSM efforts?**

18 A. PEF has a proven history of research, development, and implementation of DSM
19 programs to avoid or defer generation cost-effectively. PEF has offered DSM
20 programs to its customers since 1981. The Company has continued to
21 aggressively pursue the research and development of additional/modified DSM
22 programs to reduce and control the growth rate of energy consumption, increase
23 resource conservation, and increase the efficiency of the electric system.

1 Program offerings include both energy efficiency (conservation) and direct load
2 control options for both residential and commercial customers.

3
4 **Q. What are the resulting impacts from the DSM efforts?**

5 A. PEF has demonstrated success in implementing cost-effective DSM programs
6 that have resulted in the avoidance or deferral of power plant construction.
7 During the more than two decades of implementing its energy efficiency
8 programs, PEF's DSM programs have saved our customers 10 billion kilowatt
9 hours, and have resulted in a total demand reduction of over 1,500 megawatt
10 (MW) since their inception. These programs have offset the need for 3 new 500
11 MW generating power plants or enough generation to power the City of Orlando
12 for two years. The DSM programs have also reduced carbon dioxide emissions
13 by more than 7,500,000 tons or the equivalent of removing 1,900,000 cars from
14 Florida roads annually.

15 By using Commission-approved cost-effective methodology, these impacts
16 have been achieved without penalizing customers who are not participating in
17 DSM program offerings. PEF's DSM programs provide customers with
18 comprehensive DSM services while providing electric rates for all customers
19 (participants and non-participants) that are lower than they would have been if
20 these programs had not been implemented. Thus, reducing the growth rate of
21 weather-sensitive peak demand has benefited not only PEF's individual
22 customers who have reduced their demand through participation in the new and
23 modified DSM programs, but also all other customers on PEF's system.

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Q. How has the Company expanded its DSM programs through the years?

A. PEF conducts ongoing reviews of existing programs and researches and develops new programs or the modification of existing ones based on performance. As we identify modifications and program additions that cost-effectively increase energy efficiency in homes and businesses, reduce PEF's coincident peak load, and reduce customers' energy consumption, PEF attempts to incorporate these measures into its existing DSM programs or we implement a new program. As an example, PEF has petitioned the FPSC for modifications to either incorporate such measures into existing DSM programs or implement new programs. Most recently, the Company received approval in Docket 060647, Order No. PSC-06-1018-TRF-EG to increase its DSM offerings via 2 new programs and 39 new measures. These changes result in total DSM offerings of over 100 measures and 16 programs. PEF anticipates that the implementation of these new DSM programs and measures will significantly increase the penetration of demand-side management in the future and result in avoiding the construction of an additional 512 MWs on PEF's system.

Q. Please describe the tool used by PEF to evaluate DSM program cost-effectiveness.

A. PEF performs its DSM cost-effectiveness evaluations using an integrated resource planning model called Strategist (licensed by NewEnergy Associates). Strategist contains a Differential Cost-Effectiveness (DCE) module specifically

1 designed to evaluate DSM alternatives against a base resource plan and compute
2 benefit-cost ratios for each of the three Commission-approved tests of cost-
3 effectiveness: Rate Impact Measure (RIM), Total Resource Cost (TRC), and
4 Participant Tests. The DCE module dynamically calculates the capacity and
5 production cost impacts of a DSM program by performing a production cost
6 simulation with and without the DSM program. Deferred capacity benefits are
7 determined by applying the cost of each deferred generation unit by the amount
8 of capacity that can be reduced by the DSM programs in order to ensure that
9 reliability of the system matches the base-case scenario. The base case scenario
10 does not include the DSM programs. Production cost savings are calculated as
11 the difference in production cost results between the with-DSM and without-
12 DSM program cases.

13 The modeling also includes all other DSM costs and benefits, including
14 program administrative expenses, incentive payments, participant costs, lost
15 revenue, etc., as required to develop and report results for the three cost-
16 effectiveness tests. This dynamic modeling approach offers greater consistency,
17 flexibility, resolution and accuracy than a static spreadsheet approach. Using the
18 same model to evaluate both supply-side and demand-side alternatives ensures
19 that consistent data and methods are being applied across the board. Strategist's
20 base resource plan allows DSM programs to compete against one or more
21 deferrable generation units that can vary by type and timing. Also, individual
22 DSM programs can be combined together within Strategist to create a DSM
23 bundle large enough to be evaluated against multiple generation units. Finally,

1 the ability of Strategist to perform a production cost simulation of the system
2 both with and without the DSM program provides the best available methodology
3 for estimating fuel and O&M cost savings.

4
5 **Q. How does PEF determine which measures it will offer to its customers?**

6 A. We continually seek programs to maximize the availability of cost-effective
7 DSM opportunities for PEF's customers. We identify these opportunities
8 through customers, contractors, emerging technologies, and state, local, and
9 national research. During the selection and analysis of the conservation
10 measures, PEF gives consideration to the issues and end-use categories specified
11 in Commission Rule 25-17.0021(3), F.A.C. The conservation measures are
12 evaluated separately for the residential and commercial/industrial market
13 segments and vintage (*i.e.*, existing construction and new construction). The
14 residential space conditioning measures were also evaluated for each of the two
15 major baseline technologies (*i.e.*, strip-heat and heat pumps).

16 PEF utilizes a step-by-step process for determining which cost-effective
17 measures will provide the most benefits for all of our customers. The first step
18 is the review of potential measures for each customer segment. For our most
19 recent expansion of the DSM programs, we analyzed over 200 possible measures.
20 The possible options with the greatest potential to pass the Rate Impact Measure
21 test are then analyzed against all three tests (RIM, TRC & Participant). Then,
22 incentives are determined that will maximize the participation for each of the

1 measures. This method ensures that the DSM programs we offer will reduce the
2 rates for all of our customers, both DSM participants and non-participants alike.

3
4 **II. Current Status of PEF's DSM Programs**

5 **Q. Is PEF reaching saturation levels or encountering other barriers to installation**
6 **for certain DSM measures or technologies?**

7 A. Yes. A goal of utility DSM programs and incentives is to encourage customers
8 to choose more energy-efficient equipment than they would without a utility
9 program. However, there are several considerations that are affecting DSM
10 potential in PEF's service territory. Exhibit No. ____ (JAM-3) shows the annual
11 and cumulative number of residential heat pumps, duct repairs, and insulation
12 retrofit measures implemented by PEF since 1993. This exhibit is referenced for
13 the following residential statements below.

14 First, in 2006, Department of Energy's (DOE) regulations under the National
15 Appliance Energy Conservation Act (NAECA) established a new efficiency
16 standard for certain heating and cooling systems and changed HVAC
17 standards/codes significantly. For example, the national minimum efficiency for
18 new heat pumps increased from a SEER of 10 to a SEER of 13. This increase in
19 the baseline for energy efficiency impacts the utility program's ability to achieve
20 efficiency gains at a reasonable cost. The annual residential HVAC
21 implementations last set a peak in 2005 at almost 8,000. The increase in the
22 minimum SEER to 13 in 2006 possibly contributed to the increase in the number
23 of heat pump incentives prior to the associated building code changes later that

1 year. However, the level of activity in 2006 was still less than 2005 and in 2007
2 PEF expects the number of implementations again to be less than in 2005 as the
3 market adjusts to the new minimum SEER.

4 Second, duct repair implementations have set a series of successively lower
5 peaks. The annual implementations for 2004 through 2006 were less than 4000
6 compared to an average of 8,100 during 1997 through 1999 and an average of
7 4,500 from 2000 to 2003.

8 Third, the number of residential attic insulation upgrades implemented has
9 steadily decreased. The annual implementations for insulation have set a series
10 of consecutively lower peaks. It appears that 4000 annual implementations is a
11 stretch goal for the current program. Part of this decline could be attributed to the
12 fact that this measure is only available once per premise. The average number of
13 implementations from 2004 through 2006 is just over 3,700.

14 Finally, residential new construction's combined annual implementations for
15 heat pumps and insulation peaked sharply in 2003 at almost 9,000 and thereafter
16 dropped to approximately 7,000 for 2005 and 2006. The current program appears
17 to have settled at an annual level of implementations that is well below the 2003
18 level.

19 As new minimum requirements and standards are created, there is lag time in
20 market transition before participation in programs encouraging purchases beyond
21 the new minimum can achieve the same level program performance as was seen
22 prior to the code increase. PEF believes this could be due to the natural ebb and
23 flow of market transformation that occurs when the new minimum requirement

1 becomes effective, which was the case with the increase to SEER 13 for heat
2 pumps in 2006.

3 Additionally, there are other factors that can impact our ability to successfully
4 implement measures but are difficult to project. An example of this is the
5 Neighborhood Energy Saver Program that was implemented in 2007. Through
6 this program, an economically needy community is identified, the neighborhood
7 is canvassed, and each eligible home may have efficiency measures installed at
8 no cost. There is no need for a second visit or appointments with contractors, as
9 the audit is conducted and the installers follow immediately behind to install the
10 measures. Although this program was recently launched, there is currently an
11 approximate participation rate of 78%. The gap in implementation is mostly
12 attributed to societal factors such as privacy or lack of occupancy and safety
13 factors like hazardous conditions or dangerous canines and not related to
14 saturation. While the Company continues to employ every opportunity to
15 increase the rate of implementation, the Company's experience with the
16 Neighborhood Energy Saver Program shows that achieving full implementation
17 is not realistic and the level of implementation can be difficult to accurately
18 predict.

19 Simultaneously, PEF's direct load program has been very successful.
20 However, the Company is close to reaching the maximum amount that can be
21 used to meet our reserves, which is no more than 60% in the winter and no more
22 than 50% in the summer. The remaining reserves are met with hard assets, which

1 include both spinning reserves and peaking units, and voltage reductions which
2 are allocated to handle the loss of our largest capacity plant.

3
4 **Q. How did PEF address the concern of saturation with its current program
5 measures?**

6 A. To address these concerns, PEF petitioned the FPSC and received approval to
7 modify and increase its DSM program offerings with an unprecedented 39 new
8 measures and 2 new programs. Some of the modifications included adding an
9 incentive for households that have ceiling insulation R-values between R-12 and
10 R-15, increasing the SEER value for heat pumps up to 14, and increasing the
11 incentive amount for a number of measures.

12 Also, new measures were added that may not have been cost-effective
13 previously, but due to changing market conditions, they are now more cost-
14 effective. These include year-round load management, replacement windows,
15 and commercial lighting. These modifications helped PEF to broaden their reach
16 in both the residential and commercial sectors. However, since these measures
17 were just recently implemented, it is still too early to tell how much they will
18 impact the overall DSM program. We anticipate, however, that the measures
19 listed above will avoid 165 MWs by 2020.

20
21 **Q. Please describe PEF's current residential direct load control program.**

22 A. PEF currently offers residential customers several direct load programs under the
23 EnergyWisesm brand. PEF offers a 5-month winter-only program which provides

1 credits from November through March, and a 12-month summer/winter program.
2 PEF also offers two renewable programs: Solar Water Heating Program with
3 EnergyWisesm and the SolarWise for Schoolssm Program (SolarWisesm) where
4 customers can elect to donate their monthly EnergyWisesm credits toward a fund
5 used to promote photovoltaics and renewable energy educational opportunities.

6 PEF developed its residential direct load control system in the 1980s, and
7 made system improvements as technology advancements occurred. The system
8 works with current generation controls and utilizes 154 MHz transmitters
9 coupled with radio switches that cycle the heat and air units and turn off water
10 heaters and pool pumps. Presently PEF is implementing an end-use metering
11 program; one of the objectives of this program is to provide the Company with
12 additional load reduction data for appliances by housing type.

13
14 **Q. How often does PEF review its DSM program and potential new**
15 **technologies for additional DSM opportunities?**

16 **A.** PEF continually seeks opportunities to identify and implement DSM
17 programs/measures. Measures are eliminated when they are no longer cost-
18 effective, as in the case of the year-round energy management program in 2001.
19 And new measures are added when they become cost-effective or if they become
20 cost-effective once again, which is why PEF recently reintroduced the 12-month
21 energy management program (EnergyWisesm).

22 For example, PEF performs research and development through its Technology
23 Development Program. Most recently, through this research program, we

1 identified our Neighborhood Energy Saver (NES) Program. In 2007, the
2 Commission approved the successful NES pilot as a DSM program under PEF's
3 regulated programs. We are now implementing the NES Program across all four
4 PEF regions with a targeted goal of 2,000 completions per year. PEF's NES
5 Program provides demand reductions while improving customers' comfort levels
6 in summer and winter and decreasing the customer's electricity cost.

8 III. PEF's DSM Goals

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

10 A. PEF establishes annual DSM goals to meet the requirements of Florida Energy
11 Efficiency and Conservation Act (FEECA) and the Florida Administrative Code.
12 Additionally, DSM goals are established for use in planning to cost-effectively
13 meet the future capacity needs of our customers. Our DSM goals and
14 achievements are key inputs in determining our resource needs through the Ten-
15 Year Site Plan.

16
17 **Q. How frequently are PEF's DSM goals established?**

18 A. Goals for a ten-year period that establish demand and energy savings for
19 residential and commercial segments are set every five years.

20
21 **Q. When were PEF's Commission-approved DSM goals established?**

1 A. PEFs current goals were approved on August 9, 2004 in FPSC Order No. PSC-
2 04-0769-PAA-EG issued in Docket 040031-EG. (Consummating Order No.
3 PSC-04-0852-CO-EG issued September 1, 2004).

4
5 **Q. What are PEF's DSM goals?**

6 A. My Exhibit No. ____ (JAM-1) illustrates PEF's current Commission-approved
7 goals and actual cumulative achievement through 2006.

8
9 **Q. How has the Company performed with respect to these goals?**

10 A. For the 2006 reporting period, PEF exceeded its cumulative residential DSM
11 reduction goals as well as all commercial/industrial Commission-established DSM
12 goals by more than 15%. In the residential sector, this was primarily due to actual
13 annual participation running higher than what was projected with the exception of
14 the Low-Income Weatherization Assistance Program. In the commercial/industrial
15 sector PEF experienced higher than expected participation in the Standby
16 Generation Program.

17
18 **Q. Although the current DSM goal period only runs to 2014, do you have any**
19 **expectations as to how the DSM programs will affect load growth in the years**
20 **beyond 2014?**

21 A. As explained above, the current programs are reaching saturation in terms of the
22 amount of load reduction that can be achieved. Based on the information available
23 today, I expect that, in the time period beyond 2014, the Company will continue to

1 maintain the level of reduction in load that has been estimated for the years before
2 2014.

3
4 **IV. Overview of Current DSM Programs Including the Recently FPSC
Approved Modifications**

5 **Q. What are PEF's current Commission-approved DSM programs?**

6 A. PEF's current Demand Side Management (DSM) Plan includes 16 individual
7 programs, including seven residential programs, seven commercial/industrial
8 programs, a qualifying facilities (cogeneration and small power production)
9 program, and a research and development program. The programs are noted
10 below:

11 **Residential DSM Programs**

12 **Home Energy Check:** The Home Energy Check Program is a comprehensive
13 residential energy evaluation (audit) program. The program provides PEF's
14 residential customers with an analysis of energy consumption and
15 recommendations for energy efficiency improvements. It acts as a motivational
16 tool to identify, evaluate, and inform consumers on cost-effective and energy-
17 saving measures. It serves as the foundation of the residential Home Energy
18 Improvement Program and is a program requirement for participation.

19 The Home Energy Check offers six different types of energy audits:

- 20
- Free walk-thru audit
 - More comprehensive paid walk-thru audit (\$15 charge)
 - Energy rating (Energy Gauge)
- 21
22

- 1 • Mail-in audit
- 2 • Web-based audit
- 3 • Phone-assisted audit

4 **Home Energy Improvement:** This is an umbrella program for existing homes.
5 This program combines thermal envelope efficiency improvements with
6 upgraded equipment and appliances. The Home Energy Improvement Program
7 includes incentives for measures such as: duct testing, duct leakage repair, attic
8 insulation, injected wall insulation, replacement windows, window film,
9 reflective roofing, high efficiency heat pump replacing resistance heat, high
10 efficiency heat pump replacing a less efficient heat pump, HVAC
11 commissioning, plenum sealing, proper sizing of a heat pump, and supplemental
12 bonuses for contractors to complete required paperwork. Also, insulation
13 upgrade incentives are now larger for homes above 1500 SF.

14 **Residential New Construction (Home Advantage):** The Home Advantage
15 Program promotes energy-efficient construction that exceeds the building code.
16 Information, education, and consultation are provided to homebuilders and
17 contractors on energy-related issues and efficiency measures. This program
18 encourages the installation of high performance windows, reflective roof
19 materials, high efficiency insulation, conditioned space air handler placement,
20 and energy recovery ventilation.

21 **Low Income Weatherization Program:** The program goal is to integrate PEF's
22 DSM program measures with the Department of Community Affairs (DCA) and
23 local weatherization providers to deliver energy efficiency measures to low-

1 income families. Through this partnership PEF will assist local weatherization
2 agencies by providing energy education materials and financial incentives to
3 weatherize the homes of low-income families.

4 **Neighborhood Energy Saver Program:** The weatherization program
5 referenced above and the Neighborhood Energy Saver (NES) were both designed
6 by PEF to assist low-income families with escalating energy costs. The goal of
7 the NES Program is to implement a comprehensive package of electric
8 conservation measures at no cost to the customer. In addition to the installation
9 of the conservation measures, an important component of this program is
10 educating families on energy efficiency techniques and the promotion of
11 behavioral changes to help customers control their energy usage.

12 **EnergyWisesm:** This is a voluntary load control program that incorporates direct
13 radio control of selected customer equipment to reduce system demand during peak
14 capacity periods and/or emergency conditions by temporarily interrupting selected
15 customer appliances for specified periods of time. Customers have a choice of
16 options and receive a credit on their monthly electric bills depending on the options
17 selected and their monthly kWh usage.

18 **Renewable Energy Saver:** This program consists of the following two areas:

19 *Solar Water Heating with EnergyWisesm:* This measure encourages eligible
20 residential customers to install a solar thermal water heating system. The
21 primary qualifications for this incentive are that the house has whole-house
22 electric cooling, electric water heating, and electric heating. Pool heaters and
23 photovoltaic systems do not qualify. In order to qualify for this incentive, the

1 heating, air conditioning, and water heating systems must be on the
2 EnergyWisesm Program and the solar thermal system must provide a
3 minimum of 50% of the water heating load.

4 *SolarWisesm*: This measure promotes environmental stewardship and
5 renewable energy education through the installation of solar energy systems
6 at schools within PEF's service territory. Customers participating in the
7 Winter-Only EnergyWisesm or Year-Round EnergyWisesm Program can elect
8 to donate their monthly credit toward the Solar Photovoltaics with
9 EnergyWisesm Fund. The fund will accumulate associated participant credits
10 for a period of two years, at which time the customer may elect to renew for
11 an additional two years. All proceeds collected from participating customers
12 and their associated monthly credits will be used to promote photovoltaics
13 and renewable energy educational opportunities.

14 **Commercial DSM Programs**

15 PEF has also established a robust list of program measures to address the
16 commercial, industrial, and governmental sectors. In addition, PEF recognizes
17 the unique needs of small businesses and has established a separate group to
18 work with this sector.

19 **Business Energy Check:** The Business Energy Check is an audit for non-
20 residential customers, and several options are available. The free audit for non-
21 residential facilities can be completed at the facility by an auditor or online by the
22 business customer. The paid audit provides a more thorough energy analysis for
23 non-residential facilities. This program acts as a motivational tool to identify,

1 evaluate, and inform consumers on cost-effective and energy-saving measures for
2 their facility. It serves as the foundation of the Better Business Program and is a
3 requirement for participation in that program.

4 **Better Business:** This umbrella efficiency program provides incentives to
5 existing commercial and industrial customers for heating, air conditioning,
6 motors, water heating, roof insulation upgrade, duct leakage and repair, window
7 film, demand-control ventilation, lighting, occupancy sensors, green roof,
8 compressed air, and HVAC optimization.

9 **Business New Construction:** This umbrella efficiency program is designed for
10 new commercial/industrial buildings. This program provides information,
11 education, and advice on energy-related issues and efficiency measures by
12 involvement early in the building's design process. With the exception of the
13 ceiling insulation upgrade, duct test and leakage repair, HVAC steam cleaning,
14 and roof top unit recommissioning, the commercial/industrial new construction
15 program provides incentives for the same efficiency measures listed in the Better
16 Business Program for existing buildings.

17 **Innovation Incentive:** This commercial program provides incentives for
18 customer-specific demand and energy conservation projects, on a case-by-case
19 basis, where cost-effective to all PEF customers. To be eligible, projects must
20 reduce or shift a minimum of 10 kW of peak demand. This program focuses on
21 measures not offered in PEF's other DSM programs. Examples include
22 refrigeration equipment replacement, microwave drying systems, and inductive
23 heating (to replace resistance heat).

1 **Standby Generation:** PEF provides an incentive for customers participating in
2 this program to voluntarily operate their on-site generation during times of
3 system peak.

4 **Curtable Service:** The Curtable Service Program is a dispatchable DSM
5 program in which customers contract to curtail or shut down a portion of their
6 load during times of capacity shortages. The curtailment is done voluntarily by
7 the customer when notified by PEF. In return for this cooperation, the customer
8 receives a monthly rebate for the curtable portion of their load.

9 **Interruptible Service:** The Interruptible Service Program is a rate tariff which
10 allows PEF to switch off electrical service to customers during times of capacity
11 shortages. The signal to operate the automatic switch on the customer's service is
12 activated by the Energy Control Center. In return for this, the customers receive
13 a monthly rebate on their kW demand charge.

14 **Technology Development Program:** This program allows PEF to undertake
15 certain development and demonstration projects which have promise to become
16 cost-effective conservation and energy efficiency programs.

17 **Qualifying Facility:** In the Qualifying Facility Program, power is purchased
18 from qualifying cogeneration and small power production facilities.

19

20 **Q. Please describe how the Innovation Incentive Program works.**

21 **A.** This is a customized program which addresses our customer's individual needs
22 and tailors energy-efficient measures which will assist them in reducing or

1 - shifting load during peak demands using either existing or emerging
2 technologies. Incentives are determined on a case-by-case basis.

3
4 **Q. How has PEF partnered with builders to increase energy efficiency**
5 **participation?**

6 A. PEF has an initiative to increase builder participation in our energy efficiency
7 programs in general, and specifically, at our premium level which includes
8 Energy Star certification. The primary components of the initiative include
9 retaining builders that PEF currently works with, expanding and increasing the
10 builder's involvement, and recruiting new builders in our service territory that
11 have applied for temporary service (indicating building activity) but are not
12 currently on our partner list. In addition, PEF continues to expand our alliances
13 with trade partners such as HVAC and insulation contractors to leverage their
14 contact with builders as well.

15 PEF is also conducting educational seminars to help builders navigate the path
16 to "Green" building practices and our Home Advantage Programs are structured
17 to help them succeed with both training and other incentives. Through training,
18 face time, and responding to feedback, PEF is committed to increasing market
19 penetration of energy efficiency measures in residential new construction.

20
21 **Q. What are some of PEF's other unique DSM applications?**

22 A. To help launch the program expansion to residential customers, PEF offers an
23 energy efficiency kit to customers that participate in a free, in-person Home

1 Energy Check. The kit includes weather stripping, compact fluorescent light
2 bulbs, a refrigerator thermometer, hot water temperature check card, and draft
3 stoppers for electrical outlets, all of which will help customers save money by
4 using less energy.

5 In addition, PEF's Solar Water Heating with EnergyWisesm Program is a
6 unique application which provides an incentive to help defray the up-front costs
7 of installing the solar heating panels and associated equipment. Participation in
8 this program, which was rolled-out in April 2007, continues to exceed
9 expectations.

10 The SolarWise for Schoolssm Program is another unique program which
11 provides renewable energy and promotes energy education. The program allows
12 PEF's customers to contribute their monthly EnergyWisesm credit to an escrow
13 fund; 100% of these contributions are used for SolarWise for Schoolssm. A goal
14 of this program is to install solar photovoltaic panels on every school throughout
15 our service territory. The program was launched in August 2007. PEF is
16 currently collaborating with the initial schools to install the solar photovoltaic
17 panels and provide an energy education curriculum in 2008.

18
19 **Q. What is PEF's Demand Side Management Department's role in developing**
20 **alternative energy strategies?**

21 **A.** Alternative energy is part of PEF's Balanced Solution. The Company, through
22 the DSM and Alternative Energy Strategy Department, has been an active

1 participant in alternative energy research with an emphasis on solar, hydrogen,
2 and biomass.

3 Solar research projects include a solar photovoltaic array at our
4 Econolockhatchee Substation, where three array technologies are interconnected
5 independently for comparison and evaluation, as well as partnerships with the
6 Florida Department of Environmental Protection (FDEP) and Florida Solar
7 Energy Center (FSEC) on the SunSmart School program, where photovoltaic
8 arrays provide energy for the school and the students engage in an energy
9 education curriculum associated with the production and efficiency of the system.

10 Hydrogen research includes partnerships with Ford, FDEP, British Petroleum
11 (BP), and Chevron on two different technologies of hydrogen production and
12 consumption. The program's two hydrogen fueling stations are the first of their
13 kind in the state and provide fuel for six (6) Ford Focus Fuel Cell Vehicles and
14 eight (8) Hydrogen ICE buses. Additional research projects include the
15 Homosassa sustainable fuel cell, where water and sunlight are the resources used
16 to produce power for the wildlife pavilion at the Homosassa Wildlife State Park,
17 and a Fuel Cell generator project, where a hydrogen fuel cell was used to provide
18 emergency generation to an assisted living facility.

19 Biomass research includes a study with the University of South Florida to
20 identify potential biomass production potential in Florida, as well as partnerships
21 with the Florida Hydrogen Initiative and the Florida Turnpike Authority on a
22 Methanol Fuel Cell with hydrogen production from orange peels.

1 PEF believes research and education are the building blocks to sustainability.
2 However, the Company does not rest with research, but rather actively pursues
3 alternative energy production. While PEF's Regulated Commercial Operations
4 department provides large-scale alternative generation through standard and as-
5 available contracts, the DSM department focuses on direct customer interaction,
6 along with residential and commercial endeavors to develop measures that
7 promote both renewable energy production with energy efficiency and direct load
8 control partnerships. The Renewable Energy Program established with PSC
9 Docket 060647-EG introduced this innovative collaboration. The DSM
10 organization is pursuing additional measures and programs to enhance this
11 consumer partnership.

12
13 **Q. Does PEF offer any special financing assistance to implement measures?**

14 **A.** Customers who participate in energy efficiency programs, such as the Home
15 Energy Improvement and Better Business, can save on their bills through
16 financial incentives to implement energy-efficient measures. There are also
17 federal tax credits or state rebates that accompany several programs.

18 PEF is also currently researching options that will assist our customers with
19 participating in some of the more costly energy efficiency improvements through
20 implementation of a low interest loan program. PEF envisions a program that
21 will be administered by a third party financial partner with expertise in consumer
22 lending. Under the new loan program, the selected lender would offer loans to
23 assist with the purchase of items such as heat pump systems, reflective roofing,

1 replacement windows, injected foam wall insulation products, and other more
2 costly improvements. The minimum and maximum dollar loan and credit quality
3 standards will be determined by working with the third party financial partner.
4 When loans are approved, PEF would buy down the interest rate to below market
5 rates as an incentive to encourage more customers to take advantage of these
6 investments in energy efficiency improvements.

7
8 **Q. What types of applications has PEF promoted to encourage behavioral**
9 **modifications?**

10 A. In June 2007, PEF introduced its "Save the Watts" campaign. The campaign is
11 designed to encourage consumer participation in PEF's demand side management
12 and energy efficiency programs. The community awareness campaign also
13 educates customers about the benefits of efficiency as a tool for managing energy
14 use and lowering their bills.

15 PEF also reaches out to our youngest customers by educating them on the
16 value of an energy-efficient lifestyle through student audits, student assemblies,
17 and curriculum. Another interesting program is called the newspaper in
18 education program which is sponsored by some of the larger newspapers in
19 circulation. In this program the newspapers publish a classroom edition which is
20 distributed to the students and PEF can supply an energy efficiency supplement to
21 be included. Some additional programs include development of an energy-
22 efficient educational play and participation in the Great American Teach-In
23 through energy efficiency presentations developed for all grade levels.

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Q. How does PEF help customers identify ways to reduce their electric bill?

A. The primary method is through the energy audit which helps customers identify specific measures that they can implement that would be most beneficial and have the most impact directly to their residence or behaviors. During an energy audit, additional state rebates or federal tax credits are also identified where applicable.

Additionally, PEF offers a number of other mechanisms such as our website, various literature, the Save the Watts advertising campaign, and bill inserts to educate customers and provide more general tips and suggestions for reducing their electricity usage.

Q. How does PEF's DSM effort compare to those of other utilities?

A. PEF has been a leader in demand-side management and implementing energy efficiency programs in the state of Florida since 1981. PEF has consistently been engaged in identifying numerous cost-effective programs and measures. This is recognized through the extensive list of participation opportunities available for both our residential and commercial customers. Through a review of the numerous programs, it can be seen that PEF clearly has one of the most robust programs in the country.

PEF is third in the nation for load management peak demand reduction with a reduction of 17 percent of peak load, and PEF is ranked fourth in the nation for energy efficiency MWh saved for utilities with 1.5M customers or higher, based

1 on the Department of Energy's 2006 data. PEF also ranks third in the nation for
2 least cost for MWh saved at \$18.63 per MWh, roughly 100 percent more efficient
3 than California utilities' costs. PEF's consistent efforts to identify and implement
4 cost-effective peak load reduction and energy efficiency measures have placed
5 PEF well ahead of other utilities in the country.

6 The combined efforts/initiatives from our Filing and Enhancements will
7 produce 527 Winter megawatts (WMW) of peak demand and 418 WMW
8 reduction from energy efficiency through 2014. When added to the existing
9 programs, this represents a reduction of over 2400 MW.

11 V. Conclusion

12 **Q. Has PEF identified all of the cost-effective demand-side option potential for**
13 **the 2007 through 2014 time frame?**

14 A. Yes. As discussed throughout this document, PEF recently completed a
15 comprehensive review of DSM programs. This resulted in the Commission
16 approving the extensive modifications to three residential/commercial programs
17 and the addition of two new programs. These modifications resulted in the
18 addition of 39 new measures available to residential and commercial customers.

19
20 **Q. Has PEF identified any other conservation, load management or demand-**
21 **side management options that could potentially defer the need for additional**
22 **power generation?**

1 A. No. PEF has recently identified all reasonably achieved DSM potential through
2 its current offerings. The Company, as always, will continue to evaluate potential
3 emerging technologies, but the economics of various technologies has not yet
4 reached market potential. PEF's detailed analysis has captured all cost-effective
5 demand-side management potential available, and it is apparent that the
6 Company will still need additional generating resources to serve its customers'
7 energy needs. With expected customer growth and demand, it is obvious that
8 PEF cannot provide DSM options in quantities needed to offset the demand for
9 additional generation.

10

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

12 A. Yes, it does.

13

RESIDENTIAL									
YEAR	WINTER PEAK MW REDUCTION			SUMMER PEAK MW REDUCTION			GWH ENERGY REDUCTION		
	TOTAL ACHIEVED	COMMISSION APPROVED GOAL	% VARIANCE	TOTAL ACHIEVED	COMMISSION APPROVED GOAL	% VARIANCE	TOTAL ACHIEVED	COMMISSION APPROVED GOAL	% VARIANCE
2005	48	43	12%	18	13	38%	29	21	38%
2006	99	75	32%	37	21	76%	58	35	66%
2007		108			30			50	
2008		142			38			65	
2009		175			47			80	
2010		210			55			95	
2011		248			65			112	
2012		287			74			128	
2013		324			83			144	
2014		366			92			161	

COMMERCIAL / INDUSTRIAL*									
YEAR	WINTER PEAK MW REDUCTION			SUMMER PEAK MW REDUCTION			GWH ENERGY REDUCTION		
	TOTAL ACHIEVED	COMMISSION APPROVED GOAL	% VARIANCE	TOTAL ACHIEVED	COMMISSION APPROVED GOAL	% VARIANCE	TOTAL ACHIEVED	COMMISSION APPROVED GOAL	% VARIANCE
2005	6	3	100%	8	4	100%	3	3	0%
2006	12	7	71%	16	7	129%	9	6	50%
2007		10			11			9	
2008		14			14			12	
2009		17			18			15	
2010		20			21			18	
2011		24			25			20	
2012		28			29			23	
2013		31			32			26	
2014		34			36			29	

Please note: C/I goals were based on measures that were cost-effective.

*Figures are rounded to the nearest whole number.

Residential Program	Measures
Home Energy Check	Free walk-through
	Paid walk-through (\$15)
	Mail In
	Internet
	Phone Assisted
	Energy rating (Energy Gauge)
Home Energy Improvement	Attic Insulation
	Attic Insulation R15 to R30
	Duct Test
	Duct Repair
	High Efficiency Electric Heat Pumps replacing strip heat
	High Efficiency Electric Heat Pumps replacing heat pump
	Injected Wall Insulation
	Central Electric Air Conditioning with Existing Non-Electric Heat
	Supply and Return Plenum Duct Seal
	Proper sizing of High Efficiency Air Conditioner
	HVAC Commissioning
	Reflective Roof Manufactured Homes
	Reflective Roof Single Family Homes
	Replacement Windows
New Construction	Duct Seal
	High efficiency insulation
	HVAC Commissioning
	Window Film & Window Screen
	Reflective Roof Single Family
	Attic Spray-on Foam Insulation
	Spray-In Wall Insulation
	Energy Recovery Ventilation
	Conditioned Space Air Handler
	High Performance Windows
Energy Star	
Low Income Weatherization	Weatherization
	Infiltration (CFM Reduction)
	Water Heater Wrap
	Heat Recovery
	Insulation R-19
	Insulation R-30
	Duct Repair
	AC Servicing - Tune up
	HP SEER 10 12/13 14 (Replacing Strip)
	HP SEER 10 13/13 15 (Replacing Strip)
	HP SEER 10 12/13 14(Replacing HP)
HP SEER 10 13/13 15 (Replacing HP)	

Residential Program	Measures
Neighborhood Energy Saver	Compact Fluorescent Bulbs
	Water Heater Wrap and Insulation for Water Pipes
	Water Heater Temperature Check and Adjustment
	Low Flow Faucet Aerator
	Low Flow Showerhead
	Refrigerator Coil Brush
	Refrigerator Thermometer
	Wall Plate Thermometer
	HVAC Winterization Kit
	HVAC Filters
	Change Filter Calendar
	Weatherization Measures
Energy Management	Winter Only option
	Year round option
Renewable Energy Program	Solar Water Heater with Energy Management
	Solar Photovoltaics with Energy Management

Business Program	Measures
Business Energy Check	Free walk-through
	Paid walk-through
	Internet
Better Business	HVAC Equipment
	Energy Recovery Ventilation
	Duct Leakage Test and Repair
	Ceiling Insulation Upgrade
	Cool Roof
	Roof Insulation Upgrade
	Thermal Energy Storage w/Time-of-Use Rate (TES w/TOU)
	Green Roof
	Efficient Compressed Air System
	Occupancy Sensors
	Roof Top Unit recommission
	HVAC Steam Cleaning
	Efficient Indoor Lighting
	Demand Control Ventilation
	Window film
Efficient Motors	
New Construction	HVAC Equipment
	Energy Recovery Ventilation
	Cool Roof
	Roof Insulation Upgrade
	Thermal Energy Storage w/Time-of-Use Rate (TES w/TOU)
	Green Roof
	Efficient Compressed Air System
	Occupancy Sensors
	Efficient Indoor Lighting
	Demand Control Ventilation
	Window film
	Efficient Motors
Innovation Incentive	
Standby	
Curtable Service	
Interruptible Service	
Technology Development	
Qualifying Facilities	



