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Timolyn Henry

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Sent: Thursday, June 01, 2006 4:25 PM
To: Filings@psc.state.fl.us
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Subject: Electronic Filing for Docket No. 060198-EI - FPL response to proposed storm preparedness initiatives

Attachments: FPSC 10 Storm Initiatives - Consolidated Final.doc; Transmittal to Bayo (storm initiatives).doc



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a. Person responsible for this electronic filing:

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b. Docket No. 060198-EI

c. Document being filed on behalf of Florida Power & Light Company.

d. There are a total of 57 pages.

e. The document attached for electronic filing consists of Florida Power & Light Company's response to the storm preparedness initiatives proposed in Order No. PSC-06-0351-PAA-EI, together with a transmittal letter.

(See attached file: FPSC 10 Storm Initiatives - Consolidated Final.doc)

(See attached file: Transmittal to Bayo (storm initiatives).doc)

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June 1, 2006

- VIA ELECTRONIC 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

Re: Docket No. 060198-EI

Dear Ms. Bayó:

In Order No. PSC-06-0351-PAA-EI, issued in the above docket on April 25, 2006 (the "Order"), the Commission directed each investor-owned electric utility to file plans and estimated implementation costs by June 1, 2006 for ongoing storm preparedness with respect to ten initiatives set forth in the order. In compliance with Commission's direction, I am enclosing for filing in the above docket Florida Power & Light Company's plan entitled "Storm Preparedness Initiatives" (the "FPL Plan").

The FPL Plan is organized into ten sections that address each initiative in the Order separately. For each initiative, the FPL Plan first describes FPL's existing programs and activities. In most instances, those existing programs and activities satisfy all or a substantial portion of the initiative's requirements. The FPL Plan then discusses the incremental programs and activities, if any, that would be required in order to fully satisfy the requirements of the initiative. Next, when FPL believes that the purposes of the initiative could be achieved more cost-effectively and appropriately by an alternative to the specific requirements set forth in the Order, the FPL Plan describes FPL's proposed alternative (this is consistent with the flexibility afforded in the Order for utilities to propose alternatives that are "equivalent or better in terms of cost and avoiding future storm damages"). Finally, the FPL Plan estimates the timetable and costs for implementing the incremental programs and activities required to address the Commission's requirements and, where applicable, FPL's alternative.

FPL's proposed programs and activities are based on the best information currently available. It is important for the Commission to recognize, however, the limitations on current information concerning subjects such as the nature and cause of storm damage and the

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FPSC-COMMISSION CLERK

Ms. Blanca S. Bayó, Director
Division of the Commission Clerk and
Administrative Services
Florida Public Service Commission
June 1, 2006
Page 2

effectiveness of various storm readiness and hardening measures in limiting storm damage and enhancing storm recovery. Such information is, by its nature, generated only in storm conditions, and Florida has been fortunate until recently to have had a long period of relatively low storm activity. As FPL and others gather additional storm-related information, it may become apparent that elements of the FPL Plan can be accomplished more effectively and efficiently by other means. If and when that occurs, FPL may propose changes to the FPL Plan for the Commission's review and approval.

Finally, FPL would like to thank the Commission and its Staff for the opportunity to evaluate the proposed initiatives. FPL looks forward to continuing to work with the Commission and Staff in evaluating and addressing those initiatives.

Please feel free to call me at 305-552-3867 if you have any questions about this filing.

Sincerely,

/s/ John T. Butler

John T. Butler

Enclosure

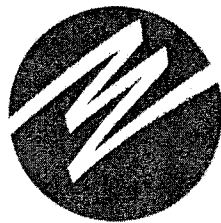
cc: Parties of record and interested persons (w/encl.)

Docket No. 060198-EI

Florida Power & Light Company

Storm Preparedness Initiatives

June 1, 2006



FPL®

Table of Contents

<u>Section</u>	<u>Initiative Description</u>
1.0	3 Year Distribution Vegetation Management Cycle
2.0*	Audit of Joint Use Agreements
3.0	6 Year Transmission Structure Inspection Program
4.0	Hardening of Existing Transmission Structures
5.0*	Transmission and Distribution Geographic Information System (GIS)
6.0*	Post-Storm Data Collection and Forensic Analysis
7.0	Collection of Detailed Storm Data - Analysis of Overhead vs. Underground Reliability Performance
8.0*	Increased Utility Coordination with Local Governments
9.0*	Collaborative Research on Effects of Hurricane Winds/Storm Surge
10.0*	Natural Disaster Preparedness and Recovery Plans

* Includes both Distribution and Transmission

1.0 Three Year Distribution Vegetation Management Cycle

1.1 Proposed Commission Initiative

Per Order No. PSC-06-0351-PAA-EI, FPL will assess the feasibility of a three-year Vegetation Management (VM) cycle for all Distribution circuits and evaluate whether there are more cost-effective viable alternatives.

1.2 Existing FPL Initiative Overview

FPL's strategy to maintain adequate clearance between tree growth and its electric infrastructure is based on a cost effective, consistent and planned trimming cycle. These cycles can vary depending on tree species, geographic location and growth rates. Typically, the main lines (feeders) are maintained on an average of three years as trimming these lines can help prevent outages to the greatest number of customers. Additional line clearing of circuits off the main lines, i.e., laterals, is prioritized based on reliability and overall prevention of interruptions.

As a result of the recent hurricane seasons FPL's approach this year is to accelerate our vegetation management cycle to complete 75% of the planned feeder work before the height of the 2006 hurricane season (July 31). In addition, as of May 31, we have completed line clearing on all circuits that serve top Critical Infrastructure Facilities (CIF). In general, the current plan attempts to balance the cost of trimming circuits with corresponding reliability benefits. There are some external limitations to this strategy, including the ability to acquire customer acceptance for proper trimming clearances and enforce programs that mitigate improper location of new trees (Right Tree-Right Place). For lateral circuits, additional barriers to trimming exist because these circuits are often located outside of utility right-of-ways and easements, and tree densities are typically one to two times greater than on main line feeders.

In 2006, our plan is to increase funding of the Vegetation Management Program by over \$13 million or 35% as compared to 2005 levels.

1.3 Plans to Meet Proposed Commission Initiative

FPL currently maintains its feeders on an average 3-year cycle. Since this program has proven effective and is consistent with the

Commission's proposed initiative, FPL proposes to continue forward with the same scope for feeders.

FPL's analysis focused on the lateral trimming program. The analysis used data on the company's vegetation-related outage experience and preventive maintenance expenditures to determine costs and benefits associated with the PSC-proposed option and to explore alternatives. In order to project potential storm-related cost savings, the analysis also included projections of storm-related outages at different wind speeds and probabilities and focused on preventive tree-related interruptions during storms based on our experiences in 2004 and 2005. It is important to note that any type of vegetation program would have limited benefit in mitigating vegetation-caused interruptions at wind speeds in excess of 115 mph based on our experience and data analysis.

Assumptions

The following assumptions were relied on to conduct the analysis of the Commission proposed initiative and alternatives (as explained in subsequent pages):

Costs:

- VM preventive maintenance circuit trim data
- Incremental resources required to accomplish proposed trimming
- Labor premiums and overtime rates
- Reactive workload adjustments based on the preventive maintenance funding level

Reliability:

- VM circuit reliability data
- Customer Interruptions (CI) and Customer Minutes Interrupted (CMI) reliability data

Storm Performance

- Utilized FPL storm data and FEMA-HAZUS hurricane model
- Applied restoration cost using CI data over last 5 hurricanes making landfall in our service territory

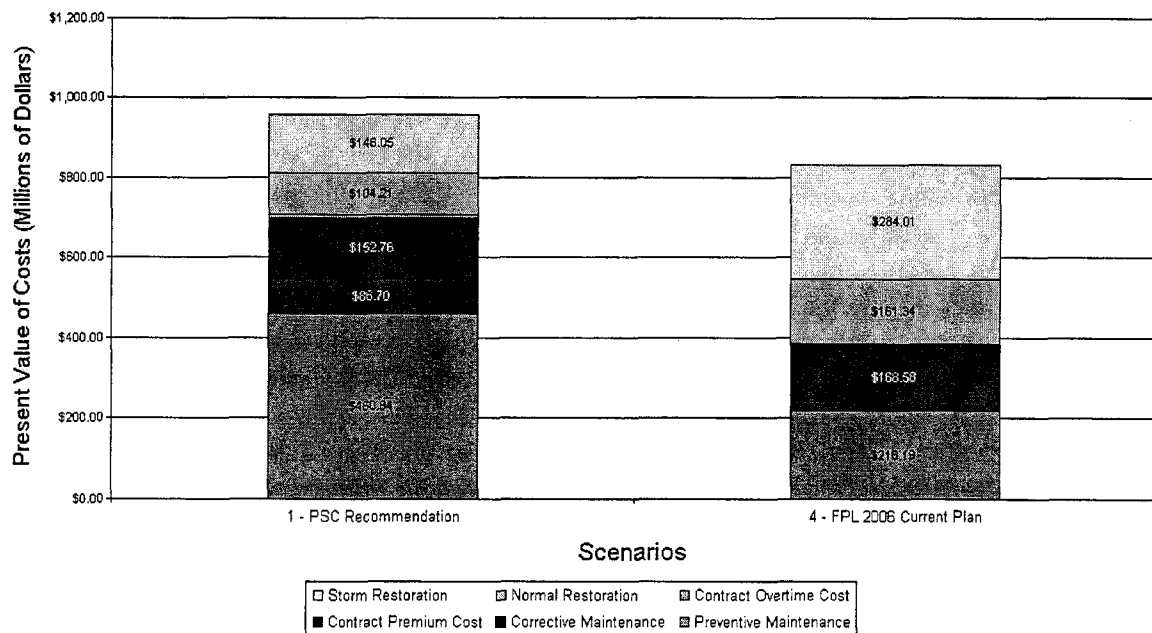
FPL evaluated The Commission's proposed 3-year feeder / 3-year lateral cycles in terms of cost, day-to-day and storm reliability, and feasibility of implementation.

Through the analysis, FPL identified significant barriers to implementing such a program, which are highlighted below.

(1) Diminishing Storm Cost Savings Return on Investment – Any level of line clearing, (short of 100% tree removal) will become less and less effective with increasing wind speeds over approximately 115 mph. We have determined that as wind speeds increase up to and beyond the 115 mph threshold, the number of preventable tree interruptions decreases substantially. Simply stated, the increase in tree trimming expenditures, i.e., an incremental annual average of \$43.5 M, does not justify the expected annual storm CI avoidance benefit of 155,000 customer interruptions (approximately \$280 per CI avoided)

(2) Total Cost – FPL conducted an economic evaluation of the total cost associated with both the Commission proposed initiative recommendation and FPL’s current VM plan. Total costs included “hard costs”, which were comprised of all projected funding in the areas of preventative and corrective maintenance, contractor rate premiums and associated overtime/per diems. The “soft costs” include projected day-to-day restoration of vegetation caused outages and avoided storm costs associated with customer interruptions as a result of severe storms. Comparison of the ten-year present value costs indicates that the current FPL plan is much less costly than the Commission proposed initiative.

Ten Year Present Value of Costs Analysis



(3) Tree Trimming Contractor resources – The FPL analysis shows that over 700 additional line-clearing contractor full-time equivalents (FTE's) will be required for the first three years. These additional resources would ultimately affect the supply-demand equilibrium and would result in increased competition for line-clearing resources. Should supply be available, this increased competition would, in turn, significantly drive up labor costs. In addition, because any contractor FTE's must be guaranteed a minimum 60-hour work week, as well as significant premiums, the cost of implementation would be driven higher. Finally, there is a very high overall execution risk. Key drivers of a successful implementation plan include trained line-clearing personnel, effective line supervision, and a deployment plan matched to the aligned expectations of local municipalities and homeowners.

For these reasons it is impractical and highly improbable that FPL would be able to implement the Commission proposed initiative cost-effectively with the limited lead time given.

(4) Community and Customer Barriers Exist –

The increased annual work scope required to support the Commission's proposal would most likely result in significant additional community and customer barriers, e.g., customer refusals, local ordinances, etc. Until these barriers and the challenges associated with them can be reduced or eliminated, expected performance results will not be realized at any investment level.

In conclusion, our extensive analysis demonstrates that the Commission's 3-year lateral cycle recommendation is not most cost-effective. Additionally, FPL can not cost-effectively procure an appropriately skilled and safe work force required to support this recommendation in the short-term.

1.4 Proposed FPL Alternative Initiative

Proposed Alternative: A 3-year average feeder cycle and 6-year average lateral cycle

In the past, FPL has managed and implemented a distribution VM program that has consistently delivered exceptional day-to-day (non-major storm) operating system reliability performance. Based on the recent hurricane activity and projected increased hurricane activity, FPL believes that expansion of the current VM program

would be warranted to mitigate potential storm damage in the future. In this regard FPL has already taken steps to expand its VM program in 2006.

FPL is obligated to its customers to maintain prudent expenses, including the maintenance programs that support FPL's power delivery infrastructure. In order to determine the most appropriate approach to address these emerging issues, FPL has conducted a thorough analysis to evaluate various alternatives and determine the best scenario that delivers balanced benefits by:

1. Maximizing storm cost savings;
2. Facilitating resource acquisition;
3. Optimizing cost and reliability; and,
4. Ensuring feasible implementation.

Based on the evaluation of these four components, FPL identified a 6-year lateral cycle as the most cost-effective alternative. The following table summarizes the costs and benefits associated with the three alternatives (Commission proposal, FPL's 3 year / 6 year proposal and FPL current 2006 plan).

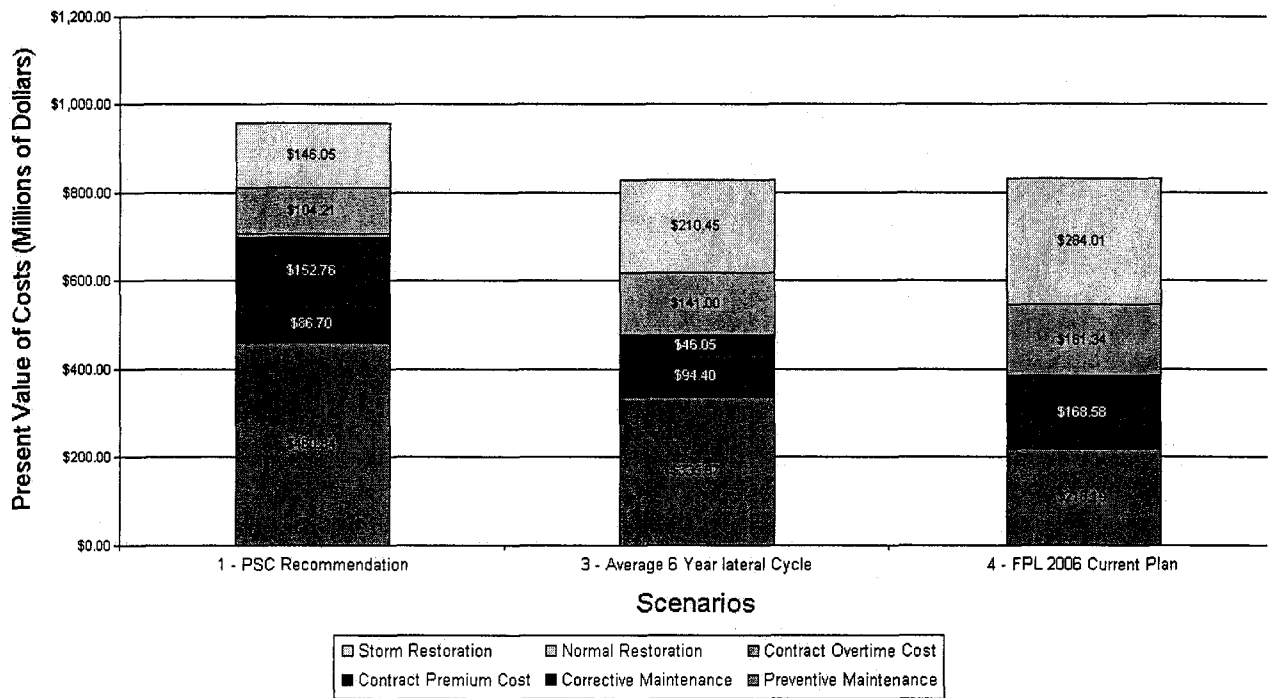
Scenario	Tree SAIFI in 10 years	Incremental Tree Trimming FTE's Required in Year One of Implementation	Annual Storm Avoided "CI"	Average Annual cost (\$M's)	Average Incremental Annual Cost (\$M's)	Cost per avoided storm CI
FPSC Fdr-3yr & Lat 3yr	0.14	700	155,000	102.5	43.5	\$ 280.00
Fdr-3yr & Lat 6yr	0.16	227	100,000	71.9	12.9	\$ 129.00
Current 2006 FPL plan going forward	0.22	-	-	59.0	-	-

The FPL proposed approach clearly demonstrated the best balance between cost and benefits over both storm and non-storm conditions for the following reasons:

1. Lateral circuit miles make up a greater percentage of the overall population of primary circuits (both feeder & laterals). However, customer density on lateral circuits is significantly lower on average than on feeders (on a per-mile basis); therefore there are diminishing returns in trimming laterals on the same cycle as the feeders.

2. FPL's proposed alternative promotes a gradual increase in resources required to carry out the work, which will therefore diminish the affect of overtime and contractor premium startup cost.
3. FPL's proposed alternative also promotes execution flexibility to target lateral circuits that require more frequent attention due to tree density, species growth rates, customer impacts, and trimming cost beyond what a hard dictated cycle would achieve.
4. FPL's proposed alternative and FPL's 2006 current plan have nearly identical present value costs over the ten year period with FPL's proposed alternative providing projected improvement in day-to-day operations reliability and reduced storm CI's.

Ten Year Present Value of Costs Analysis



It is critical to note that for any recommendation or alternative to be successful, community and customer barriers must be addressed and supported by the Commission. If we (FPL, Commission, and other stake holders) are unable to eliminate barriers to effectively perform the required work and achieve the required clearances, then potential storm cost savings will not be realized.

1.5 Timeline – Proposed Commission Initiative

Currently, FPL's vegetation program is on a 3-year average feeder cycle. The Commission's proposal requires the vegetation program to clear distribution circuits, including laterals, of vegetation every 3 years beginning in 2007. The first cycle of this initiative would be completed in 2009.

1.6 Timeline – FPL Proposed Alternative

Currently, FPL's Vegetation program is on a 3-year average feeder cycle, which aligns with the Commission's proposal. The proposed alternative would add the requirement of lateral circuits being cleared of vegetation, on average, every 6 years beginning in 2007. An average 6-year trim cycle would be achieved in 2012.

1.7 Cost Estimate – Proposed Commission Initiative

- The Commission's proposal would require FPL to commit a year one incremental investment of \$88.9 million. Average annual incremental VM program "hard" costs over 10 years are \$43.4 million.
- Highest cost
- Marginal reliability benefits
- Most difficult to implement due to resource availability
- Significant premium cost
- Total of "hard" and "soft" costs substantially exceeds the total for FPL's proposed alternative and FPL's 2006 current plan.

1.8 Cost Estimate – FPL Proposed Alternative

- The proposed alternative would require FPL to commit a year one incremental investment of \$15.5 million. Average annual incremental VM program "hard" cost over 10 years are \$12.9 million.

Summary

FPL's analysis confirms that the company's current vegetation management strategy and program have been effective not only in terms of cost but also in terms of the program's contribution to FPL's overall reliability. Notwithstanding FPL's traditionally excellent reliability, the recent and projected increases in frequency of hurricanes within the company's service territory and our analysis of alternatives indicate that a new approach is worth consideration. Our proposed 3-year feeder and 6-year lateral average trim cycle strategy provides significant

advantages over the Commission recommendation and addresses the increase in projected hurricane activity.

Both the Commission and FPL proposals require a substantial incremental “hard dollar” (preventive maintenance, corrective maintenance and premiums) investment to avoid “potential” storm restoration costs. Furthermore, the increased labor requirements associated with the Commission proposal introduce a significant execution risk and in general make Commission proposal difficult implement. Lastly, in order to realize projected benefits, customer acceptance barriers must be addressed with the Commission’s full support and backing.

FPL advocates that this plan be flexible and re-evaluated annually to assess lessons learned and ensure continued effectiveness.

2.0 Audit of Joint Use Agreements

2.1 Proposed Commission Initiative

Per Order No. PSC-06-0351-PAA-EI, FPL will develop a plan for auditing joint-use agreements that include pole strength assessments, both for electric utility owned poles to which other entities are attached and non-electric owned poles with electric utility attachments. Location of each pole, pole type, pole age, all attachments and pole ownership should be identified and attachments made pursuant to current attachment agreements should be verified. Stress calculations shall be made to ensure poles are not overloaded or approaching overloaded.

2.2 Existing FPL Initiative Overview

Planning for Attachments

Non-pole owning attachees (e.g., cable TV (CATV), telecommunication (telecom) and wireless antenna companies) are required by FPL to execute attachment agreements prior to attaching to FPL's poles. These attachment agreements require attachees to follow a specific permitting process outlined in FPL's CATV/telecom pole attachment permit manual (in place since 1994 and reviewed and updated approximately every two years), or the current version of FPL's recently developed wireless antenna attachment manual. Attachees are required to apply for permits when attaching for the first time to FPL poles and/or if increasing the diameter of existing cables or bundles. This permitting process requires attachees to perform wind loading analyses through an FPL approved firm for each pole to which they seek to attach in order to ensure strength requirements are maintained while carrying the proposed attachment. If the pole strength is insufficient, the applicant must identify the pole and request the pole to be upgraded to a stronger pole, at the applicant's expense. After permits have been obtained from FPL for the attachment and the attachment has been constructed, the attachee notifies FPL of its completed work. FPL then conducts a post-inspection of the attachment for clearance and general compliance with FPL's requirements

Joint use attachments are planned through one-on-one communications between engineers for FPL and the joint use attachee. Joint use attachees are required to perform a complete pole loading calculation, including wind loading, to determine the overall impact their attachment will have on the pole. If the pole strength is insufficient, the joint use attachee identifies the pole and requests the pole to be upgraded to a stronger pole, at its expense.

Surveys of Attachments

FPL partners with telephone, CATV and telecom companies to complete system wide pole attachment surveys on a five-year cycle, in conformance with attachment agreements. The data gathered includes location (since 1998, a GIS address), pole owner, pole type (wood distribution, concrete distribution or transmission), height and identification of attachments/pole owner. The participants in this program provide personnel to “field-check” 10% random samples of each survey completed by the survey contractor to validate survey results and obtain approval. These surveys have assisted in minimizing unauthorized attachments.

2.3 Plans to Meet Proposed Commission Initiative

Distribution

In addition to the recently approved 8 year wood inspection program, FPL will expand the program to include an audit of all wood and concrete poles with attachments. This will include all FPL owned poles with attachments as well as non-FPL poles with FPL attachments. Strength and loading assessments will be performed to ensure compliance to NESC standards.

Strength Assessment: For wood poles, FPL shall perform a strength assessment to determine compliance to the NESC standards for strength. The strength assessment is based on a comparison of the measured and calculated remaining strength versus the original strength of the pole. To ensure the pole meets or exceeds NESC requirements as outlined in Table 261-1A section 26 of the NESC. If the pole does not meet or exceed NESC requirements, the pole will be reinforced or replaced. For concrete poles the loading assessment will be compared to the rating of the concrete pole. If the pole does not meet or exceed NESC requirements, the pole will be replaced.

Loading Assessment: The loading assessment will be based on a combination of span lengths, attachment heights (including 3rd party attachments), wire sizes and equipment sizes, based on FPL's construction standards. If the load exceeds the allowable load for that pole according to NESC standards, the issue will be remedied, e.g., the pole will be reinforced or replaced, span lengths adjusted, attachments removed, etc.

Data Collection: Data for all annual inspections will be maintained in FPL's current attachment database, with linkage to FPL's asset management database system which includes Geographic Information System (GIS) capabilities. Data maintained will include vintage, class, location, ownership of the facilities attached and required follow-up actions.

Joint Use Attachment Agreement Quality Compliance: FPL will require the vendor to perform quality audits to confirm that the specification standards are being met. Proper documentation will be required. FPL will also perform random samples to ensure compliance. This information will also be maintained in the same database mentioned above. Joint Use/CATV/Telecom Pole attachment surveys will continue to be conducted on a 5 year cycle.

Transmission

Inspection Cycle: FPL will audit third party attachments during annual climbing or bucket inspections of its transmission structures, regardless of pole material. These inspections will be scheduled on at least a six-year cycle. Approximately 16.6% of the transmission system will be targeted for inspections annually; although, the actual number of structures may vary from year to year.

Inspection Procedures: Inspectors will identify third party attachments during inspections. This information will then be provided to FPL's transmission department for loading assessments.

Loading Assessments: Transmission structure loading calculations will be conducted on a structure representative of the line section, not every pole in a line section will have loading calculations performed on it. The inspection will include strength and loading calculations to detect the effects of joint-use attachments.

The loading assessment is based on a combination of field measurements, span length, attachments heights (including third party attachments) and wire sizes based on FPL construction standards. If the structural capacity does not meet or exceed NESC requirements, the structure will be scheduled for upgrade, replacement, or reinforcement to meet NESC requirements. Additionally, FPL will request attachment authorization validation from the third party Company, and if they do not have authorization, the third party attachee will reimburse for any structure upgrades.

2.4 Proposed FPL Alternative Initiative

None

2.5 Timeline – Proposed Commission Initiative

Distribution

This program will be initiated in January 2007

Transmission

This program will be initiated in January 2007

2.6 Timeline – Proposed FPL Alternative Initiative

None

2.7 Cost Estimate – Proposed Commission Initiative

Distribution

Costs for wood poles associated with this initiative have already been incorporated into FPL's wood pole inspection program. Therefore, the incremental costs associated with this initiative are associated with inspecting and replacing non-wood distribution poles. The estimated incremental cost for the inspection and remediation of non-wood distribution poles is \$400K-700K annually and \$4-7 million over the next 10 years.

Transmission

The estimated cost for this joint use attachment audit program, including poles requiring remediation is approximately \$800K annually and \$8 million over the next 10 years. This estimate is based upon a 0.5% replacement rate.

2.8 Cost Estimate – FPL Proposed Alternative Initiative

None

3.0 Six Year Transmission Structure Inspection Program

3.1 Proposed Commission Initiative

Per Order No. PSC-06-0351-PAA-EI, FPL will develop a plan for fully inspecting all transmission towers and other transmission line supporting equipment such as insulators, guying, grounding, conductor splicing, cross-braces, cross-arms, bolts, etc. Furthermore, all substations, capacitor stations, relay stations, and switching stations will be included in the transmission inspection plan because of the critical nature of these facilities.

3.2 Existing FPL Initiative Overview

FPL currently performs climbing or bucket inspections on its transmission structures on a cyclical basis. Cycles are established based on the framing configuration (structural loading), transmission components, system importance, customer counts, and inspection history for a transmission line section. Other economic efficiencies, such as multiple transmission line sections within the same corridor, are also incorporated.

In general, transmission line sections containing at least one wood transmission structures with cross-arms are inspected on a 3 or 4 year cycle, 100% (non-sampling) basis from substation to substation.

Transmission line sections with at least one wood transmission structure without cross-arms are inspected on an 8 year cycle, 100% (non-sampling) basis from substation to substation.

Transmission line sections consisting entirely of concrete or steel transmission structures are inspected on a 10% sample basis every 4 years. Depending upon the results from the sample population, additional detailed inspections are scheduled accordingly. The inspection for the other line components such as wire, insulator, and conductor are normally done with special assessments (in addition to sampling) based upon identified problems with age, manufacturer or environment.

FPL includes assessment of the substation pull-off towers as part of each transmission line section inspected.

Inspectors assess the condition of various transmission structure components; including poles, insulators, cross-arms, cross-braces, foundations, bolts, conductor, overhead ground wire (OHGW), guy wires, anchors, and bonding. Inspection of the transmission components is performed in accordance with FPL's transmission climbing inspection manual.

FPL currently performs annual assessments of its substations on a quarterly basis in accordance with FPL's substation assessment guide.

3.3 Plans to Meet Proposed Commission Initiative

Inspection Cycle

FPL will perform inspections on all of its transmission structures, regardless of pole material, on at least a six-year cycle. Approximately 16.6% of the transmission system will be targeted for inspections annually, although the actual number of structures inspected may vary from year to year.

Inspection Procedure

FPL will perform inspections in accordance with the following procedures for each transmission structure type.

Wood Pole Inspections

FPL will perform detailed inspections on its wood transmission structures in accordance with FPL's comprehensive wood pole inspection program as proposed by FPL in response to Order No. PSC-06-0144-PAA-EI.

Concrete Pole Inspections

FPL will perform detailed visual inspection on its concrete transmission structures that will include assessing for structural cracks, chips, exposed rebar, and rust. It shall include an overall review of the structure condition, including straightness. The inspection shall also include all transmission attachment conditions, including insulators, guying, cross-braces, cross-arms, and bolts. If a concrete structure does not pass inspection, the pole will be reported for repair or replacement.

Steel Pole Inspections

FPL will perform detailed visual inspection on its steel transmission structures that will include a review of the structure condition itself, an assessment of foundations, and an overall review of structure straightness. The detailed inspection shall also include all transmission attachment conditions, including insulators, guying, cross-braces, cross-arms, and bolts. If a steel structure does not pass inspection, the pole will be reported for repair or replacement.

FPL will enhance the weathering steel section of the transmission climbing inspection manual to include assessment of foundation anchor bolts (tightness, size, and condition), foundation base plates (corrosion and condition), foundation (damage, size, and condition),

cross-brace fasteners (presence, tightness, and condition), cross-braces (damage and condition), and general structure conditions (deformation and corrosion).

Pole selection criteria

FPL's transmission system is primarily a network system with few laterals. The company has determined the most cost-effective approach for scheduling inspection work to be on a line section basis. Therefore, annual inspections will be performed sequentially from substation to substation completing an entire line section (i.e. 100%, non-sampling) basis in the process.

Data Collection

Data for annual climbing or bucket inspections will be captured in a portable field computer. Linked to FPL's transmission asset management system (Orion) database, inspectors will report follow-up actions required on the transmission structure component level. (Refer to section describing FPL's existing Transmission Asset Management System Orion). This database includes data for each structure (GIS). Action required on items not included in the transmission structure components, such as cross-brace fastener connections, will be entered in the comment field.

Pole Inspection Program Quality Compliance

FPL will require the vendor to perform quality audits on its personnel to confirm that the specifications standards are being met. Proper documentation will be required. FPL will also randomly sample pole locations previously inspected for quality assurance and verification for work completion. This information will also be kept in the FPL's Orion system.

Standards/NESC requirements

FPL's transmission pole inspection program complies with NESC requirements.

3.4 Proposed FPL Alternative Initiative

None

3.5 Implementation Timeline - Proposed Commission Initiative

FPL will implement the proposed six year inspection program of transmission structures beginning June 2006.

3.6 Implementation Timeline - Proposed FPL Alternative Initiative

None

3.7 Cost Estimate – Proposed Commission Initiative

The estimated incremental cost of the proposed Commission initiative is currently approximately \$12.9 million annually. This cost will increase as the transmission system expands in the future.

3.8 Cost Estimate – Proposed FPL Alternative Initiative

None

4.0 Hardening of Existing Transmission Structures

4.1 Proposed Commission Initiative

Per Order No. PSC-06-0351-PAA-EI, FPL will develop a plan to upgrade and replace existing transmission structures. The plan shall include the scope of activity, any limiting factors, and the criteria used for selecting transmission structure upgrades and replacements.

4.2 Existing FPL Initiative Overview

Since early in the 1980's, FPL design standard for non-500 kV transmission structures consists of single pole concrete structures. Since the mid-1980's, FPL design standard for non-500 kV transmission insulators consists of polymer post insulators. In addition to planned system expansion; FPL designs and constructs transmission structures according to current design standards during maintenance, relocations, and pro-active rebuild projects.

FPL has gradually reduced the number of wood transmission structures within the system through scheduled maintenance, relocations, pro-active rebuilds, and system expansion. From 1993 to 2005, FPL has retired and replaced approximately 1,000 wood transmission poles each year.

FPL's current design standards have performed exceptionally well during the 2004 and 2005 storm season and have resulted in zero (0) of these structures requiring replacement. The majority (approximately 77%) of the non-500 kV transmission structures requiring replacement, as a result of the 2004 and 2005 storm season have been single pole un-guyed wood structures. During Hurricane Wilma, the majority (68%) of the transmission insulators requiring replacement were ceramic posts on concrete poles. Single pole un-guyed wood poles and ceramic post insulators on concrete poles are the focus of FPL's proposed hardening program for transmission structures.

4.3 Plans to Meet Proposed Commission Initiative

Single Pole Un-Guyed Wood Transmission Structures

FPL will implement a comprehensive plan for replacing existing single pole un-guyed wood transmission structures. FPL will prioritize replacement of these transmission structures based on several factors including proximity to high wind areas, system importance, and customer counts. Other economic efficiencies, such as opportunities to perform work on multiple transmission line sections within the same corridor, will also be considered. FPL forecasts the replacement of existing single pole un-

guyed wood transmission structures will be completed over the next 10 to 15 years.

Ceramic Post Transmission Line Insulators

FPL will implement a comprehensive plan for replacing existing ceramic post insulators on concrete poles. FPL will prioritize replacement of these ceramic post insulators based on several factors including proximity to high wind areas, system importance, and customer counts. Other economic efficiencies, such as multiple transmission line sections within the same corridor, will also be considered. FPL forecasts the replacement of existing ceramic post insulators on concrete transmission poles will be completed over the next 10 to 15 years.

4.4 Proposed FPL Alternative Initiative

None.

4.5 Implementation Timeline - Proposed Commission Initiative

FPL will begin implementation of the proposed hardening program of transmission structures beginning January 1, 2007. FPL has already begun implementation of select wood pole and ceramic hardening projects in preparation for the 2006 storm season as part of Storm Secure.

4.6 Implementation Timeline - Proposed FPL Alternative Initiative

None.

4.7 Cost Estimate – Proposed Commission Initiative

The estimated total cost for the transmission structure hardening program is approximately \$80 million. Based on replacement over a 10-15 year period, the estimated annual cost of the program will be approximately \$5.3 million to \$8.0 million; of course, the actual annual cost of the program may vary from year to year. This annual estimate represents approximately \$3.3 million to \$6.0 million in incremental costs over FPL current program.

4.8 Cost Estimate – Proposed FPL Alternative Initiative

None

5.0 Transmission and Distribution Geographic Information System

5.1 Proposed Commission Initiative

Per Order No. PSC-06-0351-PAA-EI, FPL will develop a transmission and distribution geographic information system. FPL will propose a methodology that is efficient and cost effective in assuring that sufficiently detailed data is collected to conduct forensic reviews, assess the performance of underground systems relative to overhead systems, determine whether appropriate maintenance has been performed, and evaluate storm hardening options.

5.2 Existing FPL Initiative Overview

Distribution

In 2001, FPL implemented a Distribution GIS-based Asset Management System (AMS) to replace its legacy asset database. The GIS was purchased from and implemented by Smallworld Systems Inc. (now GE-Smallworld). Prior to 2001, FPL maintained a record of its distribution assets in a mainframe system (Distribution Database System or DDBS) that was internally developed. This system included data about major components of FPL's distribution system (such as transformers) and their electrical connectivity, but did not include any pole data or conductor/cable routes.

The DDBS data was migrated into the GIS as a foundation of the asset model. The migrated data was then reviewed and edited to ensure the connectivity accuracy of electrical devices recorded in the model. Limited pole data was added from another legacy system. Finally, all of this data was adjusted for spatial accuracy by using FPL's primary maps and record drawings as a reference. This effort lasted until the end of 2003. The data has continued to be reviewed for accuracy and improved as additional systems began using this data for their source of distribution asset information. The resulting GIS system (referred to internally as the Asset Management System or AMS) is now FPL's source system for distribution asset data, electrical connectivity, and generating maps of FPL electric facilities.

The GIS (AMS) data is interfaced to the following 10 systems that require asset information:

- Trouble Call Management System (TCMS) - for performing outage analysis on the electric network)
- SynerGEE – a network analysis tool used by FPL's planning engineers for load and voltage analysis as well as distribution capacity planning
- Load Management Information System (LMIS) – used for demand side management energy conservation programs

- Storm Reporting Register (SRR) – used for storm patrol surveys
 - Distribution Management System (DMS) – used for modeling the real-time status of FPL’s Distribution Network and conducting powerflow analysis (to be implemented in 2006)
 - Customer Communications System (CCS) – used for communicating information to customers about planned outages and system improvement work to be performed
 - Customer Information System (CIS) – used for establishing the customer to transformer relationship
 - Strategic Account Management System (SAMS) – used for providing facility information serving critical customers
 - Data Warehouse (DSS) – Used by employees for generating reports of distribution assets
 - Mobile Mapping Tool (Mapframe) – to provide maps of FPL facilities on mobile data terminals in FPL trucks
- Each of these systems uses the GIS (AMS) as its source for asset information.

The current GIS (AMS) has records for numerous types of electrical objects such as:

- Overhead Auto Switch
- Overhead Fuse Switch
- Overhead Primary
- Overhead Switch
- Overhead Transformer
- Pole
- Substation Breaker
- Substation
- Switch Cabinet
- Underground Fuse Switch
- Underground Primary
- Underground Transformer
- Vault

For each of these objects, attribute fields about the object are available. The attribute data has been populated when required by the GIS (AMS) to support some internal function or when required by one of the subscribing systems. Each object also has a unique identification number (within the system) and has a state-plane coordinate for accurately placing the object on a map.

Examples of object attribute data:

- 1) Currently, attribute fields that are available for Poles include:
 - Material
 - Height
 - Class

- Accessibility
- Brand Date

There are other objects joined to the Pole, including Attachments, Risers, Pole Framing, Guys and Anchors.

2) Currently, attribute fields that are available for each Overhead Transformer location include:

- Construction Status
- DDB Coordinate
- Address
- Feeder Number
- System Voltage
- Phasing
- Secondary Voltage
- Bank Code
- Load Code

3) Additional attribute data for each Overhead Transformer at a location (a location may have multiple transformers) includes:

- Construction Status
- Phase
- Normal Status
- Type
- Primary Voltage Rating
- Dual Voltage (Yes/No)
- KVA
- Salt Spray (Yes/No)
- M&S Number
- Manufacturer

The system is updated daily for new construction, system upgrades, relocation work and any data discrepancies identified. The GIS also contains land information such as road data, water boundaries, municipal boundaries and FPL service area boundaries.

Transmission

Asset Management System (Orion)

Since 1993, the transmission department has utilized an asset management system, including a GIS system for its transmission structures. Over the years, FPL has enhanced this internally developed program to reach its present form, Orion. This asset management system stores data on FPL transmission system and serves as a central "hub" for other system functions used by the transmission department.

Orion : Hierarchy Overview

Orion stores transmission assets information in a hierarchy computer structure:

- Transmission Line
 - Transmission Section
 - Transmission Structure

Orion : Hierarchy Details

At each hierarchy level, the following details are stored within the transmission asset management system:

Transmission Line

The following detailed information is captured at the transmission line level.

- Transmission Line Name
- Operating Voltage
- Class (Overhead, Underground)
- Line Length
- Geographic Area within FPL's Service Territory
- Geographic Sub-Area within FPL's Service Territory
- Outage Information

Transmission Section

The following detailed information is captured at the transmission section level.

- Transmission Section Name
- Operating Voltage
- Section Length
- Geographic Area within FPL's Service Territory
- Geographic Sub-Area within FPL's Service Territory
- Inspection Percentage
- Inspection Cycle (Year)
- Next Scheduled Inspection (Year)
- Outage Information

Transmission Structure

The following detailed information is captured at the transmission structure level.

- Transmission Structure Number
- Geographic Area within FPL's Service Territory
- Geographic Sub-Area with FPL's Service Territory

- FPL Framing Standard
- GPS Location (Latitude & Longitude)
- Span Information (Ahead & Back)
- Deflection Angle
- Inspection History
- Grounding Resistance Measurements
- Structure Component Information, including:
 - o Pole (Type, Length, Set Depth, Material, Position)
 - o Insulator (Type, Material, Position)
 - o Cross-arm (Type, Length, Material, Position)
 - o Cross-brace (Type, Length, Material, Position)
 - o Conductor (Size, Type)
 - o OHGW (Quantity, Size, Type)
 - o Guying (Type, Size, Position)
 - o Bonding (Size, Ground Rod Measurements)

Portable Field Computers

During assessments, inspectors capture exception-based information about the condition of the transmission components requiring action. This information is captured in portable field computers at the time of inspections. Linked to FPL's transmission asset management system (Orion) database, inspectors report follow-up actions required on the transmission structure component level.

Orion Work Management

FPL's transmission asset management system (Orion) includes a work management section. The information captured from the portable field computers is transferred directly into the Work Management portion of Orion. Information initially appears in the pending work basket and is organized in the same hierarchy as described in "hierarchy overview" section above. Work items can then be worked individually or grouped together into larger projects. Work items can also be completed in the Orion work management system.

5.3 Plans to meet Proposed Commission Initiative

In order to meet the full requirements of the Commission's Proposed Initiative, the following 7 items would have to be implemented:

Distribution

1. GIS Improvements:

The additional data that would need to be added to FPL's GIS system would be:

- Joint Use Attachment Data (number of, owner, height) in order to more accurately analyze wind loading on FPL poles in support of the Commission's proposed initiative #2
- Input all remaining distribution facilities into GIS
- Feeder Line section identifier data (for tracking reliability programs such as thermovision)
- Cable section identifier (for cable rehabilitation program)
- New attribute for level of hardening applied to facilities

In addition, a generic interface for pole data would need to be developed to support providing data to a third party electronic inspection tool in the event that an inspection vendor supplies their own data collection equipment.

2. Mobile Inspection Tool:

In order to more consistently perform inspections of FPL equipment, a mobile electronic inspection tool that can enable field employees to see the devices on a map and update asset information as well as collect inspection data would need to be implemented. An interface between this mobile inspection tool and the GIS would need to be developed to facilitate the inspection process (getting corrected asset data back into the GIS).

3. Mobile Storm Survey Tool:

In addition to the functions described above, FPL would need to configure this tool to also perform storm surveys. The tool would be used to collect storm damage assessments, forensics data for analysis and post-repair data collection to make updates to the GIS for replaced poles and other components. This additional configuration is required to ensure that the data is collected rapidly so as to not hinder the speed of restoration

4. Maintenance Management System (MMS):

Most GIS products (including FPL's) have limited capability to collect and analyze condition assessment data. Further, GIS tools do not typically provide the historical records of a device. They provide a record of the current assets at a location, not a record of what devices may have been there in the past. GIS products do not typically retain life cycle information for an asset. They are location based rather than asset based. There are products designed to perform the functions of managing asset life cycles and maintenance programs.

In order to accurately capture all activities associated with a component device, FPL proposes the purchase/development of a new MMS. This system would accomplish the following:

- Record all inspection related data for all assets
 - o Date of inspections
 - o Inspection results
 - o Follow-up work performed
- Manage the current inspection programs to include:
 - o Thermovision
 - o Padmount Security Inspections
 - o Pole Inspection Program
 - o Vault Inspection Program
 - o Padmount Switch Cabinet Inspection Program
 - o Recloser Inspection Program
 - o Cable Rehabilitation Program
- Perform reliability analysis to identify opportunities for improvement, determine optimum maintenance cycles and model/simulate expected reliability
 - o Initiate all condition assessment work (either by optimum cycles determined above, by manufacture recommendations and/or by mandated cycles)
 - o Record any post-storm forensic inspections
- Record any outage events caused by components
- Record the replacement of any components

This MMS would be interfaced with the following systems:

- GIS (AMS): to provide the link to the asset database
- Outage Management System (TCMS): to capture anytime a device has experienced an interruption and to capture any replacement of the devices
- Work Management System (WMS): to initiate maintenance activities
- Data Warehouse (DSS): to be able to generate reports from the maintenance management system
- Mobile Inspection Tool: to be able to use view maps of facilities in the field to collect inspection data and update asset data

5. Process Changes:

The process changes required to support this effort include:

- Updates to the field work processes to include updates (in the Mobile Inspection Tool) for any work performed on an object to include a visual inspection of the object.

6. Trouble Call Management System:

FPL would need to add functionality to capture the specific component that failed (not the device that opened) on each interruption with an equipment failure. This would require that the

specific identifier of the device be captured on the trouble ticket, sent to the GIS and also sent to MMS for updates.

7. New Reports:

New reports would need to be developed using data from each of the different systems described above. Examples of new reports to be developed:

- Reliability performance by level of hardening
- Comparisons of reliability performance between levels of hardening
- For each feeder, the number of poles by height and class and level of hardening
- Reports of poles by age, height/class by circuit, by location

Transmission

FPL proposes no change to the existing Transmission Asset Management System as overviewed in section 5.2, but is enhancing the existing process for their system to include:

- Requiring entry of actionable items on non-transmission structure components, such as cross-brace fastener connections, into the comment field of the Asset Management System (Orion);
- Recording and documenting special assessments into the Asset Management System (Orion).

5.4 Proposed FPL Alternative Initiative

Distribution

Of the seven items described above, FPL does not believe that all need to be implemented fully to support the Commission's objectives. Specifically, FPL proposes the following implementation which, along with leveraging FPL's existing systems, will allow the Commission to meet its objective of being able to have all facilities in a GIS platform, being able to identify performance of circuits and certain devices, providing a good forensic analysis of FPL's facilities after a hurricane, identifying maintenance on FPL's circuits and certain devices, and providing a separate view of hardened facilities.

1. GIS Improvements

- Implement as described in Section 5.3

2. Mobile Inspection Tool

- This would not be implemented. This tool along with the mobile survey tool described below were an attempt to satisfy the forensics

objective within the Commission's proposal. FPL proposes instead that forensic analysis of equipment failures would be conducted after each storm by utilizing a sampling methodology similar to that conducted in 2005. FPL believes that the sampling method provides a cost-effective means of analyzing failure data versus a complete forensic survey of all facilities which could hinder restoration time.

3. Mobile Survey Tool

- FPL would implement this tool only for the group of individuals performing the sampling for forensic analysis just described.

4. Maintenance Management System

- This would not be implemented. Instead, FPL would leverage its current data warehouse to record historical inspection of devices. The GIS would retain the inspection date(s) and inspection findings for poles. Performance and reliability data is currently available for each circuit in FPL's system as well as each customer. In addition, specific transformer location performance and cable section performance history is retained for reliability analysis FPL would its existing Data Warehouse to store information from our AMS system and run exception reports on the various inspection programs.

5. Process Changes

-This would not need to be implemented because the mobile inspection and survey tools are also not being implemented. These process changes would be needed to implement the Commission proposed initiatives due to the volume of input being projected from the forensic analysis. Continuing FPL's sampling based forensics will not require any process changes.

6. Trouble Call Management System

- Implement as described in section 5.3

7. New Reports

- This will not be implemented. This item relates to running reports from the new Maintenance Management System. FPL would instead leverage its Data Warehouse to run new reports based on new data described above.

Transmission

No changes required

5.5 Timeline – Proposed Commission Initiative

Distribution

1. GIS Improvements:

The system development work and initial data population described above would require approximately 3 years to complete.

In order to populate the missing pole data cost effectively, FPL plans to use the data captured by the pole inspection process. By the end of the first 8 year inspection cycle, all the poles would have been inspected and the pole related data would be up to date.

2. Mobile Inspection Tool:

This effort would require approximately 2 years to complete.

3. Mobile Storm Survey Tool:

This effort would require approximately 2 years to complete.

4. Maintenance Management System:

This effort would require approximately 3 years to complete including system development and initial population of data.

5. Process Changes:

FPL estimates that the time to complete the process changes (training and deployment of new equipment) following the Mobile Inspection Tool and Maintenance Management System development would be approximately 1 year.

6. Trouble Call Management System:

The time to complete this effort would be approximately 1 year.

7. New Reports:

The time to complete this effort would be approximately 1 year.

Transmission

Not applicable; FPL's current initiative meets Commission requirements.

5.6 Timeline – Proposed FPL Alternative Initiative

Distribution

As discussed in 5.4, items 1 and 6 would be required under FPL's proposal alternative initiative. Implementation of those two items would occur on the following timeline:

1. GIS System Improvements: 3 years to complete development work, 8 years for pole data to be accurate based on pole inspection schedule.

The development would be phased in over 3 years as follows:

- Year one would be the development of the upgrades to GIS to support the new data requirements
- Year two would be the initial population of Joint Use Data and Street Light Data
- Year three would be used for data review and correction and to develop the maps for this new data.

6. Trouble Call Management System

- The time to complete this effort would be approximately 1 year.

Transmission

Not applicable.

5.7 Cost Estimate – Proposed Commission Initiative

Distribution

1. GIS Improvements:

The additional data required to be captured in the GIS would require a system upgrade. The cost of this upgrade/additional data is estimated to be:

- \$2,000,000 for the Joint Use Attachment Data
- \$4,100,000 additional facilities and attributes

In addition to the new data being added to the GIS, the criticality of detailed pole attribute data would require that additional “as-built” information be returned after construction is completed for any job to capture the data for each pole that was installed at a specific location. This data would then need to be updated in the GIS. Additionally, all new street lights would need to be added to the GIS each year. The additional time to input this data for all new construction jobs, relocation jobs, system upgrades and any other maintenance activity is estimated to cost \$500,000 annually.

2. Mobile Inspection Tool:

This tool and associated interface is estimated to cost \$3,200,000 with an annual support cost of \$100,000.

3. Mobile Storm Survey Tool:

The estimated cost for this would be \$800,000. The annual support costs are included above in Item 2.

4. Maintenance Management System:

The cost for the development of the Maintenance Management System is estimated to be \$4,000,000 and would include the following:

- Develop Detailed Requirements

- Evaluate Vendor Products
- Purchase, Configure and Implement System
- Develop Interfaces with Existing FPL Systems
- Migrate initial data from GIS (AMS)
- Migrate data from existing disparate data bases currently in place
- Develop and Deliver Training for employees

Ongoing annual system support costs are estimated to be \$200,000.

5. Process Changes:

The additional time required for the inspection and associated data capture would mean an incremental cost to each job performed by a field crew or designer. The annual additional cost of these inspections to existing work processes is estimated to total \$2,300,000.

6. Trouble Call Management System:

The cost to implement this function would be \$200,000. There are no additional annual costs.

7. New Reports:

The development of these reports is expected to cost approximately \$250,000. There is no additional annual cost.

Total Cost - \$14,550,000 initial cost
 \$3,100,000 annually

Transmission

No additional costs for the transmission GIS program

5.8 Cost Estimate – Proposed FPL Alternative Initiative

Distribution

1. GIS Improvements:

- \$2,000,000 for the Joint Use Attachment Data
- \$4,100,000 for additional facilities and attributes

In addition to the new data being added to the GIS, the criticality of detailed pole attribute data would require that additional “as-built” information be returned after construction is completed for any job to capture the data for each pole that was installed at a specific location. This data would then need to be updated in the GIS. Additionally, all new street lights would need to be added to the GIS each year. The additional time to input this data for all new

construction jobs, relocation jobs, system upgrades and any other maintenance activity is estimated to cost \$500,000 annually.

2. Mobile Inspection Tool:

\$0

3. Mobile Storm Survey Tool:

\$0

4. Maintenance Management System:

\$0

5. Process Changes:

\$0

6. Trouble Call Management System:

The cost to implement this function would be \$200,000. There are no additional annual costs.

7. New Reports:

\$0

Total Cost - \$6,300,000 initial cost
\$500,000 annually

Transmission

No additional costs for the transmission GIS program

6.0 Post Storm Forensic Data Collection

6.1 Proposed Commission Initiative

Per Order No. PSC-06-0351-PAA-EI, FPL will develop a program that collects data for purposes of forensic analysis. This initiative may be integrated with its geographic information system activities as well as with its post-storm data collection activities. FPL will propose a methodology that is efficient and cost effective in assuring the utility collects sufficiently detailed data to conduct forensic reviews and become better able to evaluate storm hardening options.

6.2 Existing FPL Initiative Overview

Distribution

In 2005, four teams divided the area of storm impact and performed sectionalized patrols in order to capture a high number of observations prior to restoration. For Wilma, this resulted in 1,741 poles observations (approximately 15% of all damaged poles) by the forensic teams. Data collected provided valuable insight into damaged equipment characteristics allowing some conclusions to be made. Of course, due to the unpredictability of violent storm patterns there will always be damage of unknown causes.

General Process

- Obtained information as to the path of the storm and the wind bands.
- Assigned teams to cover specific areas lying in the path of the storm, including the outer wind bands.
- Given an assigned area (i.e., a county, staging site, etc.), planned a route that included a thorough sampling throughout the assigned area.
- Patrolled and performed a forensic investigation at each location encountered where either a pole, wire or other equipment was damaged or had caused a customer outage.
- As the restoration days progressed, teams utilized other data sources to obtain more specific locations where damage had been reported.
- Utilized a laptop with geographic location software: MapPoint, Map Frame, and GPS. Completed a Data Collection Form for each location.

At each forensic site:

- Pictures were taken to show the specific damage and the surrounding area.
- GPS Coordinate information was recorded
- Completed data collection form, detailing information such as:
 - o Pole specific information
 - o Wire specific information
 - o Framing and loading information
 - o Tree conditions
 - o Foreign attachments
 - o Surrounding area characteristics
 - o Debris condition

Other techniques used for routing

- Divided assigned area into grids and sampled each grid (e.g., “drive North/South and then East/West”)
- In the initial phase of restoration, if teams were finding major damage in one area, they drove to another area to increase the sample locations.

Methods used for Forensic Patrols

- Service Centers provided locations with downed poles
- Daily review of GIS Outage map for pockets of damage
- Spot checked areas with no damage
- Utilized “splash” maps from General Office Command Center
- Covered various parts of the assigned area using different coverage strategies (e.g., perimeter, crisscross North/South & East/West, defined quadrants)
- Utilized file with ticket list (address/GPS) to create a routing on MapPoint.

Transmission

Orion Storm

In June 2004, the transmission department released a storm management system, Orion Storm, for storm restoration of its transmission system. Orion Storm is linked to the transmission asset management system (Orion) and includes a geographic information system (GIS).

Orion Storm : Hierarchy Overview

Orion Storm has the same hierarchy as the transmission asset management system (Orion):

- Transmission Line
 - Transmission Section
 - Transmission Structure Number

Orion Storm : Damage Types

Storm damage details are captured at the transmission structure number level. The following types of damage information are captured:

- Phases Down (1, 2, or 3)
- OHGW Down (OHGW, OPGW, ADSS)
- Node Down (Structure)
- Trash
- Debris

For each of the damage type listed above, additional detailed information can be added in the remarks section of Orion Storm.

Initial Post Storm Data Collection

During the initial stages of post storm assessments, inspectors capture details of storm related damage in portable field computers. Assessments are performed via ground and helicopter patrols. The information captured from the portable field computers is transferred directly into Orion Storm at the structure number level.

Forensic Data Collection & Analysis

Depending on the size and impact of a particular storm, a forensic analysis team may form and evaluate significant (magnitude of damage and/or cost) transmission events. Each forensic team evaluation includes:

- Failure mode
- Capacity review
- Foreign attachment(s) quantity and location
- Surrounding environment/terrain
- Inspection & maintenance history
- Other observations of importance

6.3 Plans to Meet Proposed Commission Initiative

Distribution

Based on the 2005 experience and feedback provided by several sources including KEMA, the following process will be used during future post storm forensic data collection.

Areas that experienced hurricane force winds may be identified as follows:

- GIS maps
- 1 square mile or less section grids
- Feeders, Feeder sections and Laterals

Target specific areas with underground facilities that were subject to storm surge or flooding.

General Process

- Utilize the "Tracking" or audit trail function in MapPoint Software to document areas patrolled.
- Stop and document all damage locations within patrol area.
- As appropriate, gather data on non-damaged locations within patrol area.
- Alternatives for identifying the locations that will be visited by investigators:

- o Target Damaged Population Only - Document Damaged Facilities Only

Sectional Patrols: Due to the population of damaged assets not being known prior to storm events and the need to visit the damaged assets quickly (prior to restoration), this method will yield the most data points. This was the process used in 2005.

- o Target Overall Population

Simple Random Sampling: A random sample is identified from the total population of poles that experienced hurricane force winds. The sample will be divided among the forensic teams and observations will be made on all samples (damaged & non-damaged).

- o Target Damaged and Overall Population

Simple Random Sampling and Routing Patrols. A random sample is identified from the total population of poles that experienced hurricane force winds. The sample will be divided among the forensic teams and observations will be made on all damaged samples. In addition, all damaged facilities between the randomly selected samples will be documented.

- Record more detailed information at each location being investigated. This will reduce the number of observations but increase data for each location.

At each location, various data would be captured, such as, pole information, attachment information, address, GPS coordinates, etc.

Record observations for:

- o Soil conditions

- Guys and anchors
- Wind Speed rating of location

Other sources for routing:

- Obtain ticket list with GPS coordinates
- Obtain pertinent information from “drive-in” patrols

Transmission

From FPL’s experience, the majority (59%) of the transmission line sections impacted by the 2004 and 2005 storm season did not involve damaged transmission facilities. Instead, these transmission line sections involved interruptions that cleared themselves by the time the line was patrolled. When data is available for these instances, FPL proposes the following information be collected during the post storm assessments:

- Phase(s) involved & configuration
- Location to edge of right-of-way
- Surrounding environment/terrain
- Other observations of importance

6.4 Proposed FPL Alternative Initiative

None

6.5 Timeline – Proposed Commission Initiative

Distribution - Available for 2006 Storm Season.

Transmission

Not applicable as currently active.

6.6 Timeline – Proposed FPL Alternative Initiative

None

6.7 Cost Estimate – Proposed Commission Initiative

Distribution

Product engineers will be used as forensic team observers. Their payroll costs and material costs (computer and software) as needed for data collection is required - \$50,000 - \$100,000.

Transmission

None.

6.8 Cost Estimate – Proposed FPL Alternative Initiative

None

7.0 Collection of Reliability Performance Data for Overhead and Underground Infrastructure during Storm Restoration

7.1 Proposed Commission Initiative

Per Order No. PSC-06-0351-PAA-EI, FPL will develop a program to collect data that differentiates between overhead and underground facility performance during extreme weather events. The results could potentially assist in assessing hardening options and helping customers with their construction or conversion decisions.

FPL Comments on Feasibility of Commission Initiative

The Commission's initiative contemplates that utilities develop methods to collect data for forensic reviews of infrastructure reliability performance during storms. They propose that the data should have sufficient granularity to:

- a) Determine the percent of outages occurring in overhead and underground systems;
- b) Assess the performance and failure mode of "competing" technologies (e.g., direct buried cable v. cable-in-conduit, concrete v. wood poles, padmount v. vault, etc.);
- c) Determine if location factors, such as front v. rear lot have an impact;
- d) Assess the effect of high winds and storm surges on overhead v. underground.

The commission further suggests integrating this information with FPL's Geographic Information System (GIS).

FPL notes that even under the best of circumstances, it would be logistically impossible to perform a complete and accurate "100% census" of all the infrastructure damage and associated causes from a hurricane. This is primarily due to two factors. The first is availability of personnel with the required expertise to properly assess each location where an interruption has occurred. Collecting meaningful and accurate data requires not only electrical infrastructure knowledge in general, but also familiarity with FPL-specific design and construction practices and materials. There are only a finite number of personnel with these capabilities and they will only be able to visit so many locations during the restoration period. The second is that line crews will be rapidly and simultaneously restoring customers. Therefore, many times it will not be possible to identify the root cause because repairs will already have been completed. In fact, the weaker and smaller the storm, the quicker the restoration, and the smaller the amount of data that can be collected. Of course, data collection can never be permitted to interfere with the pace of restoration. Therefore, the only practical way to meet the intent of the Commission's proposal initiative recommendations would be through a

random sampling approach. This approach will yield the best data quality, which is significantly more important than data quantity.

Additionally, it is possible that, regardless of the particular proposal pursued, there may not be enough statistically useful data to support the Commission's recommended items b) and c). For example, this could result from too few representative data points of a given type in affected areas or when certain underground facilities are not readily observable.

7.2 Existing FPL Initiative Overview

Most of FPL's feeders are a hybrid of overhead and underground construction. By contrast, FPL's laterals are typically not hybrids, with the exception of some multi-stage laterals.

In order to evaluate the performance of the different infrastructure types during storms, FPL has in the past analyzed feeder data in a number of ways. To-date, the most reasonable method identified those feeders which are "95% pure" overhead (about 300) or underground (about 200) and used these as proxies for the system as a whole. These "pure" feeders represent about 15% of FPL's approximately 3,000 feeders. Not surprisingly, for the 2004 and 2005 storms – which were predominantly wind events – this data showed that underground facilities sustained fewer interruptions. This methodology addresses, to some extent, items a) and d) from the Commission's proposed initiative.

7.3 Plans to Meet Proposed Commission Initiative

The tools and basic processes for this activity have been outlined in Sections 5 and 6 above, so they will not be repeated here. The data collection in the field would be accomplished by augmenting the forensics teams that currently investigate damage to overhead facilities so they can also cover underground facilities. As mentioned in Section 7.1 above, data collection would be performed on a sampling basis to maximize its value. Also, the deployment of resources, areas of emphasis, and techniques employed will be adapted depending on the nature of the storm. The following steps would be necessary to capture the required data:

- a) Feeders – Since these are usually overhead/underground hybrids, it's necessary to break them into smaller segments to get a more accurate representation of the true infrastructure type being affected. As proposed in the GIS Initiative, FPL would establish a new Feeder Line Section data element identifier in GIS (see Section 5 above). After a storm, damage location information would be reported / recorded by field personnel and subsequently

captured in FPL's Trouble Call Management System (TCMS). FPL would then be able to associate the location of each feeder interruption surveyed with a switchable line section. To the extent the primary outage cause can be identified – on circuits where there's extensive damage or multiple failures it may be hard to determine the root cause – this would enable capturing device-level field data and it enables interfacing with GIS. The evaluation of some of the factors identified in the Commission's b) and c) recommendations, possible through GIS, would be based on analysis after the restoration was completed.

- b) Laterals – To the extent practicable, largely dependent on the nature of the storm, the same methods would be employed. The field data could be supplemented with outage counts based on TCMS tickets which currently are identified as either overhead or underground. As stated previously, unlike feeders which are mostly hybrids, laterals are typically purely overhead or underground. Therefore, by knowing which lateral has been affected, FPL is able to know the relative proportion of overhead v. underground outages.

7.4 FPL Proposed Alternative Initiative

As discussed above, FPL proposes to address the Commission's proposal initiatives to the extent feasible through the collection and analysis of forensic data collected on a random sampling basis.

7.5 Timeline – Proposed Commission Initiative

The development of the collection and system interface tools to fully implement this proposal are estimated to take 2 years. However, less full-featured tools could provide the key data collection functionality in the interim.

7.6 Timeline – FPL Proposed Alternative Initiative

None.

7.7 Cost Estimate – Proposed Commission Initiative

The up-front and ongoing system support costs are captured elsewhere in Sections 5 and 6 above. On-going field activity costs would be dependant on storm severity and frequency. However, it is estimated that an approximate average range of \$50,000–\$100,000 per storm would be required. This cost is also highly dependent on the availability of qualified personnel.

7.8 Cost Estimate – FPL Proposed Alternative Initiative

None.

8.0 Increased Utility Coordination with Local Governments

8.1 Proposed Commission Initiative

Per Order No. PSC-06-0351-PAA-EI, FPL will develop a program to increase coordination with local governments. The program should promote on-going dialogue on key issues with the goal of reaching some accommodation or agreement on how the utility and the governmental agency will work together to address mutual concerns and prioritize needs, considering the time and financial constraints associated with given actions. This would include discussing local issues such as undergrounding and tree trimming matters.

8.2 Existing FPL Initiative Overview

STORM MODE

Special Needs Customers

FPL conducts an annual campaign in May of each year to contact customers meeting the criteria for its Medically Essential Service Program and encourages them to register with their respective county emergency operations center. This effort is coordinated with the county EOC's.

Public Officials and EOC Managers

Storm season media releases and FPL executive letters to government officials are distributed by e-mail to public officials and emergency operations managers beginning with the start of the hurricane season. This type of correspondence outlines FPL's emergency plans for before, during and after severe weather events.

FPL representatives receive county EOC assignments in May and are asked to make contact with the director of their assigned location to begin sharing information and identifying expectations in case an event occurs. Every effort is made to place an FPL representative with previous experience with their assigned EOC so that good working relationships can be strengthened.

In addition, FPL representatives meet with county EOC managers/directors and their staff to evaluate and determine the restoration priorities for the county. Efforts are made to encourage municipalities to work with the county to ensure all priorities are identified and that all parties have the same understanding of these priorities.

External Affairs Storm Role

FPL External Affairs representatives have been excluded from other storm duties to focus on the needs of local government during and after

significant weather events. In addition to coordinating with officials in the county EOC's, they stay in contact with county and municipal leaders in the areas impacted by the storm conditions.

EOC Representatives

FPL places its EOC representatives on alert when a severe weather event is within 72 hours of landfall and each has instructions to contact the EOC to advise of their availability and to begin dialogue on each others needs. FPL has pledged to have representatives in County EOC's and provide 24 hour coverage if required. The company will also mobilize representatives from unaffected areas to ensure adequate coverage is in place when dictated by an extended time period.

Storm Communications

FPL begins to communicate outage information to government officials as the tropical winds begin to impact our facilities. This is accomplished through an e-mail distribution network of emergency operations managers and other public officials. This same network is used to provide executive level updates as the restoration and recovery processes progress.

STORM RECOVERY MODE

Post-Storm Contacts and Communications

External Affairs continues to meet with government officials once the restoration process ends and the recovery process begins. In 2004 and 2005, External Affairs managers and directors contacted government officials and community leaders to follow-up on any concerns expressed during the restoration effort and to provide updates on recovery efforts.

The e-mail distribution network for public officials is also used to advise community leaders on the status of recovery issues such as streetlight outages, and other FPL facility issues.

NORMAL OPERATIONS

External Affairs Support

FPL's External Affairs representatives are dedicated to understanding the needs of local governments. These individuals work with local officials throughout the year to identify and address issues that can help mitigate the effects of severe weather and other emergency conditions. In 2006, these issues included topics such as underground conversions and line clearing -- among others.

Government/Community Communications

FPL recently implemented an e-mail distribution network that can specifically target messages to selected audiences. This network is utilized to share breaking news and important updates to public officials in a timely manner.

Right Tree, Right Place

FPL continually looks for ways to better inform local governments and customers on the benefits of keeping vegetation away from electrical facilities. This involvement has ranged from public presentations on the concept of planting the right tree in the right place, to working with counties and cities on ordinances to help keep electrical facilities clear from trees and other vegetation that cause power outages in severe weather.

8.3 Plans to Meet Proposed Commission Initiative

STORM MODE

External Affairs Support

In preparation for the 2006 storm season, External Affairs arranged for local officials to observe FPL's hurricane dry-run and participate in a new event to encourage better collaboration between FPL, local governments and community service agencies like the Red Cross. This "Weathering the Storms Together" event brought hundreds of emergency management personnel and elected officials together to hear about FPL and community preparations for the upcoming storm season.

External Affairs is also coordinating FPL presenters to participate in local government hurricane conferences and fairs to help educate customers on what they can do to prepare for tropical storms

Storm Communications

In January of this year, FPL surveyed public officials to obtain their feedback on storm communications that they received in 2005. As a result, the company is taking steps to enhance our communications with local governments prior to, and after, storm events. The survey helps the company identify ways to improve the content, format and delivery of storm-related information.

In 2006, communications with EOC and other governmental agencies are being enhanced to address key restoration processes that the company shares with local governments. These processes include responding to downed wires, electrical inspections, condemned buildings and debris removal.

Emergency Conditions

FPL representatives recently met with emergency fire/rescue officials throughout its service territory to educate them on enhancements to Priority 1 emergency calls. These calls are associated with critical situations that require special handling by company and fire/rescue personnel. The enhanced process allows police/fire and emergency/rescue personnel to obtain better response times to situations where public safety is in jeopardy.

EOC Crew Program

In 2005, FPL piloted a program to support county government search and rescue and road clearing efforts in several counties. This program is being enhanced and expanded in 2006 to better meet these immediate post-event community needs. The program's purpose is to pre-arrange available crews to work with county "first responders" and assist with making FPL facilities and major thoroughfares safe so that search and rescue efforts can be expedited.

Government Update Website

FPL's External Affairs organization is currently developing a dedicated Government Update website that is being customized with the types of information that government leaders rely on to help with their recovery efforts. This new site will be available for the 2006 storm season and will be communicated to government users in June. The site will contain company-wide and county-specific information that includes:

- Media alerts and releases
- Customer outage information
- Maps of impacted areas
- Critical infrastructure facility (CIF) information
- Estimated time of restoration (ETR) information and maps
- FPL staging site locations and available personnel resources
- Crew work location maps

STORM RECOVERY MODE

Information Sharing and Training

FPL representatives are evaluating ways in which FPL can collaborate with local governments to identify storm damage and gather information that can help expedite the restoration and recovery processes. Meetings are being planned to determine how to best accomplish these objectives and develop information channels between FPL and local governments to achieve desired results. The plans under consideration include FPL sponsored regional training sessions that would educate government

workers on the types of conditions that pose a threat to FPL facilities and the kinds of damage that should be reported to the company.

NORMAL OPERATIONS

Community Trouble Reporting

The company plans to develop the capability to provide local governments with a channel to report conditions regarding FPL facilities to the company. Currently, users can report power outages and non-working streetlights through a website designed for that purpose. The expanded capabilities will give community members the ability to report predefined conditions associated with poles, lines, transformers, etc. Public works and other government departments will then be able to conveniently report these conditions to the company and receive feedback on how the condition was resolved.

Right Tree, Right Place

This year the company partnered with Florida Atlantic University on an ongoing public educational program that demonstrates the concept of planting the right tree in the right place. FPL plans to strongly promote the Right Tree, Right Place concept going forward.

Community Outreach Teams

FPL is soon to officially announce the implementation of community outreach team program that will allow qualified FPL representatives to make presentations to local governments, homeowner's associations and community groups on various topics including the hardening of electrical infrastructure and storm preparation, restoration/recovery plans. This program will provide the company with additional resources to more widely communicate weather-related information to customers and local government.

8.4 Proposed FPL Alternative Initiative

None

8.5 Timeline – Proposed Commission Initiative

Most of the identified actions would be ready for the 2006 storm season. The training package and community trouble reporting system would be ready for implementation for the 2007 storm season.

8.6 Timeline – Proposed FPL Alternative Initiative

None

8.7 Cost Estimate – Proposed Commission Initiative

The cost to develop and conduct training to educate government officials on what to report (and how) to FPL is projected to be \$25K. Since this training would likely occur along with the annual Wire Down and Priority 1 training, the incremental cost is projected at \$12,000. This would be an ongoing annual expense.

The expense to develop and administer a communications system to allow government officials to report facility concerns to FPL is currently projected at \$100,000. A portion of this cost would cover initial set-up for the communications system and would not recur, the balance would be an ongoing annual expense associated with the administration of the system.

8.8 Cost Estimate – Proposed FPL Alternative Initiative

None

9.0 Collaborative Research on Effects of Hurricane Winds and Storm Surge

9.1 Proposed Commission Initiative

Per Order No. PSC-06-0351-PAA-EI, FPL will establish a plan that increases collaborative research, establishes continuing collaboration, identifies objectives, promotes cost sharing, and funds necessary work. The investor-owned electric utilities shall solicit participation from the municipal electric utilities and rural electric cooperative utilities in addition to available educational and research organizations.

9.2 Existing FPL Initiative Overview

Part of FPL'S existing R&D activities have been associated with weather, specifically in storm related research.

In the area of weather, FPL has participated in the creation of computerized wind field products following Hurricane Andrew in collaboration with NOAA, in the development of Service Unavailability figures that are normalized to remove the effects of weather with the University of Florida and most recently, again with NOAA, to study Hurricane Wilma's winds across South Florida.

FPL proposes and is willing to consolidate storm related research efforts with other utilities, universities, and other research organizations, through a centralized entity that will coordinate, prioritize, and spearhead these efforts to reduce duplication of effort, assure proper funding and participation from member utilities, and ensure timely completion of such research endeavors, all aimed at the development of utility infrastructure technologies that reduce storm restoration costs and outages to customers.

9.3 Plans to Meet Proposed Commission Initiative

FPL will support the creation of a non-profit, member supported organization that will coordinate all research efforts in the area of storm effects on utility infrastructures. FPL believes that The Public Utility Research Center (PURC), located in the Warrington College of Business at the University of Florida, is uniquely positioned to host this research effort.

The possible areas of research include:

- Hardening of overhead and underground utility infrastructures
- Storm performance of Overhead versus Underground facilities
- Vegetation Management

- Storm preparedness for Critical Infrastructure Functions
- Storm Restoration Process
- Regulatory Issues

Administration

The proposed organization will perform all administrative functions for this initiative. These functions may include:

- Establishment of membership types
- Membership voting and coordination
- Preparation of proposed Study/Project proposals
- Preparation of proposed Study/Project budgets
- Preparation of proposed Study/Project schedules
- Coordination of all research efforts
- Coordination of all entities involved in research
- Responsibility to keep projects within proposed budgetary guidelines
- Preparation of project summaries
- Dissemination and posting of completed Studies/Projects to all member utilities
- Creation of a Web site for members to retrieve, share and suggest Study/Project proposals

Structure of Organization

The organization will be created with a centralized staff that will seek membership of utilities and Study/Project proposals. Each member utility will provide a coordinator of all research efforts from this organization and will be entitled to vote on the utilities' recommendations for each proposed Study/project. The organization will provide two types of research:

- Membership funded research
Studies/Projects voted on by the majority of members utilities and
- Individually funded research
Studies commissioned and funded by a particular member utility but not voted or funded by the general membership

9.4 Proposed FPL Alternative Initiative

None

9.5 Timeline – Proposed Commission Initiative

A kickoff meeting with all the respective utilities and various other participants has already been scheduled by PURC for June 9, 2006.

FPL will be ready to start participating in research efforts beginning in 2007. The time frames for the completion of chosen research projects, as before mentioned, will be determined by the organization with the approval of participating utilities.

9.6 Timeline – Proposed FPL Alternative Initiative

None

9.7 Cost Estimate – Proposed Commission Initiative

It is estimated that FPL's annual contribution to this proposed organization should range from \$50,000 - \$100,000 depending on the number of participating utilities and the research projects chosen.

9.8 Cost Estimate – Proposed FPL Alternative Initiative

None

10.0 Natural Disaster Preparedness and Recovery Plans

10.1 Proposed Commission Initiative

Per Order No. PSC-06-0351-PAA-EI, FPL plans to document the policies and summarize the procedures used by FPL in responding to severe storms which impact or threaten to impact significant numbers of customers.

10.2 Existing FPL Initiative Overview

FPL existing Emergency Response Plan identifies emergency conditions and delineates the responsibilities and duties of the FPL Emergency Response Organization. The plan is divided into three sections: 1) Capacity Shortages, 2) Severe Storms, and 3) Long Term Fuel Supply Shortages. The plan is a synopsis of FPL's overall emergency processes. Detailed procedures and standards on accounting, safe work practices etc are contained in the references cited in section 1.5 of this manual that will be provided.

The plan describes the following basic topics:

- The organization for identifying, assessing and responding to emergency conditions
- Criteria for identification and classification of an emergency condition
- Notification and mobilization of FPL emergency response personnel. Notification of local and state emergency management agencies. Notification of major commercial and industrial customers
- Emergency response actions by FPL, governmental agencies and the public including development of information for the media and the public for use both prior to and during an emergency
- Facilities, communications equipment and computer systems used in emergency response
- Maintaining a state of emergency preparedness

When operating reserves are nearly exhausted and there is imminent possibility of curtailment of firm load or when a hurricane or severe tropical storm threatens, an appraisal of the situation is made by designated personnel and action taken in accordance with this plan. FPL Emergency Organization personnel are notified and mobilized to manage operations, communicate with the public and appropriate governmental agencies and to restore normal service when the emergency is over. These response actions are carried out to maintain system integrity and to minimize the impact to our customers.

The respective corporate officer assigned has overall ownership of the plan including revisions. The Emergency Response sections for capacity shortage severe storms and long term fuel supply emergency shall be updated as needed or in accordance with Commission and FRCC requirements. The critique from annual system drills will be a primary source for revisions and improvements to the plan.

The major plans and/or procedures which support this corporate plan are listed below.

- Distribution Storm Restoration Procedures
- Power Generation Business Unit plans for cold weather and hurricanes
- Nuclear Energy Division plans for cold weather and hurricanes
- Florida Reliability Coordinating Council Operating Standards
- Corporate Procedure SM 26000 (Corporate Storm Manual that provides a general outline of FPL's storm service restoration program)
- Florida Peacetime Emergency Plan
- FPSC Florida Electrical Emergency Contingency Plan --- Generating Capacity Shortage, Fuel Shortage
- Corporate Communications Emergency Procedures Vol I
- FPL News Media Procedures
- Residential & General Business Customer Service procedures
- FPL Emergency Load Management Manual
- U.S. Department of Energy Power System Emergency Reporting Procedure
- NERC Operating Standards

10.3 Plans to Meet Proposed Commission Initiative

No change - Same as existing FPL initiative in Section 10.2

10.4 Proposed FPL Alternative Initiative

None

10.5 Timeline – Proposed Commission Initiative

Currently in place

10.6 Timeline – Proposed FPL Alternative Initiative

None

10.7 Cost Estimate – Proposed Commission Initiative

Currently in place

10.8 Cost Estimate – Proposed Alternative Initiative

None