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ORIGINAL

December 20, 2006

- VIA HAND DELIVERY -

Ms. Blanca S. Bayó, Director
Division of the Commission Clerk and
Administrative Services
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399

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Re: Docket No. 060198-EI

Dear Ms. Bayó:

I am enclosing for filing in the above docket the original and fifteen (15) copies of the prefiled testimony and exhibits of Florida Power & Light Company witnesses Manuel B. Miranda, William R. Slaymaker and John A. Harris, which address the October 9, 2006 petition of the City of North Miami challenging FPL's six-year average vegetation trim cycle for lateral distribution lines and the testimony of the City's witnesses Keith Miller and Terry Lytle in support of that petition.

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If there are any questions regarding this transmittal, please contact me at 561-304-5639.

Sincerely,

MIRANDA - DN 11616-06
SLAYMAKER - DN 11618-06
HARRIS - DN 11619-06

John T. Butler
 John T. Butler

Enclosures
Cc: Counsel for parties of record (w/encl.)

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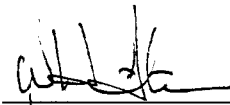
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CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the prefiled testimony and exhibits of Florida Power & Light Company witnesses Manuel B. Miranda, William R. Slaymaker and John A. Harris has been furnished electronically and via U.S. Mail this 20th day of December, 2006, to the following:

V. Lynn Whitfield, Esq.
Maria E. Antonatos, Esq.
Office of the City Attorney
City of North Miami
776 N.E. 125th Street
North Miami, Florida 33161

Rosanne Gervasi, Esq.
Office of the General Counsel
Florida Public Service Commission
2540 Shumark Oak Boulevard
Tallahassee, Florida 32399-0850

By: 

John T. Butler

ORIGINAL

**BEFORE THE FLORIDA
PUBLIC SERVICE COMMISSION**

**DOCKET NO. 060198-EI
FLORIDA POWER & LIGHT COMPANY**

**IN RE: REQUIREMENT FOR INVESTOR-OWNED
ELECTRIC UTILITIES TO FILE ONGOING STORM
PREPAREDNESS PLANS AND IMPLEMENTATION
COST ESTIMATES.**

DECEMBER 20, 2006

DIRECT TESTIMONY & EXHIBITS OF:

**MANUEL B. MIRANDA
(RESPONSE TO CITY OF NORTH MIAMI PETITION)**

DOCUMENT NUMBER-DATE

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

FLORIDA POWER & LIGHT COMPANY

DIRECT TESTIMONY OF MANUEL B. MIRANDA

DOCKET NO. 060198-EI

DECEMBER 20, 2006

Q. Please state your name and business address.

A. My name is Manuel (Manny) B. Miranda. My business address is Florida Power & Light Company, 9250 W. Flagler Street, Miami, Florida, 33174.

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

A. I am employed by Florida Power & Light Company (FPL or the Company) as Vice President, Distribution System Performance.

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

A. I am responsible for executing FPL's Storm Secure Plan, including developing a hardening plan, new construction standards, product engineering and research and development. I am also responsible for overseeing the direct engineering and construction of infrastructure improvements made as a result of our plan.

Q. Please describe your educational background and professional experience.

A. I have a Bachelor of Science degree in Mechanical Engineering from the University of Miami and a Master of Business Administration from Nova Southeastern University. I joined FPL in 1982 and have served in a variety of

1 positions in marketing and distribution operations. I have been a distribution
2 area manager, director of distribution operations support, and director of
3 distribution operations.

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

5 A. Yes. I am sponsoring Exhibits MBM-1 and MBM-2, which are attached to my
6 testimony.

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

8 A. The purpose of my testimony is to respond to the City of North Miami's (the
9 "City's") assertion that FPL's 6 year average tree trimming cycle for its lateral
10 distribution lines is not appropriate. I will provide an overview of FPL's
11 current distribution vegetation management program and FPL's proposal to
12 adopt a 6 year average trim cycle for its laterals. I will also explain why FPL
13 believes that its alternative proposal provides the best balance between cost
14 and benefits for customers at this time.

15 **FPL'S CURRENT VEGETATION MANAGEMENT PROGRAM**

16 **Q. Please describe FPL's current distribution vegetation management**
17 **program.**

18 A. The primary objective of FPL's distribution vegetation management program
19 is to clear vegetation from the vicinity of distribution facilities and equipment
20 in order to protect them and provide safe, reliable and cost-effective electric
21 service to our customers. The program is comprised of multiple initiatives

1 designed to reduce the average time customers are without electricity resulting
2 from vegetation-related interruptions. This would include our preventive
3 maintenance initiatives (planned cycle and mid-cycle maintenance), corrective
4 maintenance (trouble work and customer service restoration efforts), customer
5 trim requests, and support of our system improvement and expansion projects,
6 where we focus on long-term reliability by addressing vegetation that will
7 impact new or upgraded overhead distribution facilities.

8 **Q. How is FPL's Vegetation Management Department organized?**

9 A. FPL's Vegetation Management Department is a centralized organization that
10 is responsible for executing all line-clearing related programs across FPL's
11 service territory. The organization has 19 arborists, including 13 with forestry
12 degrees, all certified by the International Society of Arboriculture (ISA). It
13 also has oversight of our primary line clearing contractors, Asplundh Tree
14 Expert Company, and Lewis Tree Service, which combined have over 1,000
15 employees, including 30 ISA certified arborists, working within FPL's
16 system. FPL's oversight of these contractors is conducted by the quality
17 assurance group and includes 100% inspection of completed maintenance
18 work. The scope of our contractor inspections includes adherence to
19 standards, clearances, proper notification to customers, and site cleanup.

20 **Q. How often are FPL's feeders and laterals trimmed under FPL's current
21 vegetation management program?**

22 A. FPL maintains its main distribution lines, called "feeders," on a 3 year average
23 trim cycle because it offers the optimal balance of reliability performance and

1 vegetation clearing cost. The primary benefit of properly maintaining feeders
2 is that each feeder serves a large number of customers. On average, a feeder
3 serves approximately 1,500 customers. FPL's laterals (i.e., fused circuits that
4 run off the feeder lines) are currently not on a scheduled trim cycle. Instead,
5 lateral trimming is prioritized based on reliability performance. Laterals serve
6 fewer customers than feeders. On average, a lateral serves approximately 35
7 customers. Targeted trimming is also achieved through our "mid-cycle"
8 program that addresses critical circuits and responses to customer trim
9 requests.

10

11 Finally, a very important component of FPL's vegetation program is
12 providing information to customers to educate them on our trimming program
13 and practices, safety issues, and the importance of placing trees in the proper
14 location, i.e., FPL's "Right Tree-Right Place" (RTRP) initiative. FPL's RTRP
15 initiative is discussed in Mr. Slaymaker's testimony.

16 **Q. What is "mid-cycle" trimming?**

17 A. Tree species with widely varying growth rates exist along FPL's system.
18 Often certain faster growing trees, and especially palm trees, need to be
19 addressed before the next scheduled cycle trim date. FPL refers to this
20 additional trimming, performed between normal trimming cycles, as mid-
21 cycle trimming. Until 2006, mid-cycle trimming occurred only on FPL's
22 feeders. In 2006, as part of FPL's Storm Secure initiative, FPL began to

1 perform mid-cycle trimming on laterals associated with critical infrastructure
2 facilities.

3 **Q. What are customer trim requests?**

4 A. FPL's customers often contact us with requests to trim trees around lines in
5 their neighborhoods and near their homes. As a result of our discussions with
6 these customers and/or a result of a follow-up investigation, FPL performs the
7 necessary trimming or may determine that the requested trimming can be
8 addressed more efficiently by scheduling it along with normal scheduled cycle
9 trimming.

10 **Q. What have been the costs and miles trimmed associated with FPL's**
11 **distribution vegetation management program over the past several years?**

12 A. Below are FPL's actual distribution vegetation management reliability
13 program costs and associated miles trimmed for 2001 – 2005 and 2006 year
14 end estimates:

	Cost	Miles Trimmed			
	<u>(Millions)</u>	<u>Laterals</u>	<u>Feeders</u>	<u>Mid-cycle</u>	
17	2001	\$35.6	1,867	4,069	*
18	2002	\$38.8	1,294	5,356	*
19	2003	\$40.4	1,902	5,282	*
20	2004	\$38.6	4,911	4,379	3,453
21	2005	\$39.3	1,110	3,333	2,277
22	<u>2006**</u>	<u>\$50.2</u>	<u>725</u>	<u>5,900</u>	<u>4,300</u>
23	<u>6 Yr. Avg.</u>	<u>\$40.5</u>	<u>1,968</u>	<u>4,720</u>	<u>3,343</u>

1 * FPL did not track mid-cycle miles until 2004
 2 ** Estimate - includes \$4.4 million associated with FPL's Storm Secure
 3 program.

4 I should note that in 2006, FPL placed needed emphasis on catching up on
 5 feeder line clearing that had been deferred due to the 2004 and 2005 storms.

6 **Q. Please provide the historical distribution related outages attributed to**
 7 **vegetation for the same period provided above.**

8 A. Distribution vegetation related outages for the same period are provided
 9 below:

					% Change	Vegetation Outages as
	<u>Year</u>	<u>Feeders</u>	<u>Laterals*</u>	<u>Total</u>	<u>from Prior Yr.</u>	<u>a % of Total Outages</u>
12	2001	251	13,166	13,417	8%	15%
13	2002	276	16,630	16,906	26%	18%
14	2003	320	18,987	19,307	14%	20%
15	2004	287	14,938	15,225	(21%)	17%
16	2005	176	10,395	10,571	(31%)	11%
17	2006**	142	8,733	8,875	(16%)	9%

18 *Lateral outages include outages on all devices except feeders (e.g.,
 19 transformers, services, etc.)

20 **12 months ended 11/30/2006

1 **Q. How do FPL's vegetation related outage statistics compare to others in**
2 **the industry?**

3 A. FPL compares favorably. Based on the Edison Electric Institute's latest report,
4 the industry average for vegetation related outages as a percentage of total
5 outages is 16%. As can be seen above, FPL's performance for the period
6 2001-2004 approximates this industry average. For 2005 and 2006, FPL's
7 efforts, along with the natural pruning resulting from the 2004 and 2005
8 storms, produced results that are significantly better. This reliability
9 performance has been achieved despite tree density in FPL's service territory
10 that is twice the national average and some of the highest tree re-growth rates
11 in the nation.

12 **Q. Does FPL have any recent information regarding vegetation related**
13 **outages associated with storm events?**

14 A. Yes. Subsequent to the 2005 storm season, FPL contracted with KEMA, Inc.
15 an internationally known engineering and consulting firm to review FPL's
16 2005 storm performance. Included in KEMA's review was a statistical
17 examination of data collected for Hurricane Wilma. Hurricane Wilma was a
18 Category 3 storm when it made landfall in FPL's service territory in late
19 October 2005. One element of this examination included identifying broken
20 distribution poles, where trees were identified as a contributing factor to the
21 breakage. The analysis indicated that less than a tenth of a percent of pole
22 replacements were categorized as being the result of tree damage that would
23 have been prevented had the vegetation in the vicinity of the poles been

1 trimmed to FPL standards. In other words, vegetation growing too close to
2 FPL's poles proved to be an insignificant contributor to pole failure during
3 Hurricane Wilma.

4 **Q. How would you summarize the results of FPL's current vegetation
5 management program?**

6 A. Our approach of balancing reliability performance and vegetation clearing
7 costs through the 3 year feeder cycle and reliability performance lateral
8 clearing has delivered excellent results, despite the difficult challenges of
9 providing service in Florida.

10

11 **FPL's 6 YEAR LATERAL TRIM CYCLE PROPOSAL**

12 **Q. Please describe the background of FPL's 6 year lateral trim cycle
13 proposal.**

14 A. As part of the Commission's review of electric utilities' on-going storm
15 preparedness initiatives, utilities were required to assess the feasibility of a 3
16 year vegetation management cycle for all distribution circuits and evaluate
17 whether there were more cost-effective viable alternatives. On June 1, 2006,
18 FPL filed its response to this requirement. FPL's proposal was to continue its
19 3 year average trim cycle for feeders and to initiate a 6 year average trim cycle
20 for laterals. FPL concluded that this proposal provides the best balance among
21 costs, benefits and feasibility.

- 1 **Q. What factors did FPL consider in determining that the 3 year feeder/6**
2 **year lateral average trim cycle (3 year/6 year) was more appropriate than**
3 **the 3 year average trim cycle for feeders and laterals (3 year/3 year)?**
- 4 A. FPL's analysis considered the costs and benefits associated with different trim
5 cycles, implementation feasibility, and potential savings associated with a
6 reduction of customer interruptions.
- 7 **Q. What input data did FPL use in conducting its analysis of the costs and**
8 **benefits of different trim cycles?**
- 9 A. FPL relied on and utilized the following inputs:
- 10 Costs - Vegetation management preventive maintenance circuit trim data;
11 incremental resources required to accomplish proposed trimming; labor
12 premiums and overtime rates; reactive workload adjustments based on the
13 preventive maintenance funding level
- 14 Reliability - Vegetation circuit reliability data; customer interruptions (CI) and
15 customer minutes interrupted (CMI) reliability data
- 16 Storm Performance – FPL storm data and the FEMA-HAZUS hurricane
17 model; FPL restoration costs and CI data over the 5 hurricanes making direct
18 landfall in FPL's service territory
- 19 **Q. What are the results of FPL's analysis?**
- 20 A. The results are shown in Exhibits MBM-1 and MBM-2. Exhibit MBM-1
21 summarizes the costs and benefits of the 3 year/3 year option, FPL's 3 year/6
22 year proposal, and FPL's current program. Exhibit MBM-2 provides a ten
23 year present value cost analysis of those three alternatives.

1 **Q. Please explain what Exhibits MBM-1 and MBM-2 show.**

2 A. I believe it is best to review these two exhibits in terms of costs and benefits.
3 First, it is obvious the 3 year/3 year proposal is significantly more costly than
4 the 3 year/6 year proposal. Exhibit MBM-1 indicates that from every
5 perspective - first year hard costs (\$138.4 million vs. \$65 million, or over
6 twice as much), average annual costs (\$102.5 million vs. 71.9 million, or over
7 40% greater), and costs per avoided storm CI (\$280 vs. \$129, or over twice as
8 much) - the 3 year/3 year proposal is significantly more costly. The two main
9 reasons are the larger tree trimming workforce (700 vs. 227, or over three
10 times as much) and the associated workforce scarcity premiums required to
11 implement the 3 year/3 year proposal.

12

13 Exhibit MBM-2 presents the total costs of the three alternatives on a net
14 present value basis. The total costs include storm restoration and normal
15 restoration costs, so the benefits of increased trim frequency are captured in
16 this comparison in the form of reduced restoration costs. Exhibit MBM-2
17 shows that on a ten year present value basis, the 3 year/3 year proposal is over
18 \$100 million more costly than FPL's 3 year/6 year proposal, even when the
19 reduced restoration costs are taken into account.

20 **Q. Please discuss the other factors that FPL considered when comparing the**
21 **3 year/3 year and 3 year/6 year proposals?**

22 A. Two other factors were considered: the feasibility and practicality of securing
23 the necessary tree trimming contractor resources associated with the 3 year/3

1 year proposal; and resolving the community and customer barriers and
2 challenges associated with the increased volume of tree trimming work.

3 **Q. Does FPL have a concern regarding the feasibility and practicality of**
4 **securing the necessary tree trimming contractors required to support the**
5 **3 year/3 year option?**

6 A. Yes. FPL's analysis shows that 700 additional full-time personnel equivalents
7 would be required for the first 3 years. The need for these additional resources
8 would affect the supply-demand equilibrium and would result in increased
9 competition for line-clearing resources. Also, FPL believes that there is a very
10 high overall execution risk associated with this proposal. It would be very
11 difficult to execute a successful implementation plan for the 3 year proposal
12 which would need to include sufficiently trained line-clearing personnel,
13 effective line supervision and a deployment strategy aligned with the
14 expectations of local municipalities and homeowners.

15 **Q. What are the community and customer barriers that would work against**
16 **the 3 year/3 year proposal?**

17 A. The increased annual work scope required to support the 3 year/3 year
18 proposal would most likely result in significant additional community and
19 customer barriers, e.g., customer refusals, local ordinances, etc... FPL's 3
20 year/6 year proposal provides more time to educate customers and
21 communities and possibly enact necessary changes to laws and ordinances.
22 Until these barriers and the challenges associated with them can be reduced or

1 eliminated, expected performance results likely would not be realized at any
2 investment level.

3 **Q. How do the projected annual trimming costs and the number of miles**
4 **trimmed associated with FPL's 3 year/6 year program compare to**
5 **historical costs and miles trimmed?**

6 A. Below are the projected costs and miles trimmed for 2007 – 2012:

	Cost	Miles Trimmed			
	<u>(Millions)</u>	<u>Laterals</u>	<u>Feeders</u>	<u>Mid-Cycle</u>	
9	2007	\$65.0	1,900	4,400	4,000
10	2008	\$64.4	2,000	4,600	4,000*
11	2009	\$68.4	2,700	5,200	4,000*
12	2010	\$72.3	3,100	5,300	4,000*
13	2011	\$73.0	3,300	5,600	4,000*
14	<u>2012</u>	<u>\$73.6</u>	<u>3,700</u>	<u>5,200</u>	<u>4,000*</u>
15	<u>6 Yr. Avg.</u>	<u>\$69.5</u>	<u>2,783</u>	<u>5,050</u>	

16 *While the annual amounts have been projected to be the same, FPL is
17 hopeful that these miles can be reduced as a result of FPL's RTRP initiative.

18

19 FPL is expecting to increase its trimming expenditures substantially over
20 historical levels - on average, more than a 70% increase for the 2007-2012
21 period compared to the previous 6 year period (\$69.5 million vs. \$40.5
22 million). I would like to point out that this substantial increase will occur
23 under FPL's 3 year/6 year proposal with its plan for controlling costs by

1 gradually increasing the tree trimming workforce in order to diminish
2 contractor overtime and premium startup costs. As I explained earlier, the
3 increase would be much larger under the 3 year/3 year alternative, without a
4 commensurate increase in benefits. FPL's plan will allow it to achieve a 6
5 year average lateral trim cycle beginning in 2013.

6 **Q. Please summarize why you believe that FPL's 3 year/6 year proposed**
7 **alternative provides the best balance between costs and benefits at this**
8 **time?**

9 **A.** FPL believes its 3 year/6 year proposal provides the best balance between
10 costs and benefits because:

- 11 • Lateral circuit miles make up a greater percentage of the overall
12 population of primary circuits (both feeders and laterals). However,
13 customer density on lateral circuits is significantly lower on average
14 than on feeders (on a per-mile basis); therefore, there are diminishing
15 returns in trimming laterals on the same cycle.
- 16 • It promotes a gradual increase in resources required to carry out the
17 work, which will therefore diminish the effect of overtime and
18 contractor premium startup costs.
- 19 • It avoids the execution risk associated with the 3 year/3 year option's
20 increased contractor labor requirements.
- 21 • It promotes execution flexibility to target lateral circuits that require
22 more frequent attention due to tree density, species growth rates,

1 customer impacts, and trimming cost beyond what a “hard cycle”
2 would achieve.

3 • It is a significant first step, requiring a significant increase in
4 resources. FPL’s plan is to gradually implement its proposal, which
5 provides FPL and the Commission opportunity to address community
6 and customer acceptance barriers and to continually monitor and
7 evaluate the effectiveness of the plan, and make necessary
8 modifications if required.

9 **Q. Does the testimony filed by the City’s witnesses provide any basis for**
10 **disputing FPL’s analyses of the alternative trim cycles?**

11 A. No, it does not.

12 **Q. Does the testimony filed by the City’s witnesses provide any quantitative**
13 **support for an alternative to FPL’s 3 year/6 year lateral trim cycle**
14 **proposal?**

15 A. Again, the answer is no.

16 **Q. Please summarize your testimony.**

17 A. FPL’s current vegetation management strategy and program has produced
18 excellent results in a cost-effective manner. However, recent and projected
19 increases in hurricane activity indicate a new approach is worthy of
20 consideration. FPL’s 3 year/6 year proposal is a significant first step to
21 address this increased hurricane activity and provides the best balance
22 between costs and benefits.

23

- 1 Q. **Does this conclude your direct testimony?**
- 2 A. Yes.



Scenario	Tree SAIIFI in 10 years	Year 1 Incremental Tree Trimming FTE's Required	10 Year Annual Average Storm Avoided "CI"	Year 1 Hard Cost (Millions)	10 Year Average Annual Cost (Millions)	10 Year Average Annual Incremental Cost (Millions)	10 Year Average Cost per Avoided Storm CI	Dollar Savings per Storm CI
FPSC 3 yr. / 3 yr.	0.14	700	155,000	\$138.4	\$102.5	\$43.5	\$280	(\$145)
FPL 3 yr. / 6 yr.	0.16	227	100,000	\$65	\$71.9	\$12.9	\$129	\$6
FPL's Current Plan Going Forward	0.22	—	—	\$50.8	\$59	—	—	—

Notes:

- (1) Cost per storm CI is \$135/CI, based on FPL's actual total 2004 & 2005 hurricane restoration costs divided by the total number of Customers Interrupted (CI).
- (2) "Dollar savings per storm CI" is the difference between restoring a CI and the projected cost of avoiding a CI.
- (3) Under FPL's current plan there would be no avoided storm CI, since it is used as a baseline.

Ten Year Present Value of Costs Analysis

