



August 24, 2007

Ms. Ann Cole, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

RECEIVED-FPSC
07 AUG 24 AM 11:57
COMMISSION
CLERK

Re: *Review of 2007 Electric Infrastructure Storm Hardening Plan filed pursuant to Rule 25-6.0342, F.A.C., submitted by Progress Energy Florida, Inc.; Docket No. 070298-EI*

Dear Ms. Cole:

Enclosed for filing in the above referenced docket on behalf of Progress Energy Florida, Inc. ("PEF") are the original and fifteen (15) copies of the following:

- Direct Testimony of Jason Cutcliffe with Exhibit No. ___ (JC-1T), Exhibit No. ___ (JC-2T), and Exhibit No. ___ (JC-3T); and **07583-07**
- Direct Testimony of Mickey Gunter with Exhibit No. ___ (MG-1T), Exhibit No. ___ (MG-2T), Exhibit No. ___ (MG-3T), Exhibit No. ___ (MG-4T), Exhibit No. ___ (MG-5T), and Exhibit No. ___ (MG-6T). **07584-07**

CMP 2
 COM 5
 CTR 1
 ECR CD
 GCI 2
 OPC _____
 RCA 1
 SCR _____
 SGA _____
 SEC _____
 OTH _____

Please acknowledge receipt and filing of the above by stamping a copy of this letter and returning to me. A CD rom is included containing the testimony in Microsoft Word format. If you should have any questions, please feel free to contact me at (727) 820-5184.

Thank you for your assistance in this matter.

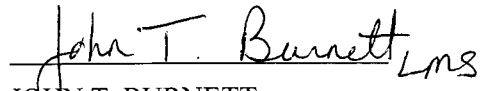
Sincerely,

John T. Burnett
John T. Burnett

JTB/lms
Attachments

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished via U.S. Mail this 24th day of August, 2007 to all parties of record as indicated below.


JOHN T. BURNETT

<p>Lorena Holley, Esq. Keino Young, Esq. Office of General Counsel Florida Public Service Commission 2540 Shumard Oak Blvd. Tallahassee, FL 32399-0850</p> <p>AT&T Florida Ms. Jennifer Kay c/o Nancy Sims 150 S. Monroe Street, Suite 400 Tallahassee, FL 32301</p> <p>Maria T. Browne Davis Law Firm 1919 Pennsylvania Ave., NW, Suite 200 Washington, DC 20006</p> <p>Ms. Beth Keating, Esq. Akerman Senterfitt 106 E. College Avenue, Suite 1200 Tallahassee, FL 32301</p>	<p>Florida Cable Telecommunications Assoc. 246 E. 6th Avenue, Suite 100 Tallahassee, FL 32303</p> <p>Susan Masterson Embarq Florida, Inc. 1313 Blairstone Road Tallahassee, FL 32301</p> <p>Mr. David Christian Verizon Florida, LLC 106 E. College Ave., Suite 710 Tallahassee, FL 32301</p> <p>Dulaney O'Roark, III Verizon Florida, LLC 6 Concourse Pkwy, Suite 600 Atlanta, GA 30328</p>
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REVIEW OF 2007 ELECTRIC INFRASTRUCTURE STORM HARDENING
PLAN FILED PURSUANT TO RULE 25-6.034, F.A.C., SUBMITTED BY
PROGRESS ENERGY FLORIDA, INC.

DOCKET NO. 070298-EI

DIRECT TESTIMONY OF
JASON CUTLIFFE

August 24, 2007

COMMISSION
CLERK

07 AUG 24 AM 11:59

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

2 **A.** My name is Jason Cutliffe. My business address is 299 First Avenue North, St.
3 Petersburg, Florida 33701.

4
5 **Q. By whom are you employed and in what capacity?**

6 **A.** I am employed by Progress Energy Florida, Inc. as Manager of Distribution Asset
7 Performance in the Distribution Engineering and Operations Department.

8
9 **Q: What are your job responsibilities?**

10 **A.** My job responsibilities include overseeing capacity planning, reliability, and Public
11 Service Commission matters for the distribution delivery system. My previous
12 roles include Distribution Operations Manager and Region General Manager for
13 Progress Energy Florida.

14

15

16

DOCUMENT NUMBER-DATE

PROGRESS ENERGY FLORIDA

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FPSC-COMMISSION CLERK

1 **Q. Please describe your educational background and professional experience?**

2 **A.** I graduated in 1986 with a Bachelor of Science degree in electrical engineering
3 from the University of Maine and in 1992 I graduated with a MBA from the
4 University of Richmond. Before joining Progress Energy in 2000, I spent 14 years
5 with Dominion - Virginia Power, where I held various engineering and
6 management roles in their transmission and distribution organizations. I am a
7 licensed professional engineer.

8
9 **Q. What is the purpose of your testimony?**

10 **A.** The purpose of my testimony is to present for Commission approval PEF's Storm
11 Hardening Plan filed on May 7, 2007 along with PEF's Supplemental Plan
12 submitted on August 8, 2007.

13
14 **Q. Please summarize your testimony.**

15 **A.** FPSC Rule 25-6.0342, F.A.C., requires investor-owned electric utilities in Florida
16 to file a Storm Hardening Plan with the Florida Public Service Commission on or
17 before May 7, 2007 and every three years thereafter. PEF filed its Storm
18 Hardening Plan on May 7, 2007 along with a Supplemental update to its plan on
19 August 8, 2007. PEF's plan complies with all the requirements of Rule 25-6.0342
20 and should be approved by the Florida Public Service Commission.

21

22

23

1 **Q. Are you sponsoring any exhibits with your testimony?**

2 **A.** Yes. I am sponsoring the following exhibits that I prepared or that were prepared
3 under my supervision and control:

- 4 • Exhibit No. ____ (JC-1T), which is a copy of PEF's Storm Plan;
- 5 • Exhibit No. ____ (JC-2T), which is a copy of PEF's Plan Supplement; and
- 6 • Exhibit No. ____ (JC-3T), which is a copy of Position Statements from
7 Intervenor in this Docket.

8
9 **Q. Does PEF's Storm Hardening Plan and Supplemental Plan reasonably address**
10 **and comply with the 2007 edition of the NESC standards that are applicable**
11 **pursuant to Rule 25-6.0342(3)(a)?**

12 **A.** Yes.

13
14 **Q. Has any third party intervenor or Staff taken issue with this portion of PEF's**
15 **Storm Hardening Plan?**

16 **A.** Not directly. As can be seen from Exhibit JC-3T to my testimony, Verizon states
17 that it cannot complete its assessment of this aspect of PEF's Plan until sufficient
18 project level detail has been provided, but Verizon has not raised any specific issue
19 with this portion of PEF's Plan.

20
21 **Q. Does PEF's Plan reasonably address the extent to which the extreme wind**
22 **loading standards specified by Figure 250-2(d) of the 2007 edition of the**
23 **NESC are adopted for new distribution facility construction?**

1 A. Yes. PEF addresses extreme wind loading standards on Pages 4 – 7 of its Plan and
2 in Attachments C - E. PEF also address this issue in its Plan Supplement on pages
3 1-3, 6-8 and in Attachments A and B.
4

5 **Q. Does PEF’s Plan reasonably address the extent to which the extreme wind**
6 **loading (EWL) standards of the 2007 edition of the NESC are adopted for**
7 **major planned work on the distribution system, including expansion, rebuild,**
8 **or relocation of existing facilities?**

9 A. Yes. PEF addresses extreme wind loading standards on Pages 4 – 7 of its Plan and
10 in Attachments C - E. PEF also address this issue in its Plan Supplement on pages
11 1-3, 6-8 and in Attachments A and B.
12

13 **Q. Does PEF’s Plan reasonably address the extent to which EWL standards of the**
14 **2007 edition of the NESC are adopted for distribution facilities serving critical**
15 **infrastructure facilities and along major thoroughfares taking into account**
16 **political and geographical boundaries and other applicable operational**
17 **considerations?**

18 A. Yes. PEF addresses extreme wind loading standards on Pages 4 – 7 of its Plan and
19 in Attachments C - E. PEF also address this issue in its Plan Supplement on pages
20 1-3, 6-8 and in Attachments A and B.
21

22 **Q. Has any third party intervenor or Staff taken issue with the EWL portion of**
23 **PEF’s Storm Hardening Plan?**

1 A. No third party has directly taken issue with this portion of PEF's Plan. As can be
2 seen from Exhibit JC-3T to my testimony, Verizon states that it cannot complete its
3 assessment of this aspect of PEF's Plan until sufficient project level detail has been
4 provided, but Verizon has not raised any specific issue with this portion of PEF's
5 Plan.

6
7 Staff has stated that it believes substantive support for "PEF's 60 mile per hour
8 wind speed loading criteria" has not been justified. Staff also states that PEF has
9 not addressed any specific efforts to verify or test the proposition that "a 60 mile
10 per hour wind speed loading criteria is appropriate for PEF's service area."

11
12 **Q. How does PEF respond to Staff's concerns related to EWL?**

13 A. PEF's storm hardening plan includes substantial support for the proposition that the
14 EWL standard should not be applied to PEF's distribution poles. The NESC, the
15 very entity that created the EWL standard, maintained in the 2007 version of the
16 NESC the exception which states that the EWL standard should not be applied to
17 distribution poles less than 60 feet in height. This information is included as
18 Exhibit C to PEF's plan filed on May 7, 2007. Thus, Staff cannot on the one hand
19 look to the NESC for the EWL wind loading curves for Florida and then ignore the
20 Code's explicit exception for applying those loading curves to distribution poles on
21 the other.

22

1 PEF's plan (Exhibits D and E) also includes expert testimony before the FPSC
2 showing that the EWL standard would have no appreciable benefit for PEF's
3 distribution poles with respect to preventing wind-caused damage. Additionally,
4 PEF's plan includes official comments to the NESC from utilities around the
5 country, including other coastal utilities and utilities that experience tornados,
6 supporting the fact that the EWL standard has no appreciable wind damage
7 prevention benefit for their distribution poles. Also, industry experts representing
8 other industries in this docket, such as those representing the Florida Cable
9 Telecommunications Association, have provided similar data to Commission Staff
10 in the workshops in this docket which further supports PEF's position in this
11 regard. PEF has additionally presented NESC expert Mickey Gunter's testimony
12 which further supports PEF's plan in this regard.

13
14 PEF's plan details PEF's experience with pole damage in the 2004 and 2005
15 hurricane seasons, which confirms, and even documents with pictures, that EWL
16 would not have provided any appreciable benefit for wind damage prevention on
17 distribution poles given the fact that transmission poles built to EWL failed when
18 hit with tornados or microburst winds. PEF has provided additional information
19 which shows that in 2004, approximately 96% of PEF's pole failures were
20 attributable to vegetation, flying debris and/or super extreme wind events such as
21 tornados and micro-bursts. PEF has also provided additional data showing that
22 rather than preventing storm outages and costs on PEF's system, the EWL standard

1 would cause longer restoration times and increased restoration costs when
2 compared to PEF's current practice.

3
4 In addition to providing detailed support for not using the EWL standard on a
5 system-wide basis within PEF's service territory, PEF's plan also specifically
6 identifies field projects where PEF will test Grade B and EWL construction in
7 contrast with Grade C construction to see if there is any benefit to Grade B and/or
8 EWL in real storm conditions in varying cross sections of PEF's service territory.
9 While wind simulators and other similar devices may provide some limited data,
10 real storms vary in length, time and intensity and have tornados, flying debris,
11 microburst wind, flooding, erosion, vegetation impacts, and other real world factors
12 that cannot be tested in simulation. PEF's plan acknowledges and incorporates
13 these realities.

14
15 **Q. Does PEF's Plan reasonably address the extent to which its distribution**
16 **facilities are designed to mitigate damage to underground and supporting**
17 **overhead transmission and distribution facilities due to flooding and storm**
18 **surges?**

19 **A.** Yes, on Pages 7–14 of PEF's Storm Hardening Plan and on pages 4-5 of PEF's
20 Plan Supplement and Attachments B and E to that supplement.

21
22 **Q. Has any third party intervenor or Staff taken issue with this particular**
23 **portion of PEF's Storm Hardening Plan?**

1 A. No third party has directly taken issue with this portion of PEF's Plan. As can be
2 seen from Exhibit JC-3T to my testimony, Verizon states that it cannot complete its
3 assessment of this aspect of PEF's Plan until sufficient project level detail has been
4 provided, but Verizon has not raised any specific issue with this portion of PEF's
5 Plan.

6
7 Staff states that PEF's Plan appears to discourage the use of underground in
8 locations at risk for storm surge and flooding and that underground construction is
9 promoted only in areas exposed to minor storm surge and/or short-term water
10 intrusion. Staff also states that PEF failed to state the specific scope and cost of its
11 underground storm hardening activities.

12
13 **Q. How does PEF respond to Staff's concerns related to the design of distribution**
14 **facilities to mitigate damage to underground and supporting overhead**
15 **transmission and distribution facilities due to flooding and storm surges?**

16 A. PEF makes clear in its plan that undergrounding is a site-specific consideration that
17 must be evaluated based on several sets of facts, and that "one size does not fit all"
18 when it comes to undergrounding. PEF specifically identifies 24 underground
19 hardening projects in its storm hardening plan. PEF also specifically describes
20 what measures PEF will use and test to mitigate flood and storm damage to UG
21 facilities on pages 7-8 and 11-14 of its Plan, and these measures include strategic
22 storm evaluation prior to placement of UG facilities and targeted use of (1)
23 submersible switchgear and stainless steel transformers; (2) submersible

1 terminations; (3) raised mounting boxes; (4) cold shrink sealing tubes; and (5)
2 submersible secondary blocks. PEF's plan discusses specific storm hardening
3 activities on pages 14-20. PEF also provided a cost analysis chart which outlines
4 its underground storm hardening activities (Attachment B to PEF's Supplement
5 Plan).

6
7 **Q. Does PEF's Plan reasonably address the extent to which the placement of new**
8 **and replacement distribution facilities facilitate safe and efficient access for**
9 **installation and maintenance pursuant to Rule 25-6.0341, F.A.C.?**

10 **A.** Yes, on pages 8 and 9 of PEF's Plan.

11
12 **Q. Has any third party intervenor or Staff taken issue with this portion of PEF's**
13 **Storm Hardening Plan?**

14 **A.** Not directly. As can be seen from Exhibit JC-3T to my testimony, Verizon states
15 that it cannot complete its assessment of this aspect of PEF's Plan until sufficient
16 project level detail has been provided, but Verizon has not raised any specific issue
17 with this portion of PEF's Plan.

18
19 **Q. Does PEF's Plan provide a detailed description of its deployment strategy**
20 **including a description of the facilities affected; including technical design**
21 **specifications, construction standards, and construction methodologies**
22 **employed?**

1 A. Yes, on Pages 1-3 and 9-20 and Attachment A to PEF's Storm Hardening Plan and
2 pages 5-7 of PEF's Plan Supplement and Attachment E to that Supplement.

3

4 **Q. Has any third party intervenor or Staff taken issue with this portion of PEF's**
5 **Storm Hardening Plan?**

6 A. Not directly. As can be seen from Exhibit JC-3T to my testimony, Verizon states
7 that it cannot complete its assessment of this aspect of PEF's Plan until sufficient
8 project level detail has been provided, but Verizon has not raised any specific issue
9 with this portion of PEF's Plan. Staff contends that PEF has not effectively
10 explained its deployment strategy for specific hardening projects.

11

12 **Q. How does PEF respond to Staff's concerns related to its deployment strategy**
13 **for specific hardening projects?**

14 A. PEF has taken a methodical, scientific approach to potential hardening options and
15 projects through the use of its AIS system and its work with PURC and other
16 utilities. In its Plan, PEF is testing application projects in real storms and is
17 gathering real data so PEF can properly evaluate the efficacy of different hardening
18 options prior to implementing system-wide applications that may or may not
19 provide storm hardening benefits. For detailed information on PEF's AIS system
20 and how specific hardening projects are deployed, please see Attachment E to
21 PEF's Plan Supplement that is attached as Exhibit JC-2T to my testimony.

1 **Q. Does PEF's Plan provide a detailed description of the communities and areas**
2 **within the utility's service area where the electric infrastructure**
3 **improvements, including facilities identified by the utility as critical**
4 **infrastructure and along major thoroughfares are to be made?**

5 **A.** Yes. PEF provided a detailed list of distribution and transmission projects on
6 Pages 14-20 of its Storm Hardening Plan and in Attachment D to PEF's Plan
7 Supplement. PEF also has ongoing dialogue and interactions with third-party
8 attachers that are affected by projects in PEF's Plan.

9
10 **Q. Has any third party intervenor or Staff taken issue with this portion of PEF's**
11 **Storm Hardening Plan?**

12 **A.** Initially, both Staff and third party attachers requested additional information about
13 specific hardening projects, and cost information related to those projects. As
14 mentioned above, PEF provided supplemental information regarding these projects
15 in Attachments B and D to its Plan Supplement, and PEF has an ongoing dialogue
16 with third-party attachers and Staff regarding these issues. To date, PEF is not
17 aware of any further issue or problem regarding this portion on PEF's Plan. As can
18 be seen from Exhibit JC-3T to my testimony, Verizon states that it cannot complete
19 its assessment of this aspect of PEF's Plan until sufficient project level detail has
20 been provided, but Verizon has not raised any additional specific issue with this
21 portion of PEF's Plan.

22

1 **Q. Does PEF's Plan provide a detailed description of the extent to which the**
2 **electric infrastructure improvements involve joint use facilities on which**
3 **third-party attachments exist?**

4 A. Yes, on pages 20-21 of PEF's Plan and Attachment D to PEF's Plan Supplement.

5
6 **Q. Has any third party intervenor or Staff taken issue with this portion of PEF's**
7 **Storm Hardening Plan?**

8 A. Initially, both Staff and third party attachers requested additional information about
9 specific hardening projects, and cost information related to those projects. As
10 mentioned above, PEF provided supplemental information regarding these projects
11 in Attachments B and D to its Plan Supplement, and PEF has an ongoing dialogue
12 with third-party attachers and Staff regarding these issues. To date, PEF is not
13 aware of any further issue or problem regarding this portion on PEF's Plan. As can
14 be seen from Exhibit JC-3T to my testimony, however, Verizon states that it cannot
15 complete its assessment of this aspect of PEF's Plan until sufficient project level
16 detail has been provided, but Verizon has not raised any additional specific issue
17 with this portion of PEF's Plan.

18
19 **Q. Does PEF's Plan provide a reasonable estimate of the costs and benefits to the**
20 **utility of making the electric infrastructure improvements, including the effect**
21 **on reducing storm restoration costs and customer outages?**

22 A. Yes, at pages 21-23 of PEF's Plan and pages 5-8 of PEF's Plan Supplement and
23 Attachments A and B to that Supplement.

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Q. Has any third party intervenor or Staff taken issue with this portion of PEF's Storm Hardening Plan?

A. Initially, both Staff and third party attachers requested additional information about specific hardening projects, and cost information related to those projects. As mentioned above, PEF provided supplemental information regarding these projects in Attachments B and D to its Plan Supplement, and PEF has an ongoing dialogue with third-party attachers and Staff regarding these issues. To date, PEF is not aware of any further issue or problem regarding this portion on PEF's Plan. As can be seen from Exhibit JC-3T to my testimony, Verizon states that it cannot complete its assessment of this aspect of PEF's Plan until sufficient project level detail has been provided, but Verizon has not raised any additional specific issue with this portion of PEF's Plan.

Q. Does PEF's Plan provide a reasonable estimate of the costs and benefits, obtained pursuant to third-party attachers affected by the electric infrastructure improvements, including the effect on reducing storm restoration costs and customer outages realized by the third-party attachers?

A. Yes, at pages 21-23 of PEF's Plan and Attachments B and D to PEF's Plan Supplement.

Q. Has any third party intervenor or Staff taken issue with this portion of PEF's Storm Hardening Plan?

1 A. Initially, both Staff and third party attachers requested additional information about
2 specific hardening projects, and cost information related to those projects. As
3 mentioned above, PEF provided supplemental information regarding these projects
4 in Attachments B and D to its Plan Supplement, and PEF has an ongoing dialogue
5 with third-party attachers and Staff regarding these issues. To date, the third-party
6 attachers that have intervened in this docket all state that they cannot provide cost
7 benefit estimates based on the information that PEF has provided to them. Each of
8 their respective positions are included in Exhibit JC-3T to my testimony.

9
10 **Q. How does PEF respond to the Third-Party Attachers' statements that they**
11 **cannot provide cost benefit estimates based on the information that PEF has**
12 **provided to them?**

13 A. In its Plan Supplement, PEF has provided detailed cost benefit data in Attachments
14 A and B to that Supplement. PEF has also provided specific project cost
15 information in Attachment D to its Plan Supplement. Based on the information that
16 PEF has provided, PEF does not know why the third-party attachers cannot provide
17 cost benefit estimates, nor have any third-party attachers told PEF what further
18 specific information they would need to complete such estimates.

19
20 **Q. Does the Company's Plan include reasonable written Attachment Standards**
21 **and Procedures addressing safety, reliability, pole loading capacity, and**
22 **engineering standards and procedures for attachments by others to the**
23 **utility's electric transmission and distribution poles that meet or exceed the**

1 **edition of the National Electrical Safety Code (ANSI C-2) that is applicable**
2 **pursuant to Rule 25-6.034, F.A.C.?**

3 **A.** Yes, at pages 22-23 and Attachments A and J of PEF's Plan.

4
5 **Q. Has any third party intervenor or Staff taken issue with this portion of PEF's**
6 **Storm Hardening Plan?**

7 **A.** Yes. Each of the third-party attachers' respective positions are included in Exhibit
8 JC-3T to my testimony.

9
10 **Q. How does PEF respond to the concerns set forth by the Third-Party**
11 **Attachers?**

12 **A.** As an initial matter, it is worthy to note that PEF's attachment standards have not
13 changed as a result of this docket or any of the other storm hardening activity
14 initiated by the Commission. In other words, the attachment standards that are
15 included with PEF's plan are the same ones that were in existence prior to 2004, the
16 date after which the Commission began its recent storm hardening initiatives.
17 Thus, any issues that a Third-Party Attacher has with PEF's attachment standards is
18 one that existed prior to this docket, and such issues were not caused and did not
19 come into existence because of this docket. This fact is clearly illustrated in the
20 Third-Party position statements included with Exhibit 3 to my testimony. None of
21 the issues that the Third-Party Attachers raise in their position statements for this
22 subject appear to be "storm hardening plan" issues. Rather, they are issues that

1 touch on subjects that are beyond the scope of this proceeding and are proper for
2 resolution in other forums.

3
4 **Q. Based on the resolution of the preceding issues, should the Commission find**
5 **that the Company's Plan meets the desired objectives of enhancing reliability**
6 **and reducing restoration costs and outage times in a prudent, practical, and**
7 **cost-effective manner to the affected parties?**

8 **A. Yes.**

9
10 **Q. Has any third party intervenor or Staff taken issue with this portion of PEF's**
11 **Storm Hardening Plan?**

12 **A.** As discussed above, the Third-Party Attachers in this docket have, in summary,
13 stated that they cannot provide cost benefit estimates based on the information that
14 PEF has provided and they have also raised pole attachment issues that are outside
15 the proper scope of this proceeding. Staff, however, is the only party that has raised
16 specific concerns with this portion of PEF's plan. Staff has three criticisms of
17 PEF's plan in this regard.

18
19 **Q. What are Staff's criticisms and how does PEF respond to each of them?**

20 **A.** *"PEF is not proposing any changes to its EWL criteria and has not identified*
21 *substantive increases promoting underground facilities. Nevertheless, PEF's cost*
22 *estimates, on a per customer basis, of \$56 exceed that of FPL (\$36-\$46) and TECO*
23 *(\$37). Both FPL and TECO are promoting a more robust wind standard than*

1 *PEF. Therefore, it appears that PEF may be proposing higher cost programs to*
2 *achieve a less robust electric infrastructure system compared to other utilities.”*

3 **PEF RESPONSE:**

4 This statement does not fairly characterize PEF’s plan. This statement does not
5 account for the fact that PEF: (1) is hardening all its transmission poles to concrete
6 and steel; (2) is using front-lot construction for new, rebuilt, and relocated
7 distribution assets; (3) has developed and implemented the AIS system to identify,
8 evaluate, and deploy storm hardening techniques; and (4) has identified 36 specific
9 distribution hardening projects in its Plan to include OH to UG conversions,
10 submersible UG devices, reconductoring, and alternative NESC applications.

11
12 Additionally, this statement assumes, despite all evidence to the contrary, that the
13 EWL provides a hardening benefit when applied to distribution poles in PEF’s
14 service territory. As discussed above, all evidence and information that PEF has
15 shows that it does not. The comment above additionally does not account for the
16 fact that PEF is upgrading all of its transmission poles to concrete and steel. This
17 cost constitutes a significant portion of PEF’s hardening costs which leads to the
18 \$56/per customer figure.

19
20 Further, the dollar-per-customer comparison above also does not acknowledge
21 PEF’s wood pole inspection plan, vegetation management plan, and 10-point
22 Ongoing Storm Preparedness Plan. The comparison also does not properly

1 acknowledge other initiatives that PEF has included in its hardening plan such as
2 the AIS system and the 36 distribution hardening projects slated for 2007-2009.

3
4 Q. *“In general, certain aspects of verifying customer benefits depend on future storm
5 experiences. Nevertheless, it is also possible to test elements of PEF’s planned
6 activities through simulated extreme weather events and thereby avoiding complete
7 reliance on a “trial-by-experience” approach. Thus, our staff believes PEF’s Plan
8 does not adequately discuss a feed-back mechanism that ensures that the
9 overarching goals of lower storm restoration costs and fewer storm outages are
10 achieved economically.”*

11 **PEF RESPONSE:**

12 PEF’s plan specifically identifies field projects where PEF will test Grade B and
13 EWL construction in contrast with Grade C construction to see if there is any
14 benefit to Grade B and/or EWL in real storm conditions in varying cross sections of
15 PEF’s service territory. While wind simulators and other similar devices may
16 provide some limited data, real storms vary in time and intensity and have
17 tornados, flying debris, microburst wind, flooding, erosion, vegetation impacts, and
18 other real world factors that cannot be tested in simulation. PEF’s plan also makes
19 clear that PEF is continuing to take part in collaborative research projects which
20 impact on this issue. Finally, as Commissioner Argenziano recognized at the June
21 19, 2007 FPSC agenda in this docket, real utility experience in real storms cannot

1 be ignored.¹ PEF knows of no better support for the proposition that its system is
2 and has been properly designed, constructed, and maintained than the real life
3 experience that PEF has had with storms that have taken place within PEF's actual
4 service territory. For example, the 2004 hurricane season shows that 96% of PEF's
5 pole failures were due to flying debris and/or super extreme wind events that would
6 have caused EWL constructed assets to fail. PEF cannot reasonably ignore this sort
7 of data and advocate charging its customers more money for more expensive
8 construction designs such as EWL that would have also failed and would have been
9 more costly and time consuming to replace in the hurricane restoration phase.
10 Finally, PEF's 10-Point Storm Preparedness Plan and its subsequent Storm
11 Hardening Plan both discuss how PEF will use its integrated systems and data
12 collection efforts to ensure that the overarching goals of lower storm restoration
13 costs and fewer storm outages are achieved economically. This includes PEF's
14 AIS System, its intergrated GIS systems, its forensic storm analysis process, and
15 other related activity as outlined in those plans.

16
17 Q. *“Additionally, we note that PEF sustained higher damage costs on a per customer*
18 *basis than either FPL or TECO.*

19 2004 Self-Insured Storm Damage Impact
20 FPL, PEF, TECO, and Gulf

¹ **Agenda Transcript, Page 13, Lines 3-5:** *“When we talk about trial by experience, I mean, if you are a company that has been in business for a while, you already have experience.”*

Agenda Transcript, Page 13, Lines 19-24 & Page 14, Lines 1-2: *“And Madam Chair, what I mean is they have that experience, I'm pretty sure. When you are in business, I would hope that one would want to harden on their own, as much as they could, and then what we are asking them to do in addition to that. But anything that they have come back and said, look, this is what we have done in the past, this works the best, and history shows that maybe what you're asking here may be not as cost-effective as doing it a different way.”*

Agenda Transcript, Page 14, Lines 11-14: *“And Madam Chair, I guess that makes a lot of sense. Because if one company has been hit a certain way, and another has been hit a different way, we may be able to use that history from both of them.”*

1

	Charley (Millions)	Frances (Millions)	Ivan (Millions)	Jeanne (Millions)	Total (Millions)	Millions of Customers	Cost per Customer
FPL	\$ 209	\$267	\$ 0	\$234	\$ 710	4.4	\$161
PEF	\$ 146	\$129	\$ 6	\$ 86	\$ 367	1.6	\$229
TECO	\$ 14	\$ 23	\$ 0	\$ 28	\$ 65	0.7	\$93
GULF	\$ 0	\$ 0	\$ 134	\$ 0	\$ 134	0.4	\$335

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Sources: Docket No. 041291-EI for FPL; Docket No. 041272-EI for PEF; and answers to staff data requests for TECO and Gulf.

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While there are many factors contributing to the level of storm damage experienced by each of these utilities, PEF's filings do not provide conclusive support for a lower EWL criteria than neighboring utilities which serve in areas that experience equivalent extreme wind speeds."

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PEF RESPONSE:

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This comparison is not appropriate. First, the comparison does not take into consideration the intensity of the storms, the length of the storms and paths, as well as other storm-specific considerations. Each storm event affects each utility differently and therefore, it is difficult, if not impossible, to accurately evaluate and compare this sort of data as being indicative of a utility's ability to withstand a storm event.

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Using the methodology employed in the comparison above, Gulf Power would have had a \$0 cost per customer in 2004 instead of a \$335 cost per customer if Hurricane Ivan did not happen. This simple example shows that information such as that presented in the chart above has no relevance as to a utility's ability to withstand storm events because the conclusions drawn from that data will vary and

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show disparate and inaccurate conclusions depending on a utility's particular storm experience in a given year.

To further illustrate this point, in the recent FPSC Report to the Legislature on Enhancing the Reliability of Florida's Distribution and Transmission Grids During Extreme Weather, the FPSC reported that during the 2005 hurricane season, PEF experienced \$7 million in total hurricane damage costs which results in a cost per customer of roughly \$4. Thus, by simply using 2005 instead of 2004, PEF's per customer hurricane damage cost goes from \$229 to \$4.

Q. Does this conclude your testimony?

A. Yes it does.



Progress Energy

Storm Hardening Plan
2007 – 2009

May 7, 2007

Docket No. 060172-EI
Docket No. 060173-EI

May 7, 2007

I. Introduction:

Rule 25-6.0342, Florida Administrative Code, requires investor-owned electric utilities in Florida to file a Storm Hardening Plan with the Florida Public Service Commission ("FPSC") on or before May 7, 2007 and every three years thereafter as a matter of course. Rule 25-6.0342 specifies what must be included in utility storm hardening plans, and Progress Energy Florida, Inc. ("PEF") has tracked those rule provisions in its Storm Hardening Plan below:

25-6.0342(3): *Each utility storm hardening plan shall contain a detailed description of the construction standards, policies, and procedures employed to enhance the reliability of overhead and underground electrical transmission and distribution facilities.*

PEF's construction standards, policies, practices, and procedures related to storm hardening issues are listed below and are attached hereto as Attachment A:

Distribution OH Construction Manual

- i. Cover page
 1. *Addresses NESC adherence standards.*
- ii. General Overhead section
 1. *Discusses company policy on extreme wind.*
 2. *Details Florida's extreme wind contour lines.*
 3. *Discusses the use of the Pole Foreman program.*
- iii. Guys and Anchors Section
 1. *Discusses PEF's standard pole strengths, sizes, and limitations.*
- iv. Primary Construction section
 1. *Discusses corporate practices for primary line construction.*
- v. Coastal and Contaminated area section
 1. *Discusses corporate practices for primary line construction in coastal areas.*

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Distribution UG Construction Manual

- vi. Cover page
 - 1. *Addresses NESC adherence standards.*
- vii. Underground General Section
 - 1. *Discusses location of UG facilities in accessible locations.*
- viii. OH-UG Transition section
 - 1. *Discusses corporate practices for primary framing on dip poles.*
- ix. Trenching and Conduit section
 - 1. *Discusses corporate practices for trenching and use of conduit on primary UG circuits.*
- x. Pads & Pullboxes Section
 - 1. *Discusses corporate practices for the placement and installation of transformer & switchgear pads and boxes.*
- xi. Enclosures & Pedestals Section
 - 1. *Discusses corporate practices for the placement and installation of pedestals and secondary termination cabinets.*
- xii. Cable Accessories Section
 - 1. *Discusses corporate procedures for the installation of UG terminations in non-storm surge areas.*
- xiii. Flooding and Storm Surge Requirements
 - 1. *Discusses corporate procedures for the installation of UG equipment in areas targeted for storm surge hardening.*

Distribution Engineering Manual

- xiv. Overhead Design guide section
 - 1. *Addresses line location in accessible location.*
 - 2. *Addresses NESC compliance.*
 - 3. *Discusses Pole Foreman program.*
- xv. Underground Design guide section
 - 1. *Addresses line location in accessible location.*
 - 2. *Addresses NESC compliance.*

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Transmission - Extreme Wind Loading Design Criteria Guideline for Overhead Transmission Line Structures

xvi. Standards Position Statement

1. *Addresses NESC compliance.*
2. *Addresses American Society of Civil Engineer's Manual 74 (ACSE 74).*
3. *Discusses transmission line importance for reliability.*
4. *Details Florida's extreme wind contour lines.*

Transmission - Line Engineering Design Philosophy

xvii. Overhead Line Design philosophy

1. *Addresses NESC compliance.*
2. *Addresses insulator loading criteria.*
3. *Addresses guy / anchor capacity ratings.*
4. *Addresses design load cases.*
5. *Addresses extreme wind guidelines.*
6. *Addresses structural guidelines.*

Joint Use – Pole Attachment Guidelines and Clearances

xviii. Pole Attachment Guidelines

1. *Addresses Pole Attachment and Overlash Procedures.*
2. *Addresses Joint Use Construction.*
3. *Addresses Guys and Anchors.*

xix. Joint Use Clearances

1. *Addresses Line Clearances.*
2. *Addresses Joint Use Clearances.*

In addition to the standards, practices, policies, and procedures identified above, PEF's Wood Pole Inspection Plan, Vegetation Management Plan, and Ongoing Storm Preparedness Plan all contain standards, practices, policies, and procedures that address system reliability and issues related to extreme weather events. These plans are included herewith as Attachment B.

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25-6.0342(3)(a): *Each filing shall, at a minimum, address the extent to which the utility's storm hardening plan complies, at a minimum, with the National Electric Safety Code that is applicable pursuant to subsection 25-6.0345(2), F.A.C.*

All standards, practices, policies, and procedures in the manuals and plans listed above are based on accepted industry practices designed to meet or exceed the requirements of the National Electric Safety Code (NESC). These standards, practices, policies, and procedures are followed on all new construction and all rebuilding and relocations of existing facilities.

25-6.0342(3)(b): *Each filing shall, at a minimum, address the extent to which the utility's storm hardening plan adopts the extreme wind loading standards specified by Figure 250-2(d) of the 2007 edition of the NESC for new construction, major planned work, and critical infrastructure.*

New Construction:

PEF has extensive service experience with Grade C and Grade B construction standards as defined by the NESC. That experience, which includes the 2004 and 2005 hurricane seasons and other severe weather events, indicates that properly constructed and maintained distributions lines meeting all provisions of the NESC perform satisfactorily and provide a prudent and responsible balance between cost and performance. PEF's design standards can be summarized as: 1) quality construction in adherence with current NESC requirements, 2) well defined and consistently executed maintenance plans, and 3) prudent end-of-life equipment replacement programs. When these elements are coupled with a sound and practiced emergency response plan, construction grades as defined by the NESC provide the best balance between cost and performance.

With these facts in mind, extreme wind standards have not been adopted for all new distribution construction. It is important to note that section 250C of the 2007 version of the NESC calls for the extreme wind design standard only for distribution poles in excess of sixty feet in height. Thus, the NESC itself, the source of Figure 250-2(d), makes clear that the extreme wind standard does not apply to typical distribution construction. In fact, the NESC rules committee engaged in extensive studies regarding the application of the extreme wind

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standard to distribution poles prior to the 2007 version of the NESC being issued and the rules committee found that based on current research, data and information, there is no known benefit to applying the extreme wind standard of construction to distribution poles. See Exhibit 4, Docket No. 060172-EU, August 31, 2006 Workshop (Attachment C hereto).

In addition to the NESC Rules Committee findings, all credible research that PEF is aware of shows that there is no benefit to applying the extreme wind standard to distribution construction. See, e.g., Exhibit 4, Docket No. 060172-EU, August 31, 2006 Workshop (Attachment C hereto); Testimony of Mr. Nelson Bingel, Docket No. 060173-EU, April 17, 2006 Workshop at pages 51-70 (Attachment D hereto); Testimony of Dr. Larry Slavin, Docket No. 060173-EU, August 31, 2006 Workshop at pages 2-59 (Attachment E hereto); Composite Materials Regarding Extreme Wind Construction (Attachment F hereto). Utility experience from around the country further indicates that electrical distribution structures under sixty feet in height are damaged in extreme wind events by trees, tree limbs, and other flying debris. See 2007 NESC Subcommittee Decision Regarding CP2766. Thus, applying the extreme wind standard to distribution poles results in large increases in cost and design complexity without a commensurate benefit. See id.

In addition to the fact that PEF has not seen any objective data supporting the application of the extreme wind standard to distribution-level construction, PEF's individual experience in the 2004 and 2005 storm seasons showed that PEF's distribution system performed well in all the multiple hurricanes and tropical storms that impacted PEF's system during those years. PEF's experience was consistent with that of the other utilities around the nation who found that vegetation and flying debris were the main causes of distribution pole damage, a condition that the extreme wind standard will not address. With respect to pure wind-caused pole damage, PEF found that wind events such as tornados and "micro-bursts" were responsible, and even transmission poles designed to meet or exceed the extreme wind standard failed under those "super extreme" wind conditions. See, e.g., Attachment G hereto.

While no current data or research supports the application of the extreme wind standard to distribution pole construction, PEF, as discussed in detail below, will analyze the extreme wind standard along with other grades of distribution construction by using its Asset Investment Strategy model for implementation purposes in selected locations throughout PEF's service

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territory. In conjunction with wind measuring devices and other data collection devices, PEF will study the performance of various grades of distribution construction at these various sites and will compare and analyze any information collected throughout the year from any storms or extreme weather that PEF may encounter. From this process, PEF expects to continue to learn and adapt its extreme weather strategy based on information that it will collect and based on the information gathered by other utilities in Florida and throughout the nation as new standards and applications are applied and tested.

With respect to new construction for transmission poles, PEF's transmission department is building all new construction with either steel or concrete pole material. Virtually all new transmission structures exceed a height of sixty feet above ground and therefore will be constructed using the NESC Extreme Wind Loading criteria.

Major planned work:

For the reasons discussed in the new construction section above, PEF has not adopted the extreme wind standard for major planned work, including expansions, rebuilds, or relocations of existing facilities in the distribution system. Consistent with NESC Rule 250C, PEF will use the extreme wind standard for all major planned transmission work, including expansions, rebuilds, and relocations of existing facilities.

Critical infrastructure:

PEF first notes that Rule 25-6.0342 does not provide a definition of what "critical infrastructure" means, so that term is susceptible to various subjective definitions throughout the investor-owned electric utilities in Florida. Under any definition, however, PEF, for the reasons discussed in the new construction section above, has not adopted the extreme wind standard for any of its distribution level infrastructure. Again PEF and industry experience shows that flying debris and vegetation are the primary causes of distribution pole damage, and these are conditions that the extreme wind standard, and any other overhead construction standard, cannot address. Thus, placing distribution poles constructed to extreme wind standards around facilities such as hospitals and police stations in PEF's service territory would unnecessarily increase costs and restoration time if those poles are knocked down by falling trees or flying debris such as

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roofs or signs. Additionally, PEF's experience in the 2004 and 2005 hurricane seasons and other extreme weather events showed that even with pure wind-based pole impacts, PEF's current level of construction, around critical facilities and around all other facilities, performed well and any pole failures due solely to wind impact were caused by "super extreme" wind events such as tornados and "micro bursts," conditions that would have caused and did cause extreme wind construction to fail as well. As part of PEF's effort to gain more experience and information with various hardening construction options, however, PEF, as discussed more fully below, plans to underground up to nineteen major highway crossings and is working with several coastal communities in Pinellas County to underground portions of PEF's distribution system, which will help mitigate the impact of flying debris and super extreme weather events.

With respect to transmission, virtually all new transmission structures exceed a height of sixty feet above ground and therefore are constructed using the NESC extreme wind loading criteria. Accordingly, PEF will use the extreme wind standard for all major planned transmission work, including expansions, rebuilds, and relocations of existing facilities, irrespective of whether they can be classified as "critical" or "major."

25-6.0342(3)(c): *Each filing shall, at a minimum, address the extent to which the utility's storm hardening plan is designed to mitigate damage to underground and supporting overhead transmission and distribution facilities due to flooding and storm surges.*

Based on PEF's experience in the 2004 and 2005 hurricane seasons, along with the experiences of other utilities in Florida reported to the FPSC after those seasons, PEF has concluded that underground applications may not be best suited for all areas. For example, in the FPSC sponsored storm hardening workshops in 2006, Gulf Power Company reported that during the 2005 hurricane season, some of its underground assets and equipment were actually washed out to sea in some of its costal communities, and that overhead equipment may have made more sense in those areas with regard to restoration and safety. See Attachment H. Similarly, PEF has identified areas in its service territory where current underground equipment should be replaced with overhead due to the fact that those areas are subject to frequent and prolonged flooding resulting in damage from water intrusion on underground equipment. Thus, one of PEF's most effective tools in its hardening arsenal is to identify areas where underground equipment should

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not be used, and PEF's hardening plan takes this fact into account.

In areas where underground equipment may be exposed to minor storm surge and/or shorter term water intrusion, however, PEF has used its Asset Investment Strategy Model (discussed in detail below) to identify areas where certain mitigation projects will be put into place to test whether flood mitigation techniques and devices can be used to protect equipment such as switchgears, padmounted transformers and pedestals. In these selected project sites, PEF will test:

- Stainless steel equipment;
- Submersible connectors;
- Raised mounting boxes;
- Cold shrink sealing tubes; and
- Submersible secondary blocks.

Throughout the year, PEF will monitor these installations to collect and analyze data to determine how this equipment performs relative to PEF's current design with respect to outage prevention, reduced maintenance, and reduced restoration times. From this process, PEF will continue to learn and will adapt its flood and storm surge strategies based on information that it will collect and based on the information gathered by other utilities in Florida and throughout the nation as new standards and applications are applied and tested.

In addition to the actions discussed above, during major storm events, substations that are in the forecast strike zone will have sandbags placed in strategic areas to attempt to eliminate water intrusion into control houses. In the event of water intrusion causing extensive damage requiring prolonged repair, PEF will employ mobile substations to affected areas, where possible, in order to restore power.

25-6.0342(3)(d): *Each filing shall, at a minimum, address the extent to which the utility's storm hardening plan provides for the placement of new and replacement distribution facilities so as to facilitate safe and efficient access for installation and maintenance pursuant to Rule 25-6.0341, F.A.C.*

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PEF will continue to use front lot construction for all new distribution facilities and all replacement distribution facilities unless a specific operational, safety, or other site-specific reason exists for not using such construction at a given location. See Distribution Engineering Manual, Section xv(1).

25-6.0342(4): *Each utility storm hardening plan shall explain the systematic approach the utility will follow to achieve the desired objectives of enhancing reliability and reducing restoration costs and outage times associated with extreme weather events.*

As part of its systematic approach to storm hardening, PEF engaged industry expert Davies Consulting (“DCI”) in developing a comprehensive prioritization model that will help PEF identify potential hardening projects, procedures, and strategies. DCI has worked with a number of utilities nationally to evaluate their power delivery system major storm preparedness. They have also evaluated options for infrastructure hardening to improve performance and reliability not only day-to-day, but also during major storms. Collaborating with DCI, PEF created an evaluation framework for various hardening options and prioritization of potential alternatives.

PEF and DCI worked together to load and analyze potential hardening alternatives into DCI’s proprietary Asset Investment Strategy (“AIS”) model. The model is based on a structured methodology for evaluating the costs and benefits associated with various hardening options. The AIS model evaluates potential hardening options based on several sets of criteria and variables and gives those hardening options a “score” that PEF can use to identify highest value projects, policies, and procedures for storm hardening. PEF and DCI worked together to develop an evaluation template used to determine specific costs and benefits associated with each hardening alternative identified. The following components of the evaluation framework were established:

- Financial parameters for PEF (e.g., discount rates, allowable return, tax rates, depreciation schedules, etc.);
- Key strategic criteria for the evaluation (e.g. financial, customer satisfaction, storm

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restoration effectiveness, etc.);

- Specific key attributes that will be evaluated for each hardening alternative;
- Hard and soft dollar cost and benefits (e.g., cost per mile underground, cost of pole upgrades, cost per avoided storm interruption);
- Qualitative attribute evaluation questions (e.g., customer satisfaction, safety, quicker restoration of critical infrastructure, etc.);
- Relative weights across the attributes; and
- Long term costs and benefits of the initiatives.

Under the foregoing components of the evaluation framework, the AIS model is set up to analyze the following hardening alternatives for PEF:

- OH-to-UG Conversions
 - Taking existing overhead (OH) electric lines and facilities and placing them underground (UG) via the use of specialized UG equipment and materials. The primary purpose of this hardening activity is to attempt to eliminate tree and debris related outages in the area of exposure. When applied to crossings on major highways, this hardening activity can also mitigate potential interference with first responders and other emergency response personnel caused by fallen lines.
- Small Wire Upgrade
 - The conversion of an existing overhead line currently with either #4 or #6 conductor to a thicker gauge conductor of 1/0 or greater. The primary purpose of this hardening activity is to attempt to utilize stronger conductor that may be better able to resist breakage from falling tree branches and debris.
- Backlot to Frontlot Conversion
 - Taking an existing overhead line located in the rear of a customer's

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property and relocating it to the front of the customers property. This involves the removal of the existing line in the rear of the property and construction of a new line in the front of the property along with re-routing service drops to individual customer meters. The primary purpose of this hardening activity is to minimize the number of tree exposures to the line to prevent outages and to expedite the restoration process by allowing faster access in the event an outage occurs.

- Submersible UG
 - Taking an existing UG line and equipment and hardening it to withstand a storm surge via the use of the current PEF storm surge standards. This involves the use of specialized stainless steel equipment and submersible connections. The primary purpose of this hardening activity is to attempt to minimize the damage caused by a storm surge to the equipment and thus expedite the restoration after the storm surge has receded.
- Alternative NESC Construction Standards
 - Building OH line and equipment segments to grade B construction or the extreme wind standard as shown in the NESC extreme wind contour lines of figure 250-2(d). This will be done via the use of the current PEF grade B and extreme wind standards which call for the use of the industry accepted Pole Foreman program to calculate the necessary changes. Typical changes include shorter span lengths and higher class (stronger poles). The primary purpose of this hardening activity is to attempt to reduce the damage caused by elevated winds during a major storm. Locations have been chosen to provide contrasting performance data between open costal and inland heavily treed environments.

The key strategic criteria that the AIS model uses to evaluate these five potential hardening options are:

- Financial Cost
 - Provides the financial value of the proposed project based on Net

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Present Value (NPV) of total costs associated with the project (Capital and O&M) and associated potential benefits such as avoided O&M costs, avoided outages, etc.

- Major Storm Impact
 - Determines the potential benefits that the project provides during a major storm based on reduced damages or the ability to restore power more rapidly.
- Community Storm Impact
 - Evaluates the potential benefits that the proposed project will have on a community's ability to cope with damage.
- Third Party Impact
 - Captures complexities of proposed projects in terms of coordination with third parties such as telecommunication, Cable TV, permitting, costs, etc.
- Overall Reliability
 - Captures the overall potential reliability benefits that the project provides on an on-going basis in terms of reduced customer interruptions and outage duration.

Finally, in evaluating potential hardening options, the AIS model is set up to address the following hardening project questions:

- At the end of this project, what percent of the exposure will be hardened?
- How many customers are served from this device?
- What will be the impact of this project on the restoration time during major storm?
- What is the annual probability of wind over 70 mph in the area served by this device?
- At what level of hurricane will the area served by the device flood due to storm surges?
- What is the tree density in the area served by this device?
- What level of tree damage will this project mitigate during a major storm?
- How many critical customers does this project address?

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- How valuable will the project be to the community?
- What are any major obstacles/risks for completing the project this year?
- What type of investment, if any, is required by joint users to complete this project?
- What is the three year average CEMI4 number of customers on this feeder?
- How many customer outages will this project potentially eliminate annually?
- What is the potential change in the annual CAIDI that this project will result in?
- Will this project potentially reduce the number of momentary customer interruptions on this section?
- What will be the potential change in the number of customers experiencing outages longer than three hours as a result of this project?

In implementing the AIS framework, DCI worked with PEF to challenge some of the assumptions used in the model and to provide industry experience and expertise to ensure that the benefits and cost estimates used were accurate and realistic. DCI also worked with PEF in developing various "what-if" scenarios and assessed different funding options at the portfolio level. This helped assess whether the proposed alternatives were maximizing the total value of the portfolio.

PEF is using the AIS model to ensure a systematic and analytical approach to deploying hurricane hardening options within its service territory. For proven hardening options that PEF is already using as part of its construction standards and policies, the AIS model will help PEF best locate and prioritize areas within its system where those options should be used. For unproven or experimental hardening options, such as the extreme wind standard for distribution pole construction, PEF is using the AIS model to identify areas within its service territory where analytical data collection projects can be used to evaluate the performance and results of such hardening options. Examples of specific projects taking place in 2007 are discussed below.

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25-6.0342(4)(a): *A description of the facilities affected, including technical design specifications, construction standards, and construction methodologies employed.*

All of PEF's facilities are affected to some degree by the standards, policies, procedures, practices, and applications discussed throughout this document. Specific facilities are also addressed herein in detail (i.e. upgrading all transmission poles to concrete and steel, using front lot construction for all new distribution lines where possible). Technical design specifications, construction standards, and construction methodologies are specifically discussed at pages 1 through 3 of this plan and are included in Attachments A and B.

25-6.0342(4)(b): *The communities and areas within the utility's service area where the electric infrastructure improvements are to be made.*

As discussed above, all of PEF's facilities are affected to some degree by the standards, policies, procedures, practices, and applications discussed throughout this document, so all of areas of PEF's service territory are impacted by PEF's storm hardening efforts. With respect to specific projects that employ some or all of the hardening options that PEF has identified based on its recent storm experience and/or through the AIS system, please see the following:

Distribution:

OpCenter	Project Name	Sub.Category
Monticello	St George Is – Plantation	Submersible UG
Apopka	US 441 west of Hwy 19	OH to UG Conversion
Seven Springs	Floramar Subdivision	Submersible UG
Longwood	I-4 @ Oranole Road/Lake Destiny Dr.	OH to UG Conversion
Inverness	Homosassa – Riverhaven	Submersible UG
Inverness	US 98 – Brooksville	Small Reconductor
St Petersburg	Coquina Key	Small Reconductor



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Monticello	A192 – Luraville	Small Reconductor
Clearwater	Indigo	Small Reconductor
Ocala	US 301 – Citra	Small Reconductor
St Petersburg	Feeder X220	Extreme Wind Upgrades
SE Orlando	Sprint Earth Station & Cocoa Water Wells	Small Reconductor
Lake Wales	Highland Park	Small Reconductor
Lake Wales	Hibiscus Feeder Tie	Small Reconductor
Inverness	R448 – Dunnellon	Back lot to Front lot conversion
SE Orlando	Hoffner Ave and feeder Tie	Small Reconductor
SE Orlando	Holden Ave E) Orange Blossom Trail	Small Reconductor
Buena Vista	Calle De Sol	OH to UG Conversion
Jamestown	SR-408 @ Woodbury Rd	OH to UG Conversion
Buena Vista	Winderlakes	OH to UG Conversion
SE Orlando	Florida Turnpike @ Sandlake Rd (746')	OH to UG Conversion
Buena Vista	OH Crossing of Turnpike (K68 @K5255)	OH to UG Conversion
Longwood	Us 17/92 & SR-436	OH to UG Conversion
SE Orlando	OH Cross of Trnpke 2 (K1780 @ K6434991 and K1775 @ K5021)	OH to UG Conversion
SE Orlando	Florida Turnpike @ Sandlake Rd (485')	OH to UG Conversion
SE Orlando	OH Crossing of Turnpike (K1780 @K2379)	OH to UG Conversion
SE Orlando	OH Crossing of Turnpike (K1025 @ K1025 & K1028 @ K128)	OH to UG Conversion
Longwood	I-4 @ SR-436	OH to UG Conversion
SE Orlando	Florida Turnpike @ Orange Blossom Trail	OH to UG Conversion
Longwood	I-4 @ EE-Williamson Rd	OH to UG Conversion
Longwood	I-4 @ SR-434	OH to UG Conversion
Eustis	I-4 @ Lee Rd	OH to UG Conversion
Longwood	I-4 @ Kennedy Blvd	OH to UG Conversion
Longwood	I-4 @ North St	OH to UG Conversion
Longwood	I-4 @ Fairbanks Ave	OH to UG Conversion
Longwood	I-4 @ Orange St.	OH to UG Conversion

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With regard to system hardening projects in general, PEF's approach is to consider the unique circumstances of each potential location considered for hardening by taking into account variables such as:

- operating history and environment;
- community impact and customer input;
- exposure to storm surge and flooding;
- equipment condition;
- historical and forecast storm experience; and
- potential impacts on third parties;

This surgical approach leads to the best solution for each discrete segment of the delivery system.

For example, PEF has identified areas in its service territory where current underground equipment should be replaced with overhead due to the fact that those areas are subject to frequent and prolonged flooding resulting in potential safety hazards and damage from water intrusion on underground equipment. This hardening option works for these specific locations based on all the factors for consideration listed above, but it would not work well in other areas of PEF's service territory. This is a real life example of why "one size does not fit all" when it comes to storm hardening.

In areas like Gulf Boulevard and other coastal communities in Pinellas County, local governments have worked with PEF to identify areas where overhead facilities have been or will be placed underground, and this option will help to mitigate storm outages caused by vegetation and flying debris. PEF is also working in these areas to evaluate upgrading portions of those facilities to the surge-resistant design discussed above. Again, these hardening options may work well in these communities, but may not be ideal or desirable in others.

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Transmission:

The Transmission Department is employing a system-based approach to changing out wood poles to either concrete or steel poles based upon the inspection cycle and condition of pole. These projects are identified during the transmission pole inspection cycles. Specific new, rebuilt or relocated projects that are planned over the next three years are listed below:

<u>Coastal Transmission Area</u>	<u>Project Type</u>	<u>County</u>	<u>Third Party Impact</u>
TZ-466 to TZ-485 Relocation Wiregrass Ranch	Customer Request	Pasco	Unlikely
Clearwater Village LECW Relocation Project	Governmental	Pinellas	Possible
BZ 69 kV Relocation Pasco County Tommy town North	Governmental	Pasco	Possible
LSP 230kV Relocation Pinellas County #865 Park St/Starkey Road	Governmental	Pinellas	Possible
ANL 230 kV US 19 Pinellas County Relocation	Governmental	Pinellas	Highly Unlikely
ANEC 230 kV US 19 Pinellas County Relocation	Governmental	Pinellas	Highly Unlikely
NC 230 kV Double Circuit US 19 Relocation	Governmental	Pinellas	Highly Unlikely
Higgins – Oldsmar 115 kV line – Rebuild	Rebuild	Pinellas	Highly Unlikely
Oldsmar – Curlew 115 kV line – Rebuild	Rebuild	Pinellas	Highly Unlikely
LTW 69 kV Line – Rebuild	Rebuild	Pinellas	Possible
Hudson – Hudson (WREC) Purchase/Rebuild 115 kV line	Purchase	Pasco	Possible
North East – Fortieth Street 230 kV Rebuild	Rebuild	Pinellas	Possible
New River-Zephyrhills North 115 kV line	New	Pasco	Possible
New River – Loop TZ 69 kV line into New PEF Substation	New	Pasco	Possible
North East – 32 nd Street 115 kV line	New	Pinellas	Possible

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<u>Southern Transmission Area</u>	<u>Project Type</u>	<u>County</u>	<u>Third Party Impact</u>
ICLB Relocation for Road improvement at CR 545	Governmental	Polk / Osceola	Possible
LV 69 kV Relocation for Orange County Wildwood Area Network	Governmental	Orange	Possible
WR 245 Relocation Walgreen's Entrance Conway Road	Customer Request	Orange	Possible
OSC Relocation for Seaworld	Customer Request	Orange	Possible
WIC Relocation for Seaworld	Customer Request	Orange	Possible
TD-74 thru TD-85 Volusia County Project Rhode Island	Governmental	Volusia	Possible
WCE 340-342.5 for Hartle Grove	Customer Request	Orange	Likely
ICB-69 kV – Poinciana Parkway	Governmental	Polk / Osceola	Possible
ICLW 69kV relo Ernie Caldwell Blvd from CR547 to US17/92 (Possibly completed)	Governmental	Polk	Possible
AH 69 Line Westridge Development Relocation City of Ocoee	Customer Request	Orange	Possible
ILB 230 kV Relocation for Disney	Customer Request	Orange	Unlikely
WR and RW 69 kV Relocation for Lk Underhill and Econ Trail	Governmental	Orange	Possible
WR 69 kV Relocation for City of Orlando Conway Road Widening	Governmental	Orange	Likely
WLL/WLLW Relocation US 27 SR 60 Towerview	Governmental	Polk	Unlikely
WF 69 kV Relocation Rouse Road Orange County	Governmental	Orange	Possible
WR Relocation for Bee Line SR 528 Improvements	Governmental	Orange	Possible

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<u>Southern Transmission Area</u>	<u>Project Type</u>	<u>County</u>	<u>Third Party Impact</u>
SLE 69 kV line Relocation for Kennedy Blvd Orange County	Governmental	Orange	Likely
NLA Line Replace wood Poles with Steel Poles	Rebuild	Seminole	Possible
Deleon Springs – Deland West 115 kV Rebuild	Rebuild	Volusia	Possible
AL 69kV rebuild (Indian Lakes Estates Tap)	Rebuild	Polk	Possible
WCE 69 kV (Woodsmere – Ocoee) line Rebuild	Rebuild	Orange	Likely
WCE 69 kV (Clermont East – Montverde) Rebuild	Rebuild	Orange	Likely
AH 69 kV (Avalon – Lake Luntz) Rebuild	Rebuild	Orange	Possible (but unlikely)
WCE 69 kV (Ocoee-Winter Garden) Rebuild	Rebuild	Orange	Likely
WLIC 230 kV Rebuild to Double Circuit	Rebuild / new line	Polk / Osceola	Highly unlikely
ICLB 69 kV Rebuild (Intercession City – Lake Wilson)	Rebuild	Polk / Orange	Possible
ICB 69kV relo for Ronald Regan Parkway from W. of Champions Gate to W. of I-4	Governmental	Polk / Osceola	Likely
ICB 69 kV Rebuild (Intercession City to Barnum City)	Rebuild	Polk / Osceola	Likely
Lake Bryan 230 kV Rebuild Circuit #1 and add circuit #2	Rebuild / new	Orange	Highly unlikely
Avalon to Gifford 230 kV line	New	Orange	Highly unlikely
Clarcona – Crown Point 69 kV line	New	Orange	Likely
AF2 Line Conversion to 230 kV	Rebuild	Polk	Highly unlikely
Lake Placid North 69 kV line	New	Highlands	Possible
Hines – West Lake Wales 230 kV Circuit #1	New	Polk	Highly unlikely
CF Industries 69 kV from Fort Green #11 (Project Complete)	New	Hardee	Highly unlikely

<u>Northern Transmission Area</u>	<u>Project Type</u>	<u>County</u>	<u>Third Party Impact</u>
HB-98 69 kV Croft Avenue Citrus County	Governmental	Citrus	Possible

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<u>Northern Transmission Area</u>	<u>Project Type</u>	<u>County</u>	<u>Third Party Impact</u>
CFS 230 kV CR44A and Estes Road Lake County	Governmental	Lake	Unlikely
TQ-23-2 line relocation for Capital Walks Apts	Customer Request	Leon	Possible
TQ 69 kV Line Rebuild (Tallahassee – Oak City)	Rebuild	Leon	Unlikely
FP 69 kV Perry – Smith Tap (FP – 4)	Rebuild	Taylor / Lafayette	Unlikely
FP-69 kV Smith Tap – Lauraville (FP-3)	Rebuild	Lafayette / Suwannee	Unlikely
Silver Springs – Santos Ocala Tap 69 kV	Rebuild	Marion	Possible
Groveland – Camp Lake 69 kV Line Rebuild Circuit #1	Rebuild	Lake	Possible
JS Line for PCS White Springs Tap – Rebuild	Rebuild	Hamilton	Unlikely
Ginne to High Springs 69 kV line – Rebuild	Rebuild	Alachua	Possible
Westwood Acres Tap West Wood Acres (SECO)	New	Marion	Possible
Central Florida – American Cement 230 kV Line	New	Sumter	Unlikely
Bushnell East – Bushnell 69 kV 69 kV lines	New	Sumter	Unlikely
Bushnell East – Bushnell (SECO) 69 kV line	New	Sumter	Possible
Port St. Joe to Apalachicola 69 kV line 2 nd circuit	New	Franklin / Gulf	Possible
CSB 115 kV Tap Line to Lecanto (Project Complete)	New	Citrus	No

25-6.0342(4)(c): *The extent to which the electric infrastructure improvements involve joint use facilities on which third-party attachments exist.*

In the description of specific hardening projects above, PEF has provided information as to whether the projects involve joint use facilities on which third-party attachments exist. Also,

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on March 2, 2007 and again on April 10, 2007, PEF met with all joint use attachers that have provided PEF contact information pursuant to Rule 25-6.0342(6). In those meetings, PEF provided those attachers with information on where specific hardening projects are taking place. PEF provided detailed written project descriptions and locations those third-party attachers on April 10 and 24, 2007 and has subsequently interacted with any affected joint attacher in an effort to identify any cost or impact to those attachers. Written responses received from third-party attachers are provided herewith in Attachment I.

25-6.0342(4)(d): *An estimate of the costs and benefits to the utility of making the electric infrastructure improvements, including the effect on reducing storm restoration costs and customer outages.*

With respect to system-wide storm and extreme weather applications identified in Attachment B, PEF has provided any available cost/benefit information within the documents in Attachment B. Additionally, please see the following chart for money that PEF has spent or will spend during 2006 and 2007 on storm hardening and maintenance:

Progress Energy Florida Storm Hardening and Maintenance Costs

Description	2006	2007
Vegetation Management (Distribution & Transmission)	\$24,235,263	\$24,949,339
Joint Use Pole Inspection Audit	\$1,100,000	\$470,000
Transmission Pole Inspections	\$3,526,899	\$2,996,257
Other Transmission Inspections and Maintenance	\$12,121,889	\$11,502,308
Transmission Hardening Projects	\$43,300,000	\$38,000,000
Distribution Pole Inspections	\$2,300,000	\$2,490,000
Distribution Hardening Projects	\$10,200,000	\$10,610,000
Total	\$96,784,051	\$91,017,904

Note: Some 2007 costs contain projected/budgeted figures.

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25-6.0342(4)(e): *An estimate of the costs and benefits, obtained pursuant to Rule 25-6.0342(6), to third-party attachers affected by the electric infrastructure improvements, including the effect on reducing storm restoration costs and customer outages realized by the third-party attachers.*

With respect to system-wide storm and extreme weather applications identified in Attachments A and B, PEF believes that any entity jointly attached to PEF's equipment would enjoy any benefit that PEF would enjoy from that same application, and PEF has provided any available cost/benefit information within the documents in those attachments. With respect to specific information received from joint attachers, please see Attachment I.

25-6.0342(5): *Each utility shall maintain written safety, reliability, pole loading capacity, and engineering standards and procedures for attachments by others.*

Please see Attachments A and J.

25-6.0342(5): *The attachment standards and procedures shall meet or exceed the NESC so as to assure that third-party facilities do not impair electric safety, adequacy, or pole reliability; do not exceed pole loading capacity; and are constructed, installed, maintained, and operated in accordance with generally accepted engineering practices for the utility's service territory.*

All third-party joint use attachments on Progress Energy Florida's distribution and transmission poles are engineered and designed to meet or exceed current NESC clearance and wind loading standards. New attachment requests are field inspected before and after attachments to assure company construction standards are being met. All entities proposing to attach joint use attachments to Progress Energy Florida's distribution and transmission poles are given a copy of the company-prepared "Joint Use Attachment Guidelines." Attached hereto as Attachment J. These guidelines are a comprehensive collection of information spelling out the company's joint use process, construction standards, timelines, financial responsibilities, and key company contacts responsible for the completing permit requests. All newly proposed joint use attachments are field checked and designed using generally accepted engineering practices to assure the new attachments do not overload the pole or impact safety or reliability of the electric

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or other attachments. Additionally, annual and full-system audits are performed as detailed in PEF's annual March 1 comprehensive reliability report. For details on this activity, please see Attachment B.

25-6.0342(6): *Each utility shall seek input from and attempt in good faith to accommodate concerns raised by other entities with existing agreements to share the use of its electric facilities.*

On March 2, 2007 and again on April 10, 2007, PEF met with all joint use attachers that have provided PEF contact information pursuant to Rule 25-6.0342(6). In those meetings, PEF provided those attachers comprehensive and detailed information on PEF's storm hardening plan. PEF provided written project descriptions and locations those third-party attachers on April 10 and April 24, 2007 and has subsequently interacted with any affected joint attacher in an effort to identify any costs, impacts to those attachers, or concerns. Written responses received from third-party attachers are provided herewith in Attachment I. PEF has also answered any questions and addressed any concerns expressed verbally by joint attachers, and PEF has taken all input received into consideration in the development and finalization of its storm hardening plan.

Progress Energy Florida, Inc's Supplement to Storm Hardening Plan

(Docket No. 070298-EI)

Preliminary Analysis

FPSC Staff has identified the following areas in which PEF should provide additional support for its Storm Hardening Plan:

Extreme Wind Load Criteria

- Staff believes substantive support for PEF's 60 mile per hour wind speed loading criteria has not been justified.

PEF's storm hardening plan includes substantial support for the proposition that the EWL standard should not be applied to PEF's distribution poles. The NESC, the very entity that created the EWL standard, found in the 2007 version of the NESC that the EWL standard should not be applied to distribution poles less than 60 feet in height. This information is included as Exhibit C to PEF's plan filed on May 7, 2007. Thus, Staff cannot on the one hand look to the NESC for the EWL wind loading curves for Florida and then ignore the Code's explicit exception for applying those loading curves to distribution poles on the other.

PEF's plan also includes expert testimony before the FPSC showing that the EWL standard would have no appreciable benefit for PEF's distribution poles with respect to preventing wind-caused damage (Exhibits D and E). Additionally, PEF's plan includes official comments to the NESC from utilities around the country, including other coastal utilities and utilities that experience tornados, supporting the fact that the EWL standard has no appreciable wind damage prevention benefit for their distribution poles. (Exhibit F). Also, industry experts representing other industries in this docket, such as those representing the Florida Cable Television Association, have recently provided similar data to Commission Staff in the ongoing workshops in this docket which further supports PEF's position in this regard.

PEF's plan details PEF's experience with pole damage in the 2004 and 2005 hurricane seasons, which confirms, and even documents with pictures, that EWL would not have provided any appreciable benefit for wind damage prevention on distribution poles given the fact that transmission poles built to EWL failed when hit with tornados or microburst winds. (Exhibit G). Also, PEF has provided additional information along with this filing which shows that in 2004, approximately 96% of PEF's pole failures were attributable to flying debris and/or super extreme wind events such as tornados and microbursts. See Attachment A hereto. PEF has also provided additional data along with this filing showing that rather than preventing storm outages and costs on PEF's system, the EWL standard would cause longer restoration times and increased restoration costs when compared to PEF's current practice. See Attachments A and B hereto.

In addition to providing detailed support for not using the EWL standard on a system-wide basis within PEF's service territory, PEF's plan also specifically identifies field projects where PEF will test Grade B and EWL construction in contrast with Grade C construction to see if there is any benefit to Grade B and/or EWL in real storm conditions in varying cross sections of PEF's service territory. While wind simulators and other similar devices may provide some limited data, real storms vary in time and intensity and have tornados, flying debris, microburst wind, flooding, erosion, vegetation impacts, and other real world factors that cannot be tested in simulation.

Finally, PEF's policies and procedures state that the NESC is a minimum design standard. As constructed, PEF's facilities have design strengths higher than the 60 mph figure noted by Staff. For example, in urban areas such as Pinellas County and the greater Orlando area, span lengths between PEF's poles are necessarily shorter due to road crossings, density of service points, and other practical design considerations. Therefore, a large percentage of PEF's facilities have design strengths much greater than 60 mph, so it is not accurate to say that PEF is using a pure 60 mile per hour wind loading criteria throughout its system. For detail on this issue, please see Attachment C hereto.

- PEF's Storm Hardening Plan generally refers to its historical field experiences and that PEF has plans to gain more experience. However, PEF does not address any specific efforts to verify or test its proposition that a 60 mile per hour wind speed loading criteria is appropriate for all of its service area.

PEF's plan specifically identifies field projects where PEF will test Grade B and EWL construction in contrast with Grade C construction to see if there is any benefit to Grade B and/or EWL in real storm conditions in varying cross sections of PEF's service territory. While wind simulators and other similar devices may provide some limited data, real storms vary in time and intensity and have tornados, flying debris, microburst wind, flooding, erosion, vegetation impacts, and other real world factors that cannot be tested in simulation. PEF's plan also makes clear that PEF is continuing to take part in collaborative research projects which impact on this issue. Finally, as Commissioner Argenziano recognized at the June 19, 2007 FPSC agenda in this docket, real utility experience in real storms cannot be ignored.¹ PEF knows of no better support for the proposition that its system is and has been properly designed, constructed, and maintained than the real life experience that PEF has had with storms that have taken place within PEF's actual service territory. For example, the 2004 hurricane season shows that 96% of PEF's pole failures were due to flying debris and/or super extreme wind events that would have caused EWL constructed assets to fail. PEF cannot reasonably ignore this sort of

¹ Agenda Transcript, Page 13, Lines 3-5: "When we talk about trial by experience, I mean, if you are a company that has been in business for a while, you already have experience."

Agenda Transcript, Page 13, Lines 19-24 & Page 14, Lines 1-2: "And Madam Chair, what I mean is they have that experience, I'm pretty sure. When you are in business, I would hope that one would want to harden on their own, as much as they could, and then what we are asking them to do in addition to that. But anything that they have come back and said, look, this is what we have done in the past, this works the best, and history shows that maybe what you're asking here may be not as cost-effective as doing it a different way."

Agenda Transcript, Page 14, Lines 11-14: "And Madam Chair, I guess that makes a lot of sense. Because if one company has been hit a certain way, and another has been hit a different way, we may be able to use that history from both of them."

data and advocate charging its customers more money for more expensive construction designs such as EWL that would have also failed and would have been more costly and time consuming to replace in the hurricane restoration phase. See Attachments A and B hereto.

- Thus, our staff is not convinced that PEF's Plan adequately addresses an EWL criteria for PEF's service area. This is of specific concern because adjacent utilities, FPL and TECO, support a minimum extreme wind load criteria of 116 miles per hour in areas where PEF's service area abuts that of the other utility's service area.

PEF first notes that each utility in Florida has differing service territories within different regions of the state, and each utility has different operational experiences and practices within their systems. Also, system storm performance is influenced by the degree to which each utility in Florida has consistently executed sound and prudent maintenance programs and end-of-life equipment replacement. Thus, even with two utilities that closely border each other, one must use care in making utility-to-utility comparisons because in most instances, fair comparisons cannot be made on a true "apples-to-apples" basis.

That being said, PEF's policies and procedures state that the NESC is a minimum design standard. As constructed, PEF's facilities have design strengths higher than the 60 mph figure noted by Staff. For example, in urban areas such as Pinellas County and the greater Orlando area, span lengths between PEF's poles are necessarily shorter due to road crossings, density of service points, and other practical design considerations. Therefore, a large percentage of PEF's facilities have design strengths much greater than 60 mph, so it is not accurate to say that PEF is using a pure 60 mile per hour wind loading criteria throughout its system. In fact, PEF estimates that over 74% of its distribution system meets or exceeds Grade B construction standards. For detail on this issue, please see Attachment C hereto.

Further, as PEF has discussed in detail above, all empirical evidence that PEF has, both nationally and within its own service territory, shows that PEF's design and construction standards are effective and entirely appropriate.

- Additionally, we note that PEF sustained higher damage costs on a per customer basis than either FPL or TECO.

2004 Self-Insured Storm Damage Impact
 FPL, PEF, TECO, and Gulf

	Charley (Millions)	Frances (Millions)	Ivan (Millions)	Jeanne (Millions)	Total (Millions)	Millions of Customers	Cost per Customer
FPL	\$ 209	\$267	\$ 0	\$234	\$ 710	4.4	\$161
PEF	\$ 146	\$129	\$ 6	\$ 86	\$ 367	1.6	\$229

TECO	\$ 14	\$ 23	\$ 0	\$ 28	\$ 65	0.7	\$93
GULF	\$ 0	\$ 0	\$ 134	\$ 0	\$ 134	0.4	\$335

Sources: Docket No. 041291-EI for FPL; Docket No. 041272-EI for PEF; and answers to staff data requests for TECO and Gulf.

While there are many factors contributing to the level of storm damage experienced by each of these utilities, PEF's filings do not provide conclusive support for a lower EWL criteria than neighboring utilities which serve in areas that experience equivalent extreme wind speeds.

This comparison is not appropriate. First, the comparison does not take into consideration the intensity of the storms, the length of the storms and paths, as well as other storm-specific considerations. Each storm event affects each utility differently and therefore, it is difficult, if not impossible, to accurately evaluate and compare this sort of data as being indicative of a utility's ability to withstand a storm event.

Using the methodology employed in the comparison above, Gulf Power would have had a \$0 cost per customer in 2004 instead of a \$335 cost per customer if Hurricane Ivan did not happen. This simple example shows that information such as that presented in the chart above has no relevance as to a utility's ability to withstand storm events because the conclusions drawn from that data will vary and show disparate and inaccurate conclusions depending on a utility's particular storm experience in a given year.

To further illustrate this point, in the recent FPSC Report to the Legislature on Enhancing the Reliability of Florida's Distribution and Transmission Grids During Extreme Weather, the FPSC reported that during the 2005 hurricane season, PEF experienced \$7 million in total hurricane damage costs which results in a cost per customer of roughly \$4. Thus, by simply using 2005 instead of 2004, PEF's per customer hurricane damage cost goes from \$229 to \$4.

Mitigation of Flood and Storm Surge Damages to Underground Facilities

- PEF's Plan appears to discourage use of underground in locations at risk for storm surge and flooding. Underground construction is promoted only in areas exposed to minor storm surge and/or short-term water intrusion.

This is not an accurate description of PEF's plan. PEF makes clear in its plan that undergrounding is a site-specific consideration that must be evaluated based on several sets of facts, and that "one size does not fit all" when it comes to undergrounding. PEF specifically identifies 24 underground hardening projects in its storm hardening plan. PEF also specifically describes what measures PEF will use and test to mitigate flood and storm damage to UG facilities on pages 7-8 and 11-14 of its plan, and these measures include strategic storm evaluation prior to placement of UG facilities and targeted use of (1) submersible switchgear and stainless steel transformers; (2) submersible terminations; (3) raised mounting boxes; (4) cold shrink sealing tubes; and (5) submersible secondary blocks.

- While PEF generically discusses the use of its AIS to promote storm hardened underground facilities, PEF failed to state the specific scope and cost of its storm hardening activities.

PEF's plan discusses specific storm hardening activities on pages 14-20. Additionally, please see Attachment D hereto for further information.

Identification of Storm Hardening Activities Resultant Costs and Benefits

- Our staff believes the scope and costs of PEF's storm hardening activities are not clearly stated. PEF's Plan does not identify the incremental storm hardening activities, resultant costs, and benefits that PEF implements through the use of its proprietary project evaluation tool, AIS.

PEF's plan discusses cost benefit information and hardening costs on pages 21-22. Additionally, please see Attachments B and D hereto for further information regarding this issue.

- Instead, PEF's storm hardening activities appear to include all projects and resultant company incurred costs for customer requests, governmental improvements, purchases of other utility facilities, growth spurred conductor upgrades, and new facilities required to address growth.
- *This statement is not accurate. PEF identifies all of its new hardening projects for distribution on pages 14-15, and all of its new projects for transmission on pages 17-20. PEF also identifies project costs on page 21. This statement is also inaccurate to the extent it suggests that PEF is claiming "normal" work projects as hardening projects. For example, several transmission pole relocations in PEF's plan have been initiated by the DOT or local governments. However, the hardening aspect of these projects is not the relocation but rather is PEF's choice to build the new relocated line with steel or concrete transmission poles. Thus, the comment above focuses on the impetus for the relocation and not the actual resultant hardening project that PEF chose to initiate as part of the relocation.*
- Our staff believes PEF has the skills, expertise, and data to make estimates of potential reduction in storm restoration costs and outages that may occur in response to increases in various storm hardening options. Therefore, our staff believes excluding estimated benefit data and assessment of an EWL criterion does not appear to be reasonable because PEF has the opportunity and the resources to make estimates of reduced storm restoration costs and outages.
- *As stated in other dockets such as the distribution vegetation management docket and the distribution wood pole inspection docket, PEF cannot reasonably and accurately predict future storm activity and storm impacts, nor can PEF accurately predict how new hardening programs will perform in those storms. This is the major reason that PEF has taken a methodical, scientific approach to potential hardening options through the use of its AIS system and its work with PURC and other utilities. In its*

plan, PEF is testing applications in real storms and is gathering real data so PEF can properly evaluate the efficacy of different hardening options prior to implementing system-wide applications that may or may not provide storm hardening benefits. For additional information on PEF's AIS system, please see Attachment E hereto.

With these caveats stated, please see Attachments A and B hereto.

Cost-Effective Reduction of Storm Damage Costs and Outages

- As noted, PEF is not proposing any changes to its EWL criteria and has not identified substantive increases promoting underground facilities. Nevertheless, PEF's cost estimates, on a per customer basis, of \$56 exceed that of FPL (\$36-\$46) and TECO (\$37). Both FPL and TECO are promoting a more robust wind standard than PEF. Therefore, it appears that PEF may be proposing higher cost programs to achieve a less robust electric infrastructure system compared to other utilities.

This statement does not fairly characterize PEF's plan. This statement does not account for the fact that PEF: (1) is hardening all its transmission poles to concrete and steel; (2) is using front-lot construction for new, rebuilt, and relocated distribution assets; (3) has developed and implemented the AIS system to identify, evaluate, and deploy storm hardening techniques; and (4) has identified 36 distribution hardening projects to include OH to UG conversions, submersible UG devices, reconductoring, and alternative NESC applications.

Additionally, this statement assumes, despite all evidence to the contrary, that the EWL provides a hardening benefit when applied to distribution poles in PEF's service territory. As discussed above, all evidence and information that PEF has shows that it does not. The comment above additionally does not account for the fact that PEF is upgrading all of its transmission poles to concrete and steel. This cost constitutes a significant portion of PEF's hardening costs which leads to the \$56/per customer figure.

Further, the dollar-per-customer comparison above also does not acknowledge PEF's wood pole inspection plan, vegetation management plan, and 10-point Ongoing Storm Preparedness Plan. The comparison also does not account for other initiatives that PEF has included in its hardening plan such as the AIS system and the 36 distribution hardening projects slated for 2007-2009.

- In general, certain aspects of verifying customer benefits depend on future storm experiences. Nevertheless, it is also possible to test elements of PEF's planned activities through simulated extreme weather events and thereby avoiding complete reliance on a "trial-by-experience" approach. Thus, our staff believes PEF's Plan does not adequately discuss a feed-back mechanism that ensures that the overarching goals of lower storm restoration costs and fewer storm outages are achieved economically.

PEF's plan specifically identifies field projects where PEF will test Grade B and EWL construction in contrast with Grade C construction to see if there is any benefit to Grade B and/or EWL in real storm conditions in varying cross sections of PEF's service territory.

While wind simulators and other similar devices may provide some limited data, real storms vary in time and intensity and have tornados, flying debris, microburst wind, flooding, erosion, vegetation impacts, and other real world factors that cannot be tested in simulation. PEF's plan also makes clear that PEF is continuing to take part in collaborative research projects which impact on this issue. Finally, as Commissioner Argenziano recognized at the June 19, 2007 FPSC agenda in this docket, real utility experience in real storms cannot be ignored.² PEF knows of no better support for the proposition that its system is and has been properly designed, constructed, and maintained than the real life experience that PEF has had with storms that have taken place within PEF's actual service territory. For example, the 2004 hurricane season shows that 96% of PEF's pole failures were due to flying debris and/or super extreme wind events that would have caused EWL constructed assets to fail. PEF cannot reasonably ignore this sort of data and advocate charging its customers more money for more expensive construction designs such as EWL that would have also failed and would have been more costly and time consuming to replace in the hurricane restoration phase. See Attachments A and B hereto.

Finally, PEF's 10-Point Storm Preparedness Plan and its subsequent Storm Hardening Plan both discuss how PEF will use its integrated systems and data collection efforts to ensure that the overarching goals of lower storm restoration costs and fewer storm outages are achieved economically. This includes PEF's AIS System, its intergrated GIS systems, its forensic storm analysis process, and other related activity as outlined in those plans.

Details of Storm Hardening Activities

- Like the other utilities, PEF has not explicitly provided all cost components for deploying the Plan. While PEF provided cost estimates of its activities through 2009, PEF failed to separately identify ongoing costs to mitigate flood and storm surge impacts on underground systems and costs for extreme wind criteria.

PEF's plan discusses cost benefit information and hardening costs on pages 21-22. Additionally, please see Attachments B and D hereto for further information regarding this issue.

- Staff believes PEF needs to provide site-specific details for its proposed storm hardening activities. At a minimum, PEF should specifically show the location, scope, and cost of each storm hardening project scheduled for 2007 as well as the criteria for selecting that site for storm hardening.

² Agenda Transcript, Page 13, Lines 3-5: "When we talk about trial by experience, I mean, if you are a company that has been in business for a while, you already have experience."

Agenda Transcript, Page 13, Lines 19-24 & Page 14, Lines 1-2: "And Madam Chair, what I mean is they have that experience, I'm pretty sure. When you are in business, I would hope that one would want to harden on their own, as much as they could, and then what we are asking them to do in addition to that. But anything that they have come back and said, look, this is what we have done in the past, this works the best, and history shows that maybe what you're asking here may be not as cost-effective as doing it a different way."

Agenda Transcript, Page 14, Lines 11-14: "And Madam Chair, I guess that makes a lot of sense. Because if one company has been hit a certain way, and another has been hit a different way, we may be able to use that history from both of them."

PEF's plan discusses specific storm hardening activities on pages 14-20. Additionally, please see Attachments B, D, and E hereto for further information.

Consideration of Input from Interested Parties

- PEF solicited and considered input from collocated utilities and third-party attachers. Comments by these affected parties suggests that the 90-day period set by rule may have limited the level of dialog between PEF and affected parties. PEF asserts that dialog with these parties is ongoing. However, the nature of that dialog focuses on aspects of the pole owner/attacher processes, which is not expected to materially impact the scope of PEF's storm hardening activities.

PEF's agrees that the comments it has received from interested parties to date either consist of requests for additional information that are addressed above or deal with issues that do not necessarily deal with PEF's hardening activities. PEF believes that these issues can be resolved with these parties without the need for a hearing.

It is also noteworthy that third party attachers consistently support PEF's position on NESCC construction and the unproven nature of EWL, both in written comments and in presentations at workshops.

Operational Expense Differential Between Overhead and Underground Distribution Systems required for Calculation of Contribution-In-Aid-of-Construction (CIAC) pursuant to Rules 25-6.078 and 25-6.115, Florida Administrative Code

- PEF's filed Plan contains no support for assessing the operational expense differential between overhead and underground distribution systems. PEF asserts it has proposed a cost-effective plan. Thus, our staff believes PEF has the information necessary to determine the operational expense differential between PEF's overhead and underground systems.

PEF is not aware of any section in Rule 25-6.0342 that requires such information to be provided with PEF's Storm Hardening Plan. Additionally, PEF has provided information to the Commission regarding CIAC issues in separate CIAC dockets which the Commission has issued orders in.

Definition of Critical Infrastructure and Major Thoroughfares

Critical Infrastructure

Critical infrastructure is defined as infrastructure that is vital to the community's welfare. Examples include 911 Call Centers, Emergency Operations Centers (EOC), fire and police services, hospitals, emergency shelters, sewage pumping stations, schools, and gas stations.

Major Thoroughfares

Major thoroughfares are defined as major transportation arteries (such as interstate highways, major state highways and significant local roads) that are vital to first responder movement, the delivery of critical resources to communities, and evacuation.

Attachment A

	A	B	C	D	E	F	G
1	2004 Hurricane Season Extreme Wind Example						
2							
3	Number of Poles Replaced in 2004 (4 storms)	85% Poles Replaced for Flying Debris and Trees	11 % Poles Replaced for Tornado and Microburst	4% Poles Replaced for Hurricane Wind Effect			
4	7,151	6,079	804	268			
5							
6							
7	During 2004 Hurricane Season						
8							
9	Number of Poles Replaced	Replacement Cost per Pole	Total Replacement Cost				
10	7,151	\$1,803	\$12,893,253				
11							
12	Extreme Wind Cost						
13							
14	Number poles for EW vs. Grade C						
15	per Spec Book 02.02-03						
16							
17	For 3 phase 795 AAC Line	Class Pole for 45'	Span Length	Poles per Mile Circuit	Comments		
18	Grade C	C4	250	21.12	795 Single Circuit with JU		
19	EW (150 MPH)	H2	150	35.20	795 Single Circuit with JU		
20							
21	Number of Poles Factor						
22	to EW (150 MPH)	1.67					
23							
24	Poles Replaced if Built to EW	Replacement Cost per Pole	Total Replacement Cost	Incremental Cost			
25	11,494	\$2,116	\$24,321,304	\$11,428,051			
26							
27							
28	Estimate Increase in Restoration Time if Built to Extreme Wind						
29							
30	Increase in Poles if Built to EW	Average Manhours to Replace Pole	Total Increment Manhours				
31	4,343	11.5	49,945				
32							
33	Estimate Increase in Restoration Days if Built to Extreme Wind						
34							
35	Number of Men	Hours Worked per Day	Manhours per Day	Increase in Restoration Days			
36	6,337	10	63,370	0.8			
37							

Attachment B

PEF's Storm Hardening Plan Cost Matrix
 Rule 25-6.0342, F.A.C.
 (Dollars in Millions)

KEY
 N/A = Not Applicable
 U = Unknown
 UA = Unavailable

Activity	Docket No.	Actual/Estimated Utility Costs						Estimated Benefits to Utility Customers						Other Estimated Company Benefits			Estimated Benefits to Third Party Attachments						
		2004	2005	2006	2007	2008	2009	Impact on Storm Restoration Costs			Impact on Storm Caused Outages						Impact on Storm Restoration Costs			Impact on Storm Caused Outages			
								2007	2008	2009	2007	2008	2009	2007	2008	2009	2007	2008	2009	2007	2008	2009	
(a) Wooden Pole Inspections	060078-EI	\$0.351	\$0.155	\$2.300	\$2.490	\$2.490	\$2.490	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Ten Storm Hardening Initiatives																							
(b) 1 A Three-Year Vegetation Management Cycle for Distribution Circuits	060198-EI	N/A	N/A	\$19.549	\$19.549	\$21.046	\$21.046	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
(c) 2 An Audit of Joint-Use Attachment Agreements	060198-EI	UA	\$0.870	\$1.200	\$0.430	\$0.443	\$0.456	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
(d) 1 A Six-Year Transmission Structure Inspection Program	060198-EI	N/A	N/A	\$3.527	\$2.996	\$3.071	\$3.148	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
(e) 4 Hardening of Existing Transmission Structures	060198-EI	N/A	N/A	\$43.300	\$38.000	\$45.000	\$45.000	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	
(f) 5 Transmission and Distribution GIS	060198-EI	N/A	N/A	N/A	\$0.200	UA	UA	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
(g) 6 Post-Storm Data Collection and Forensic Analysis	060198-EI	C	C	C	C	C	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
(h) 7 Collection of Detailed Outage Data Differentiating Between the Reliability Performance of Overhead and Underground Systems	060198-EI	C	C	C	C	C	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
(i) 8 Increased Utility Coordination with Local Governments	060198-EI	N/A	N/A	C	C	C	C	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
(j) 9 Collaborative Research on Effects of Hurricane Winds and Storm Surge	060198-EI	N/A	N/A	\$0.005	\$0.073	\$0.073	\$0.073	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
(k) 10 A Natural Disaster Preparedness and Recovery Program	060198-EI	N/A	\$0.065	\$0.075	\$0.090	\$0.095	\$0.095	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	
Compliance with National Electric Safety Code's adoption of Extreme Wind Loading Standards.																							
(l) 1 New Distribution Facilities	070298-EI	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	
(m) 2 Major planned expansion, rebuild, or relocation of distribution facilities	070298-EI	\$0.000	\$0.000	\$0.000	\$0.600	\$1.000	\$1.000	(\$0.032)	(\$0.023)	(\$0.093)	Manhours	(173)	Manhours	(127)	Manhours	(506)	N/A	N/A	N/A	U	U	U	U
(n) 3 Critical infrastructure and major thoroughfares	070298-EI	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	
Mitigating flood and storm surge damage to underground and supporting overhead facilities.																							
(o) 1 Transmission	070298-EI	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
(p) 2 Distribution	070298-EI	N/A	N/A	N/A	\$0.430	\$0.250	\$0.500	\$0.017	\$0.004	\$0.038	Manhours	27	Manhours	7	Manhours	60	N/A	N/A	N/A	U	U	U	U
(q) Placement of new and replacement distribution facilities to facilitate safe and efficient access for installation and maintenance.	070298-EI	N/A	N/A	N/A	\$0.170	\$0.400	\$0.347	\$0.009	\$0.008	\$0.031	Manhours	103	Manhours	88	Manhours	352	N/A	N/A	N/A	U	U	U	U
Other Distribution Hardening Activities																							
Small Wire Reconnector	070298-EI	UA	UA	\$1.100	\$2.100	\$2.100	\$2.000	\$0.017	\$0.015	\$0.029	Manhours	211	Manhours	92	Manhours	356	N/A	N/A	N/A	U	U	U	U
OH to UG Conversions	070298-EI	UA	UA	UA	\$0.900	\$0.725	\$0.900	\$0.001	\$0.001	\$0.003	Manhours	16	Manhours	8	Manhours	12	N/A	N/A	N/A	U	U	U	U
Midfeeder Electronic Sectionalizing	070298-EI	UA	UA	\$0.600	UA	UA	UA	D	D	D	D	D	D	D	D	N/A	N/A	N/A	U	U	U	U	
Wood Pole Replacements	070298-EI	UA	UA	\$3.500	\$2.480	\$2.500	\$2.500	D	D	D	D	D	D	D	D	N/A	N/A	N/A	U	U	U	U	
Padmount Transformer Inspections	070298-EI	UA	UA	\$0.600	\$1.095	UA	UA	D	D	D	D	D	D	D	D	N/A	N/A	N/A	U	U	U	U	
Padmount Transformer Replacements	070298-EI	UA	UA	\$4.400	\$2.190	\$2.200	\$2.200	D	D	D	D	D	D	D	D	N/A	N/A	N/A	U	U	U	U	
ALS Model (Davies Consulting)	070298-EI	N/A	N/A	N/A	\$0.040	UA	UA	D	D	D	D	D	D	D	D	N/A	N/A	N/A	U	U	U	U	
Network Maintenance	070298-EI	UA	UA	UA	\$1.700	\$1.700	\$1.700	D	D	D	D	D	D	D	D	N/A	N/A	N/A	U	U	U	U	
TOTALS																							

* PEF Transmission uses either steel or concrete poles in new construction, rebuilds or replacements. New construction and relocations are designed to the NESC Extreme Wind Standard. Steel and concrete transmission poles are approximately 15% stronger than wood. These poles also are more homogeneous and have more reserve strength than wood. Steel and concrete does not deteriorate at the same rate as wood nor are they subject to insects or woodpecker damage. These factors logically will have benefits for both restoration costs and outage avoidance, but PEF cannot accurately estimate and quantify these benefits in the manner requested.

A These issues are addressed in Docket No. 060078-EI (Wood Pole Inspection Plan).

B These issues are addressed in Docket No. 060198-EI (EIW Storm Preparedness Plan).

C Money spent in these categories comes from different budget sources and delineated spending for these sub-categories is not available at this time.

D These replacement, inspection and maintenance activities logically will have benefits for both restoration costs and outage avoidance, but PEF cannot accurately estimate and quantify these benefits in the manner requested.

Lines M, P and Q - Please see "Attachment A" for narrative explanation.

ATTACHMENT B

Methodology for Storm Restoration Benefits Forecast

A forecast model for hurricane type activity was used for the AIS projects of EWL, Submersible UG facilities, Small Wire Reconductor, Back lot to Front lot conversions and OH to UG conversions. The 2004 hurricane season was a high year of activity for PEF. That year was used as a base year to forecast the storm activity through 2014. Three storm levels were used: High, Medium and Low. The medium level was 50% of the high level while the low level was 25% of the high level. The assumption was that the High storm level would occur every 5 years. The medium year was also assumed to occur every 5 years. Below is the forecast of storm levels for 2004-2014:

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
High	Low	Low	Medium	Low	High	Low	Low	Medium	Low	High

This forecast was used to estimate the potential benefits to PEF for each of the Hardening activities. The storm level was applied to the units of each hardening activity for the years 2007 - 2009. Cost and man hour benefits reflect either fewer units to repair or shorter time to repair damage units.

The following addresses assumptions for each hardening activity in PEF’s cost benefit matrix:

EWL

To build to EWL the average span lengths will need to be decreased and therefore more poles will be used. The poles used are larger and will be designed and built to different standards. The incremental increased cost to replace EWL poles and the incremental increased restoration times were used to estimate negative effects of EWL on PEF’s system.

Submersible Facilities

The assumption of benefits is that fewer padmount transformers and switchgear would fail and/or be replaced where targeted submersible facilities are used.

Small Wire Reconductor

The assumption of benefits is that fewer spans would fail and/or be replaced due to trees and other debris based on the increased mechanical strength of the larger wire.

Back Lot to Front Lot Conversions

The assumption of benefits is that it will generally take less time and money to repair a span down in area that is easily accessible then in the back lot or inaccessible area.

OH to UG Conversions

The assumption of benefits is that fewer overhead spans of wire will be down or fail due to debris and vegetation impact since converted facilities will be underground.

Attachment C

Progress Energy Florida System Construction Grade Analysis

For efficiency in purchasing, handling, and project logistics, Progress Energy Florida ("PEF") has standardized poles stocked for its standard types of field construction. It is not cost effective nor is it operationally effective to stock multiple types of poles from different pole classes, so PEF has narrowed the types of poles in its inventory to the lowest number practically possible. The poles that PEF keeps in its inventory are suitable to meet Grade C construction in all cases, but oftentimes, these poles result in facilities meeting Grade B standards or above for certain types of construction.

The standard poles stocked in PEF's inventory include the following:

- 30 foot class 6
- 35 foot class 5
- 40 foot class 5
- 45 foot class 4
- 45 foot class 2
- 50 foot class 3

The class of the pole is relative to its strength as defined by ANSI 05.1. Poles with lower class numbers are stronger than ones with higher class numbers. For example, a 40 foot class 4 pole is stronger than a 40 foot class 5. A 50 foot class 3 pole is stronger than a 40 foot class 4 poles.

Each of the poles listed above have a maximum bending moment, and the amount and size of equipment on the pole determines how "loaded" the pole is. Depending on the load applied to a pole, a particular line of poles may meet Grade B construction or better. In all cases, however, PEF's designs meet or exceed Grade C construction.

For lighting and secondary voltage applications, 30 foot class 6 poles are used. For single phase lines with no joint users (telephone or CATV) 35 foot class 5 poles are used. For single phase lines with joint users, 40 foot class 5 poles are used. 45 foot class 4, 45 foot class 2 and 50 foot class 3 poles are used for three phase lines. The pole is selected based on height requirements and whether joint users exist on the pole line in question.

Analysis indicates that for most lines designed on PEF's system, Grade B construction is achieved. This is because a standard pole from PEF's inventory is used as opposed to a lower class pole that could be used to meet Grade C construction. Lighting poles, secondary voltage poles, single and two phase primary voltage poles typically meet Grade B construction because the "loading" on the pole is not too great for the standard class pole being used.

The relationship between strength, expressed in pounds per square foot, and wind speed expressed in mile per hour is as follows:

$$\sqrt{\frac{Load}{0.00256}} = Windspeed \quad \text{For round object such as poles and wires.}$$

The NESC zone load for Florida is 9 lbs/sqft. Taking into consideration the applied overload factors (OLF) and strength factors (SF) for wood, and assuming that a given pole meets the average strength requirements of ANSI 05.1, one can use the above formula to equate the strength of a pole in to a wind speed.

$$\sqrt{\frac{Load \times OLF \div SF}{0.00256}} = Windspeed$$

$$\text{For Grade B } \sqrt{\frac{9 \times 2.5 \div 0.65}{0.00256}} = 116 \text{ mph and for Grade C } \sqrt{\frac{9 \times 1.75 \div 0.85}{0.00256}} = 85 \text{ mph}$$

These equations assume a fully loaded pole. Due to standardization of pole sizes, however, PEF's poles are rarely fully loaded. PEF's typical 3 phase pole is a 45' class 4, supporting 795 AAC primary and 1/0 AAAC neutral in maximum 250' spans. There will also typically be a transformer and a communication conductor attachment on a pole. Assuming a 100 kVA transformer and a 1" diameter communication conductor will result in this typical pole being loaded to 84% at Grade C. Equating this to a wind speed:

$$\sqrt{\frac{9 \times 1.75 \div 0.85 \div 0.84}{0.00256}} = 93 \text{ mph}$$

A typical 2 phase line consists of 1/0 AAAC primary and neutral with maximum 250' spans on a 45' class 4 pole. Assuming there is also a 100kVA transformer and a 1" communication conductor will result in the pole loaded to 51% at Grade C. Equating this to a wind speed:

$$\sqrt{\frac{9 \times 1.75 \div 0.85 \div 0.51}{0.00256}} = 119 \text{ mph}$$

A typical single phase line consists of 1/0 AAAC primary and neutral with maximum 250' spans on a 40' class 5 pole. Assuming a 50kVA transformer and a 1" communication conductor will result in the pole being loaded to 52%. Equating this to a wind speed:

$$\sqrt{\frac{9 \times 1.75 \div 0.85 \div 0.52}{0.00256}} = 118 \text{ mph}$$

And finally, a typical 30' class 6 service lift pole supporting a 100' span of 1/0 Al triplex and 50' Al triplex service drop at 90 degrees will result in the pole loaded to 70% at Grade C. Equating this to a wind speed:

$$\sqrt{\frac{9 \times 1.75 \div 0.85 \div 0.70}{0.00256}} = 102 \text{ mph}$$

One can see that the strength of a typical PEF pole significantly exceeds the requirements of Grade C and often exceeds the requirements of Grade B.

Primary construction on the PEF distribution system breaks down as follows:

Type Construction	% System	Miles
1 phase	66.0%	12,066
2 phase	8.2%	1,499
3 phase	25.8%	4,717

Therefore, based on typical construction applications using standard poles, approximately 74.2% of primary distribution plant meets or exceeds the requirements of Grade B when installed.

Attachment D

Project Name	Const. Due Date	Hardening Activity	Beginning Pole #	Middle Pole #	End Pole #	Joint Users	Est. Proj. Length	County
In Construction								
Coquina Key	August	Small Reconductor	49208	48648	B202513	<u>Beginning Pole</u> 1) Bright House Networks 2) Knology <u>Middle Pole</u> 1) Bright House Networks 2) Knology <u>End Pole</u> 1) Bright House Networks 2) Knology	5.68 miles	Pinellas
SR-408 @ Woodbury Rd	September	OH – 2 UG Conversion	6593065	NA	840855	<u>Beginning Pole</u> 1) Bright House Networks 2) Comcast 3) BellSouth <u>Middle Pole</u> 1) Bright House Networks 2) Comcast 3) BellSouth <u>End Pole</u> 1) Bright House Networks 2) Comcast 3) BellSouth	383 feet	Orange
St George Is – Plantation	August	Submersible UG	NA	NA	NA	NA	NA	Franklin
US 98 – Brooksville	August	Small Reconductor	B163198	465249	420798	<u>Beginning Pole</u> 1) BellSouth <u>Middle Pole</u> 1) BellSouth <u>End Pole</u> 1) BellSouth	2 miles	Hernando
In Permitting / Easements								
Calle De Sol	October	OH – 2 UG Conversion	792636	792644	810069	<u>Beginning Pole</u> 1) BellSouth <u>Middle Pole</u> 1) BellSouth <u>End Pole</u> 1) BellSouth	.82 miles	Orange

US 441 west of Hwy 19	September	OH – 2 UG Conversion	6937131	NA	A91068	1) NONE 1) NONE 1) NONE	<u>Beginning Pole</u> <u>Middle Pole</u> <u>End Pole</u>	400 feet	Lake
OH Crossing of Turnpike (K1025 @ K1025 & K1028 @ K128)	September	OH – 2 UG Conversion	Ckt #1 A39478 Ckt #2 783152	NA	A16211 783153	1) Bright House Networks 1) Bright House Networks 1) Bright House Networks	<u>Beginning Pole</u> <u>Middle Pole</u> <u>End Pole</u>	470 feet	Orange
OH Cross of Trnpke 2 (K1780 @ K6434991 and K1775 @ K5021)	September	OH – 2 UG Conversion	Ckt #1 5388156 Ckt #2 5380611	NA	5388145 5380647	1) NONE 1) NONE 1) NONE	<u>Beginning Pole</u> <u>Middle Pole</u> <u>End Pole</u>	700 feet	Orange
In Design									
A192 – Luraville	September	Small Reconnector	B261888	46845	4015271	1) NONE 1) NONE 1) NONE	<u>Beginning Pole</u> <u>Middle Pole</u> <u>End Pole</u>	2 miles	Suwannee
Feeder X220	September	Extreme Wind Upgrade	4938164	120167	127818	1) Bright House Networks 2) Knology 1) Bright House Networks 2) Knology 1) Bright House Networks 2) Knology	<u>Beginning Pole</u> <u>Middle Pole</u> <u>End Pole</u>	1.5 miles	Pinellas
R448 – Dunnellon	October	Back lot – 2-Front Lot Conversion	B162834	466752	467177	1) NONE 1) NONE 1) NONE	<u>Beginning Pole</u> <u>Middle Pole</u> <u>End Pole</u>	1.5 miles	Marion

In the Queue									
OH Crossing of Turnpike (K68@K5255)	October	OH – 2 UG Conversion	B65162	NA	B65164	1) NONE 1) NONE 1) NONE	<u>Beginning Pole</u> <u>Middle Pole</u> <u>End Pole</u>	450 feet	Orange
US 301 – Citra	December	Small Reconductor	6042333	37G951 R	B170985	1) NONE 1) NONE 1) NONE	<u>Beginning Pole</u> <u>Middle Pole</u> <u>End Pole</u>	1 mile	Marion
OH Crossing of Turnpike (K1780 @K2379)	November	OH – 2 UG Conversion	5380854 Equip-ID – Trans Pole	NA	5380855 Equip-ID – Trans Pole	1) NONE 1) NONE 1) NONE	<u>Beginning Pole</u> <u>Middle Pole</u> <u>End Pole</u>	420 feet	Orange
2008									
Florida Turnpike @ Sandlake Rd (485')	November	OH – 2 UG Conversion	B229341	NA	B229340	1) FPL FiberNet 2) Orange County 3) Bright House Networks 4) BellSouth <u>Middle Pole</u> 1) FPL FiberNet 2) Orange County 3) Bright House Networks 4) BellSouth <u>End Pole</u> 1) FPL FiberNet 2) Orange County 3) Bright House Networks 4) BellSouth	<u>Beginning Pole</u> <u>Middle Pole</u> <u>End Pole</u>	485 feet	Orange
Winderlakes	October	OH – 2 UG Conversion	82696	82689	803936	1) Bright House Networks 1) NONE 1) Pole not in field	<u>Beginning Pole</u> <u>Middle Pole</u> <u>End Pole</u>	1 mile	Orange

Florida Turnpike @ Sandlake Rd (746')	October	OH – 2 UG Conversion	718318	NA	765231	<p style="text-align: center;"><i>Beginning Pole</i></p> <p>1) FPL FiberNet 2) Orange County 3) Bright House Networks 4) BellSouth</p> <p style="text-align: center;"><i>Middle Pole</i></p> <p style="text-align: center;"><i>End Pole</i></p> <p>1) FPL FiberNet 2) Orange County 3) Bright House Networks 4) BellSouth</p>	746 feet	Orange
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JOINT ATTACHER COST IMPACTS

OH to UG Conversions

If a joint attacher relocates its facilities underground with PEF, the joint attacher would incur costs associated with relocating and undergrounding its facilities.

Small Wire Reconductor

Since these projects should not involve changing or relocating poles, the cost impacts to joint attachers should be \$0.

Extreme Wind Pilot Projects

If a joint attacher relocates its facilities to an extreme wind pilot pole with PEF, the joint attacher would incur costs associated with relocating its facilities.

Submersible Underground

These projects should have a \$0 cost impact on joint attachers.

Rear to Front Lot Relocations

If a joint attacher relocates its facilities to front lot with PEF, the joint attacher would incur costs associated with relocating its facilities.

PEF Region	PEF OpCenter	Fla County	Project Name	Project Type	Estimated Cost
South Central	Buena Vista	Orange	Calle De Sol	OH to UG Conversion	\$544,472.35
North Coastal	Monticello	Franklin	St George Is. Plantation	Submersible UG	\$485,621.00
North Central	Jamestown	Orange	SR-408 @ Woodbury Rd	OH to UG Conversion	\$28,725.00
South Central	Buena Vista	Orange	Windtakers	OH to UG Conversion	\$159,296.00
North Coastal	Inverness	Marion	R448 - Dunnellon	Back lot to Front lot conversion	\$175,000.00
North Coastal	Inverness	Hernando	US 98 - Brooksville	Small Reconstructor	\$240,000.00
North Central	Apopka	Lake	US 441 west of Hwy 19	OH to UG Conversion	\$42,750.00
South Coastal	St Petersburg	Pinellas	Coquina Key	Small Reconstructor	\$1,372,000.00
South Central	SE Orlando	Orange	Florida Turnpike @ Sandlake Rd (746)	OH to UG Conversion	\$55,950.00
South Central	Buena Vista	Orange	OH Crossing of Turnpike (K68 @K5255)	OH to UG Conversion	\$41,000.00
North Coastal	Monticello	Suwannee	A192 - Luraville	Small Reconstructor	\$300,000.00
South Coastal	Clearwater	Pinellas	Indigo	Small Reconstructor	\$129,500.00
South Central	SE Orlando	Orange	OH Cross of Trmpke 2 (K1780 @ K6434991 and K1775 @ K5021)	OH to UG Conversion	\$82,302.00
South Central	SE Orlando	Orange	Florida Turnpike @ Sandlake Rd (485)	OH to UG Conversion	\$36,375.00
South Central	SE Orlando	Orange	OH Crossing of Turnpike (K1780 @K2379)	OH to UG Conversion	\$39,000.00
North Coastal	Ocala	Marion	US 301 - Citra	Small Reconstructor	\$100,000.00
South Coastal	St Petersburg	Pinellas	Feeder X220	Extreme Wind Upgrades	\$662,400.00
South Central	SE Orlando	Orange	OH Crossing of Turnpike (K1025 @ K1025 & K1028 @ K128)	OH to UG Conversion	\$68,199.62
North Central	SE Orlando	Orange	Sprint Earth Station & Cocoa Water Wells	Small Reconstructor	\$794,784.00
North Central	Longwood	Seminole	I-4 @ SR-436	OH to UG Conversion	\$172,650.00
South Central	SE Orlando	Orange	Florida Turnpike @ Orange Blossom Trail	OH to UG Conversion	\$13,650.00
South Coastal	Seven Springs	Pasco	Floramar Subdivision	Submersible UG	\$150,000.00
South Central	SE Orlando	Orange	Hoffner Ave and feeder Tie	Small Reconstructor	\$194,662.00
North Central	Longwood	Orange	I-4 @ Oranole Road/Lake Destiny Dr.	OH to UG Conversion	\$26,025.00
South Central	SE Orlando	Orange	Holden Ave E) Orange Blossom Trail	Small Reconstructor	\$182,000.00
North Coastal	Inverness	Citrus	Homosassa - Riverhaven	Submersible UG	\$100,000.00
North Central	Longwood	Seminole	I-4 @ EE-Williamson Rd	OH to UG Conversion	\$33,875.00
North Central	Longwood	Seminole	I-4 @ SR-434	OH to UG Conversion	\$40,575.00
North Central	Eustis	Orange	I-4 @ Lee Rd	OH to UG Conversion	\$49,800.00
North Central	Longwood	Orange	I-4 @ Kennedy Blvd	OH to UG Conversion	\$17,700.00
South Central	Lake Wales	Polk	Highland Park	Small Reconstructor	\$110,450.00
South Central	Lake Wales	Polk	Hibiscus Feeder Tie	Small Reconstructor	\$353,920.00
North Central	Longwood	Seminole	I-4 @ North St	OH to UG Conversion	\$32,250.00
North Central	Longwood	Orange	I-4 @ Fairbanks Ave	OH to UG Conversion	\$53,550.00
North Central	Longwood	Seminole	I-4 @ Orange St	OH to UG Conversion	\$25,950.00
North Central	Longwood	Seminole	Us 17/92 & SR-436	OH to UG Conversion	\$53,475.00

Attachment E



Florida Public Service Commission (PSC)

Asset Investment Strategy (AIS) Model

Summary Report

Prepared by

Progress Energy Florida (PEF)

Work Performed
January – March 2007

Report Date:
July 30, 2007



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Davies Consulting – AIS Background

The Asset Investment Strategy (AIS) is a comprehensive process and web-enabled decision support tool developed by Davies Consulting, Inc. AIS has been used to optimize capital investments and O&M projects within and across business units including: Electric Distribution, Transmission, Power Supply, Customer Care, Gas, Water, and Business Services (e.g., IT, HR, Fleet, and Facilities). Currently in use by nearly twenty U.S. and Canadian utilities, AIS integrates process, people and technology to optimize spending. Refer to Exhibit A for a more detailed description of this product.

PEF Approach

The approach used to complete this task focused on learning from past analysis and leveraging readily available information to prioritize projects.

1. *Developed the evaluation template* – Workshops were held to identify key strategic indicators of project merit and attributes that describe the value for each criterion. The team also defined the initial set of questions and answers as well as weights and values that were used to prioritize projects.
2. *Identified hardening projects* – PEF staff worked to determine a set of discrete hardening projects that would produce a diverse portfolio reaching all sections of PEF power delivery systems (e.g., relocations, upgrades, OH to UG conversions, etc.) The final set of projects included 38 projects that break down as follows:

Sub-Categories	Description	Number of Projects
OH to UG conversions	Placing existing overhead (OH) electric lines and facilities underground (UG) via the use of specialized UG equipment and materials. The primary purpose of this hardening activity is to attempt to eliminate tree and debris related outages in the area of exposure. When applied to crossings on major highways, this hardening activity can also mitigate potential interference with first responders and other emergency response personnel caused by fallen lines.	21
Small Wire Upgrade	The upgrade of an existing overhead line currently with either #4 or #6 conductor to a thicker gauge conductor of 1/0 or greater. The primary purpose of this hardening activity is to attempt to utilize stronger conductor that may be better able to resist breakage from falling tree branches and debris.	10

Back lot to Front lot conversion	Relocation of an existing overhead line located in the rear of a customer's property to the front of the customers property. This involves the removal of the existing line in the rear of the property and construction of a new line in the front of the property along with re-routing service drops to individual customer meters. The primary purpose of this hardening activity is to minimize the number of tree exposures to the line to prevent outages and to expedite the restoration process by allowing faster access in the event an outage occurs.	1
Submersible UG	Installing PEF flood resistant equipment to existing UG line and equipment to better withstand a storm surge. This involves the use of specialized stainless steel equipment and submersible connections. The primary purpose of this hardening activity is to attempt to minimize the damage caused by a storm surge to the equipment and thus expedite the restoration after the storm surge has receded.	3
Alternative to NESC Construction Standards	Building OH line and equipment segments to grade B construction or the extreme wind standard as shown in the NESC extreme wind contour lines of figure 250-2(d). This will be done via the use of the current PEF grade B and extreme wind standards which call for the use of the industry accepted Pole Foreman program to calculate the necessary changes. Typical changes include shorter span lengths and higher class (stronger poles). The primary purpose of this hardening activity is to attempt to reduce the damage caused by elevated winds during a major storm. Locations have been chosen to provide contrasting performance data between open costal and inland heavily treed environments.	1

3. *Loaded projects into AIS and agreed to priorities* – DCI worked with the PEF staff to enter all of the projects that needed to be analyzed into AIS, utilizing the template that was developed in the previous step. The objective here was to ensure completeness and consistency in the evaluation of these alternatives. The team met to review the template and make any adjustments to ensure consistency and relevance of all questions in the template based on the various “what-if” scenarios. The team also evaluated the rankings and agreed on the final set of projects to be funded for 2007 work. Selection criteria was chosen to create a structure that best represents the most important factors, regardless of current data accuracy or precision. It is expected that weighting and data measurements will be adjusted over time based on feedback and experience.

Evaluation Template Overview

Key strategic criteria include:

Strategic Criteria	Description	Weighting
Financial Cost	Provides the financial value of the proposed project based on Net Present Value (NPV) of total costs associated with the project (Capital and O&M) and associated potential benefits such as avoided O&M costs, avoided outages, etc.	20%
Major Storm Impact	Determines the potential benefits that the project provides during a major storm based on reduced damages or the ability to restore power more rapidly.	35%
Community Storm Impact	Evaluates the potential benefits that the proposed project will have on a community's ability to cope with damage.	10%
Third Party Impact	Captures complexities of proposed projects in terms of coordination with third parties such as telecommunication, Cable TV, permitting, costs, etc.	5%
Overall Reliability	Captures the overall potential reliability benefits that the project provides on an on-going basis in terms of reduced customer interruptions and outage duration.	30%

Required basic project information includes:

- **Project Name** - Enter a unique identifier for the proposed hardening project
- **Brief Description of Project** - Include scope of work, distance, and starting and ending device numbers
- **Project Sponsor** - Name of person requesting hardening project
- **Operating Unit** - PEF distribution region project resides in
- **Project Type** - Proposed hardening solution to be implemented

Each strategic criterion is evaluated based on the answers to a set of specific questions. Exhibit B is a detailed overview of the questions within each strategic criterion, including the description of the assumptions and available answers for each question.

Data Collection Method and Assumptions by Question

In order to ensure consistency in the responses to specific questions for each project, the team agreed on specific sources of information and created common assumptions which are described in the tables below by each question.

Major Storm Outage Reduction Impact – 35%

Template Question	Data Collection Method	
<p>At the end of this project, what percent of the exposure will be hardened?</p>	<p>This question attempts to assign priority based on the total completion of hardening activities around a particular geographical boundary.</p> <p>If a project has certain completion significance that percentage is indicated. For example if project calls for the relocation of the final remaining back lot line in a neighborhood, 100% would be entered as the value in this question since at the end of the project, this neighborhood will be considered completely hardened.</p>	
<p>How many customers are served from this device?</p>	<p>This question attempts to assign priority based on the number of customers served downstream of the upstream protecting device of the proposed hardening section.</p> <p>Protecting devices include Fuses, Sectionalizers, Reclosers, and Breakers.</p>	
<p>What will be the impact of this project on the restoration time during major storm?</p>	<p>This question attempts to assign priority based on the potential impact of reducing restoration time if a major storm were to occur.</p> <p>The possible values for this question are based on the type of proposed hardening activity:</p>	
	OH-to-UG Conversion	Significant Reduction
	Backlot-to-Frontlot Relocation	Moderate Reduction
	Small Wire Upgrades	Moderate Reduction
	All Others	Minimal Reduction

Template Question	Data Collection Method	
<p>What is the annual probability of wind over 70 mph in the area served by this device?</p>	<p>This question attempts to assign priority based on the probability of winds exceeding 70mph striking the project area.</p> <p>The probability is determined utilizing data from the Federal Emergency Management Agency's (FEMA) multi-hazard risk assessment and loss estimation software package. FEMA's HAZUS[®]_{MH} software package is used for Earthquake, Wind, & Flood damage estimation.</p> <p>The HAZUS[®]_{MH} program categorizes this probability by census track for all of the United States. PEF extracted pertinent information for the state of Florida from the software and assumed that the entire service territory would see 30 mph winds on an annual basis to build the probability table. PEF then used existing utility software to determine the geographical location of the proposed hardening project in terms of its census track and matched it against the HAZUS[®]_{MH} tables to determine what the probability of winds exceeding 70 mph would be.</p>	
<p>At what level of hurricane will the area served by this feeder flood due to storm surges?</p>	<p>This question attempts to assign priority based on the project area's exposure to flooding from a tropical storm or hurricane.</p> <p>The flood level boundaries were obtained from the Division of Emergency Management at the Department of Community Affairs of Florida. These boundaries, used in conjunction with internal software, were used by PEF to geographically plot the proposed hardening projects against the flood zones and determine the level of flooding.</p>	
<p>What is the tree density in the area served by this device?</p>	<p>This question attempts to assign priority based on the project area's exposure to trees. Increased tree density around overhead distribution lines results in increased outages.</p> <p>Utilizing the project sponsor's knowledge of the proposed hardening project, the approximate tree density around the project is determined.</p>	
<p>What level of tree damage will this project mitigate during a major storm?</p>	<p>This question attempts to assign priority based on the potential of reducing restoration time if a major storm were to occur.</p>	
	<p>The possible values for this question are based on the type of proposed hardening activity:</p>	
	OH-to-UG Conversion	Significant Reduction
	Backlot-to-Frontlot Relocation	Small Reduction
	Small Wire Upgrades	Small Reduction
All Others	None	

Community Storm Impact – 10%

Template Question	Data Collection Method	
<p>How many critical customers does this project address?</p>	<p>This question attempts to assign priority based on the potential number critical customers that will be positively impacted by the proposed project. Creates a placeholder for potential consideration of critical infrastructure.</p> <p>The Critical Customer list is created and maintained by our Commercial Industrial Governmental (CIG) group and includes a list of customer accounts for shelters, public works buildings, police / fire stations, street signals, and others.</p> <p>All accounts are classified by the CIG group in four categories. Priority 1 is the most critical and includes accounts such as shelters & hospitals.</p>	
<p>How many priority 1 critical customers does this project address?</p>	<p>This question attempts to assign priority based on the potential number of priority 1 critical customers that will be positively impacted by the proposed project.</p> <p>This question is answered utilizing the same list mentioned above created by the CIG group. Of those projects which contained critical customers as dictated by the list, the amount of those accounts which have been further classified by the CIG group as a priority 1 account are identified.</p>	
<p>How valuable will the project be to the community?</p>	<p>This question attempts to assign priority based on the potential perceived value of the proposed project by the community.</p> <p>The possible values for this question are based on a combination of the type of proposed hardening activity and the project sponsor's knowledge of the proposed hardening project:</p>	
	Rebuild in Place	No Impact
	Relocation	Negative or Positive
	Conversion	Negative or Positive

Third Party Impact – 5%

Template Question	Data Collection Method	
What are the major obstacles/risks for completing the project this year?	<p>This question attempts to assign priority based on potential delays that may be caused by the acquisition of permits or easements or any other relevant obstacle.</p> <p>This is determined utilizing the project sponsor's knowledge of the proposed hardening project:</p>	
What type of investment, if any, is required by joint users to complete this project?	<p>This question attempts to assign priority based on potential impact that may be caused on third party attachers such as telecom and cable joint users.</p> <p>The possible values for this question are based on the type of proposed hardening activity:</p>	
	Submersible UG	None
	Small Wire Upgrade	Transfer at Same Location
	Backlot-to-Frontlot Relocation	OH Relocation
	OH to UG Conversion	OH to UG Conversion
Extreme Wind Upgrade	Transfer at Same Location	

Overall Reliability – 30%

Template Question	Data Collection Method	
What is the three year average CEMI ₄ number of customers on this feeder?	<p>This question attempts to assign priority based on potential reduction in the number of CEMI₄ customers impacted by the proposed project.</p> <p>The structure of our reliability maintenance programs is such that the customers that compose the CEMI₄ index vary from year to year. Because of this, a three year average of the CEMI₄ customers is utilized in determining the potential benefit of the proposed project.</p>	

Template Question	Data Collection Method									
<p>How many customer outages will this project potentially eliminate annually?</p>	<p>This question attempts to assign priority based on potential reduction in the number of customer outages provided by the proposed project.</p> <p>Historical data is obtained over the previous three years indicating the number of customer interruptions (CI) in the proposed project as dictated by the upstream protecting device.</p> <p>The CI is determined from adjusted (non-severe weather) data as this category is intended to identify the day to day reliability benefits of the proposed hardening project. The CI is also filtered according to certain cause codes which have been identified as those cause codes for which the proposed hardening activities can have a positive impact on.</p> <p>The 3 year average of the identified CI under each particular cause code is taken and filtered against the internally developed “Rules of Thumb” matrix in Exhibit D. The Rules of Thumb matrix assigns a certain reduction percentage to the amount of CI based on the proposed hardening activity and the cause code it is intended to mitigate.</p>									
<p>What is the potential change in the annual CAIDI that this project will result in?</p>	<p>This question attempts to assign priority based on potential reduction in the annual CAIDI the proposed project will bring.</p> <p>The possible values for this question are based on the type of proposed hardening activity:</p> <table border="1" data-bbox="690 1208 1511 1427"> <tr> <td data-bbox="690 1208 1108 1257">OH-to-UG Conversion</td> <td data-bbox="1108 1208 1511 1257">Increase</td> </tr> <tr> <td data-bbox="690 1257 1108 1336">Highway Crossing OH-to-UG conversion</td> <td data-bbox="1108 1257 1511 1336">Decrease</td> </tr> <tr> <td data-bbox="690 1336 1108 1385">Backlot-to-Frontlot Relocation</td> <td data-bbox="1108 1336 1511 1385">Decrease</td> </tr> <tr> <td data-bbox="690 1385 1108 1427">All Others</td> <td data-bbox="1108 1385 1511 1427">No Change</td> </tr> </table>		OH-to-UG Conversion	Increase	Highway Crossing OH-to-UG conversion	Decrease	Backlot-to-Frontlot Relocation	Decrease	All Others	No Change
OH-to-UG Conversion	Increase									
Highway Crossing OH-to-UG conversion	Decrease									
Backlot-to-Frontlot Relocation	Decrease									
All Others	No Change									
<p>Will this project reduce the number of momentary customer interruptions on this section?</p>	<p>This question attempts to assign priority based on potential reduction in the annual MAIFI the proposed project will bring.</p> <p>The possible values for this question are based on the type of proposed hardening activity:</p> <table border="1" data-bbox="690 1655 1511 1862"> <tr> <td data-bbox="690 1655 1108 1704">OH-to-UG Conversion</td> <td data-bbox="1108 1655 1511 1704">Yes</td> </tr> <tr> <td data-bbox="690 1704 1108 1761">Backlot-to-Frontlot Relocation</td> <td data-bbox="1108 1704 1511 1761">Yes</td> </tr> <tr> <td data-bbox="690 1761 1108 1810">OH-to-Spacer Cable Conversion</td> <td data-bbox="1108 1761 1511 1810">Yes</td> </tr> <tr> <td data-bbox="690 1810 1108 1862">All Others</td> <td data-bbox="1108 1810 1511 1862">No</td> </tr> </table>		OH-to-UG Conversion	Yes	Backlot-to-Frontlot Relocation	Yes	OH-to-Spacer Cable Conversion	Yes	All Others	No
OH-to-UG Conversion	Yes									
Backlot-to-Frontlot Relocation	Yes									
OH-to-Spacer Cable Conversion	Yes									
All Others	No									

Template Question	Data Collection Method
<p>What will be the change in the number of customers experiencing outages longer than 3 hours as a result of this project?</p>	<p>This question attempts to assign priority based on potential reduction in the number of CELID₃ customers impacted by the proposed project.</p> <p>The structure of our reliability maintenance programs is such that the customers that compose the CELID₃ index vary from year to year. Because of this, a three year average of the CELID₃ customers is utilized in determining the potential benefit of the proposed project.</p> <p>The number of customers experiencing an outage lasting longer than three hours is determined from adjusted (non-severe weather) data as this category is intended to identify the day to day reliability benefits of the proposed hardening project. This number is also filtered according to certain cause codes which have been identified as those cause codes for which the proposed hardening activities can have a positive impact on.</p> <p>The 3 year average of the identified customers under each particular cause code is taken and filtered against the internally developed “<u>Rules of Thumb</u>” matrix in Exhibit D. The Rules of Thumb matrix assigns a certain reduction percentage to the amount of customers based on the proposed hardening activity and the cause code it is intended to mitigate.</p>

Financial (Cash Flow) Value – 20%

Template Question	Data Collection Method
<p>Construction Costs</p>	<p>This question attempts to assign priority based on the expected construction costs of the proposed project.</p> <p>Internally developed costs estimated based on historical data are used in the construction cost estimation. The final result is shown as a cost to the utility</p>

Template Question	Data Collection Method
Removal Equipment	<p>This question attempts to assign priority based on the expected Removal costs of the proposed project.</p> <p>The estimated construction costs detailed above include minimal removal costs. This category is intended to capture the removal costs associated with major projects such as converting a line to underground or changing and entire pole line to a different pole class.</p> <p>If the proposed project does not fit any of these categories, the entered value is zero dollars. If the proposed project does fit under one of the above mentioned categories, the removal costs are estimated utilizing the STORMS system used internally for tracking work orders. Either case, the result shown should be a cost to the utility.</p>
Vegetation Clearing	<p>This question attempts to assign priority based on the annual vegetation management savings of the proposed project.</p> <p>The result shown in this section should represent a savings to the utility and is estimated by taking the per mile cost of vegetation management for rear lot and front lot lines and dividing it by the approved trimming cycle.</p> <p>If the proposed project does not involve an UG conversion or relocation of a line, the vegetation savings should be noted as zero dollars since this implies an existing overhead line will remain in place which would still require the same amount of vegetation management care.</p>
Cost of future Maintenance	<p>This question attempts to assign priority based on the annual maintenance costs of the proposed project.</p> <p>Maintenance costs are associated with on-going reliability maintenance programs such as wood pole and pad-mounted transformer inspections.</p> <p>The result shown in this section should represent a cost to the utility. Any net positive cash flow from the project should be entered as a negative number.</p>

Template Question	Data Collection Method
Residual Value	<p>This question attempts to assign priority based on the expected residual value of equipment removed by the proposed project.</p> <p>All equipment is assumed to have zero residual value unless it is considered major equipment that can be deployed somewhere else. Examples of major equipment include ABB reclosers and switchgears.</p> <p>Assigned residual values are equal to the full value of the unit at purchase. The result shown in this section should represent a savings to the utility.</p>
Decrease in outage events	<p>This question attempts to assign priority based on the potential reduction of in outage restoration costs gained by the proposed project.</p> <p>The structure of our reliability maintenance programs is such that the number of outages varies from year to year. Because of this, a three year average of the number of outages is utilized in determining the potential benefit of the proposed project.</p> <p>The number of outages is determined from adjusted (non-severe weather) data as this category is intended to identify the day to day cost benefits of the proposed hardening project. This number is also filtered according to certain cause codes which have been identified as those cause codes for which the proposed hardening activities can have a positive impact on.</p> <p>The 3 year average of the identified outages under each particular cause code is taken and filtered against the internally developed “Rules of Thumb” matrix in Exhibit D. The Rules of Thumb matrix assigns a certain reduction percentage to the amount of outages based on the proposed hardening activity and the cause code it is intended to mitigate.</p> <p>The number of outages obtained (represents the decrease in number of outages) is then multiplied by the most current weighted restoration cost matrix (represents average system restoration costs by device) to obtain the decrease outage dollar savings. The result shown in this section should represent a savings to the utility.</p>

Results

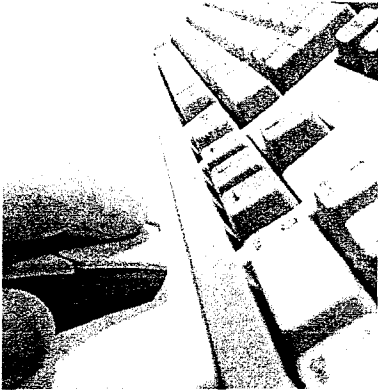
PEF followed the above process for each of the identified projects. The final project data sheet contained thirty six un-prioritized projects. This can be found in Exhibit E.

After collection the data for each project, PEF then conducted a detailed analysis of different prioritization scenarios to help assess whether the proposed set of projects were maximizing the total value of the portfolio.

To reach this goal three objectives were met: (1) developed an evaluation template that would allow Progress Energy to represent each project in a standardized way and to remove bias (2) identified a number of hardening projects that would reach all sections of their power delivery systems; and (3) load and analyze all hardening projects using AIS to come up with a prioritized list of hardening projects. Ultimately, PEF came up with the prioritized list found in Exhibit F.

Exhibit A

Asset Investment Strategy™ (AIS™)



About Davies Consulting, Inc.
Davies Consulting, Inc. (DCI) is an international strategy and management consulting firm dedicated to working with clients to establish sustainable competitive advantage and deliver superior value to their shareholders and customers.

Asset Investment Strategy™ (AIS™) Enhances the Strategic Decision-Making Process

Since Davies Consulting, Inc.'s (DCI) founding in 1991, the firm has been helping its utility clients implement asset management solutions. This evolution culminated in the development of the Asset Investment Strategy™ (AIS™), in collaboration with multiple utilities, in 2003. Today, AIS is the only fully-integrated, web-based, and effective asset management portfolio optimization tool on the market. Through constant client feedback, user groups, and a rigorous development process, DCI continues to enhance AIS while ensuring that it remains useful, usable, and used.

Use of the AIS process and tool facilitates management's selection of an optimal investment portfolio and provides a dynamic mechanism for ongoing evaluation and update of that portfolio. AIS is driven by an organization's business strategy, integrates risk assessment into scenario analysis, ties strategic objectives to projected portfolio performance, and allows for mid-course reallocation of resources. The combination of AIS's structured process and roles and an objective and validated decision-support tool results in a robust, broadly-supported outcome.

The AIS™ Process

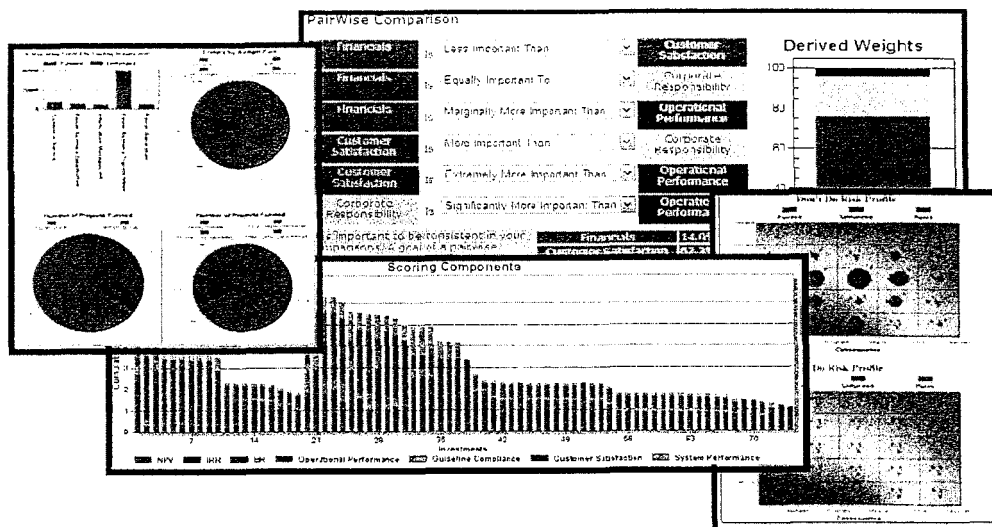
DCI's AIS approach includes three equally important and dependent elements:

1. Implementation of a dynamic, criteria-based process that facilitates decision-making and ongoing evaluation;
2. Formulation of a set of roles and responsibilities that supports the process; and
3. Adoption of a web-based decision support software tool that enables analysis and reporting.

The AIS process includes development of a strategic framework for evaluating investment projects, review and analysis of multiple scenarios, and ongoing monitoring and evaluation. A critical component of the AIS approach is the process for challenging investment assumptions at multiple stages of the approach.



Figure 1: AIS™ Process



The AIS™ Tool



A critical component of AIS is the web-based decision-support tool, which optimizes an investment portfolio within or across business units. Using value functions, AIS evaluates projects on specific client-determined and weighted criteria, which may include financial, operational, strategic, and public responsibility. These criteria are then used to optimize the portfolio and determine the appropriate level of funding.

AIS's user-friendly web-interface brings decision-making closer to stakeholders and facilitates consistency in investment evaluation. It also allows decision makers across the organization to set scenario parameters and analyze their own portfolios. This builds greater understanding of the process, enhances business savvy, and creates broader support for the outcome. AIS is a flexible tool that can easily be customized to meet specific client requirements. Below are some examples of interfaces and reports available in the web-AIS tool.

For further information on Davies Consulting, Inc. and our AIS Program, or any other DCI energy services, please contact Miki Deric at 301-652-4535, or by e-mail at energy@daviescon.com. You may also want to visit our website at www.daviescon.com.

	Questions	Weight	Available Response	Explan Reqrd	Responses Criteria	Answer Value						
Major Storm Outage Reduction Impact - 35%	1	15.00%	Direct		Linear Function with a Range Between (1-100)							
	2	15.00%	Direct		Linear Function with a Range Between (1-2000)							
	3	What will be the impact of this project on the restoration time during major storm?	20.00%	Minimal Reduction	N	Open wire to triplex	0					
				Moderate Reduction	N	Back-lot to front lot or small wire	5					
				Significant Reduction	N	OH - UG conversion	10					
	4	At what level of hurricane will the area served by this feeder flood due to storm surges?	10.00%	Tropical Storm	N		10					
				Cat 1/Cat 2	N		8					
				Cat 3	N		6					
				Cat 4/5	N		3					
	5a	What is the tree density (trees per mile) in the area served by this feeder or section?	20.00%	No flood	N		0					
Open Spans				N		0						
Low Density				N		0						
Medium Density				N		0						
5b	What level of tree damage will this project mitigate during a major storm?	20.00%	High Density	N		0						
			Increase Exposure	N		0						
			No Change	N		0						
			Slightly Decrease Exposure	N		0						
6	What is the annual probability of extreme wind (over 70 mph) (HAZUS probability) in the area served by this feeder or section?	20.00%	Direct		Linear Function with a Range Between (5-12)							
Community Storm Impact - 40%	1	How many priority 1 customers are on feeder?	30.00%	None	N	0						
				1	N	3						
				2-3	N	7						
	2	How many critical customers does this project address? (911 call centers, etc.)	60.00%	>3	N	10						
				None	N	0						
				1	N	3						
	3	How valuable will the project be perceived by the community? - Rebuild in place (no notice) - no impact - Relocation - negative or positive. - Conversion - negative or positive	10.00%	2-3	N	7						
				>3	N	10						
				High Negative	N	0						
				Low negative	N	2						
1	What are the major obstacles/risks for completing the project this year? I.e. Easements, permits, etc.	80.00%	No impact	Y	5							
			Low positive	N	7							
			High Positive	N	10							
2	What type of investment is required by joint users (telecoms and cable) to complete this project?	20.00%	None	N	10							
			Transfer at same location	N	7							
			OH relocation	N	3							
Overall Reliability - 30%	1	What is the 3-year average CEM14 customers on this feeder?	25.00%	Direct	Linear Function with a Range Between (0-500)							
							2	How many customer outages will this project eliminate annually in regards to CI?	30.00%	Direct	Linear Function with a Range Between (0-1000)	
	3	What is the change in the annual outage duration that this project will result in (on the feeder or section)?	10.00%	Decrease	N	10						
	5	Based on a 3-year average, what will be the change in the number of customers experiencing outages longer than 3 hours as a result of this project?	25.00%	Direct		Linear Function with a Range Between (0-50)						



What Could Happen?

How can we plan to minimize damage and loss of life in order to prevent natural hazard events from becoming natural disasters? Which buildings, roads, and bridges may be damaged and how great would the damage be? Which roads may be closed? Which areas may be affected if utilities failed? Which businesses will shut down?

How Can HAZUS[®]MH Help?

An important part of comprehensive community planning is understanding risks that may affect the physical, social, and economic components of a community. Communities who understand their vulnerability to natural hazards can make development decisions in light of those hazards and the risks associated with them.

FEMA introduces its latest risk assessment and loss estimation software package, HAZUS[®]MH (Multi-Hazard – earthquake, hurricane wind, and flood), that can help answer complex questions about the consequences of a hazard event.

What Are the Impacts of a Hazard Event?

HAZUS[®]MH helps states, communities, and businesses, prepare for, mitigate the effects of, respond to, and recover from a hazard event. One of the great strengths of HAZUS[®]MH is that it provides estimates of hazard-related damage before a disaster occurs and takes into account various impacts of a hazard event such as:

- Physical damage: damage to residential and commercial buildings, schools, critical facilities, and infrastructure
- Economic loss: lost jobs, business interruptions, repair and reconstruction costs
- Social impacts: impacts to people, including requirements for shelters and medical aid

HAZUS[®]MH and Its Unique Features

HAZUS[®]MH can quantify the risk for a study area of any size: region, state, community, neighborhood, or an individual site. HAZUS[®]MH uses GIS technology to combine hazard layers with national databases and applies a standardized loss estimation and risk assessment methodology. The GIS-based environment allows users to create graphics to help communities visualize and understand their hazard risks and solutions. The nationwide databases built into HAZUS[®]MH include datasets on demographics, building stock, essential facilities, transportation, utilities, and high-potential-loss facilities.

HAZUS[®]MH can estimate losses from earthquakes, hurricane winds, and floods. HAZUS[®]MH uses:

- Ground motion and ground failure information to calculate losses for earthquakes
- Information on wind pressure, windborne missiles, and rain for hurricane winds
- Flood frequency, depth, discharge, and velocity for floods



Exhibit D

Storm Hardening Specification "Rules of Thumb" % Reductions	Trees 004 / 008	Storm 014	Lightning 001	Animal 003	Unknown 000	Connector 007	Wind 010	Birds 040	Vehicle 005	Corrosion 012	UG Cable 032	Dig In 017	OH / Sec Services 030
OH to UG Conversions	90%	90%	95%	95%	90%	95%	95%	100%	90%	-10%	-5%	-10%	100%
Small Wire Reconductor	10%	10%	25%	0%	25%	75%	25%	0%	0%	0%	0%	0%	0%
Submersible UG	0%	5%	0%	0%	0%	50%	0%	0%	0%	100%	50%	0%	0%
Extreme Wind Upgrades	25%	50%	0%	0%	25%	95%	95%	-10%	-25%	0%	0%	0%	0%
Open Wire Secondary to Triplex TX Level Outages	90%	90%	0%	90%	90%	90%	50%	75%	0%	0%	0%	0%	75%
Rear lot Relocations	75%	75%	0%	50%	50%	50%	75%	25%	-10%	0%	0%	0%	50%
Horizontal to Vertical Construction	50%	50%	0%	0%	0%	0%	-5%	-10%	0%	0%	0%	0%	0%
OH Spacer Cable Conversions	25%	25%	0%	0%	0%	25%	25%	75%	0%	0%	0%	0%	0%

Project Name	Description	Sponsor	Operating Regions	Project Type	Major Storm Outage Reduction Impact - 35%	Community Storm Impact - 20%	Third Party Impact - 5%	Day to Day Reliability - 20%											
1. Please enter the project name below	Please enter a brief description of the project (include the company, address, and phone number)	Please enter the name of the project sponsor	Please select the Operating Unit (Region) below	Please select the project type	At the end of this project, what percent of the population will be protected from a 100-year storm?	What will be the impact of this project on the community? (e.g., reduced flooding, improved aesthetics, etc.)	What is the estimated probability of an outage event (e.g., power outage) in the area served by this project?	At what level of hurricane wind speed will this facility be protected?	What is the tree density (trees per acre) in the area served by this facility?	What level of tree damage will this project mitigate (e.g., trees blown down)?	Approximately what percentage of the project's components are located in the EOC's 100-foot buffer zone?	How many critical components does this project address? (e.g., 11 call centers, etc.)	How valuable will the project be to the community? (e.g., critical to operations, etc.)	What are the major stakeholders for this project? (e.g., customers, vendors, etc.)	What type of investment is required by the project? (e.g., capital, operating, etc.)	What is the 3-year average (CYM) customer on this level?	How many customer outages will this project eliminate annually?	What is the change in the number of customer outages per hour as a result of this project?	What will be the change in the number of customer outages per hour as a result of this project?
1. Project Name	Project Description	Sponsor	Operating Regions	Project Type	At the end of this project, what percent of the population will be protected from a 100-year storm?	What will be the impact of this project on the community? (e.g., reduced flooding, improved aesthetics, etc.)	What is the estimated probability of an outage event (e.g., power outage) in the area served by this project?	At what level of hurricane wind speed will this facility be protected?	What is the tree density (trees per acre) in the area served by this facility?	What level of tree damage will this project mitigate (e.g., trees blown down)?	Approximately what percentage of the project's components are located in the EOC's 100-foot buffer zone?	How many critical components does this project address? (e.g., 11 call centers, etc.)	How valuable will the project be to the community? (e.g., critical to operations, etc.)	What are the major stakeholders for this project? (e.g., customers, vendors, etc.)	What type of investment is required by the project? (e.g., capital, operating, etc.)	What is the 3-year average (CYM) customer on this level?	How many customer outages will this project eliminate annually?	What is the change in the number of customer outages per hour as a result of this project?	What will be the change in the number of customer outages per hour as a result of this project?

Total Rank	Total Value	Quartile	Project Name	Sub Category	Op Unit	Major Storm Outage Reduction Impact Rank	Major Storm Outage Reduction Impact Results	Community Storm Impact Rank	Community Storm Impact Results	Third Party Impact Rank	Third Party Impact Results	Overall Reliability Rank	Overall Reliability Results	Total Financial Value Rank	Total Financial Value
1	6.9811	Q1	Calle De Sol	OH to UG Conversion	South Central	1	3.5	20	0.25	25	0.2	3	1.3632	17	1.66794
2	6.1025	Q1	St Geroge Is - Plantation	Submersible UG	North Coastal	5	3.07398	15	0.32	1	0.5	2	1.428	30	0.78052
3	6.0727	Q1	SR-408 @ Woodbury Rd	OH to UG Conversion	North Central	8	2.699235	7	0.52	14	0.4	10	0.6	5	1.85346
4	6.0636	Q1	Winderlakes	OH to UG Conversion	South Central	1	3.5	20	0.25	25	0.2	10	0.6	21	1.51356
5	5.8747	Q1	R448 - Dunnellon	Back lot to Front lot conversion	North Coastal	9	2.64292	34	0.07	11	0.43	4	1.206	20	1.52574
6	5.6675	Q1	US 98 - Brooksville	Small Reconductor	North Coastal	6	2.91515	12	0.47	4	0.47	5	1.0326	31	0.77974
7	5.4757	Q1	US 441 west of Hwy 19	OH to UG Conversion	North Central	16	1.79375	1	1	22	0.3	10	0.6	12	1.78192
8	4.8944	Q1	Coquina Key	Small Reconductor	South Coastal	1	3.5	16	0.28	4	0.47	9	0.6444	35	0
9	4.82	Q1	I-4 @ North St	OH to UG Conversion	North Central	12	2.268735	22	0.1	27	0	10	0.6	6	1.85122
10	4.7095	Q2	Florida Turnpike @ Sandlake Rd (746)	OH to UG Conversion	North Central	17	1.71185	16	0.28	14	0.4	10	0.6	16	1.7177
11	4.6788	Q2	OH Crossing of Turnpike (K58 @K5255)	OH to UG Conversion	South Central	22	1.367975	7	0.52	14	0.4	10	0.6	11	1.79084
12	4.6353	Q2	I-4 @ Fairbanks Ave	OH to UG Conversion	North Central	13	2.202375	22	0.1	27	0	10	0.6	14	1.73292
13	4.5518	Q2	A192 - Luraville	Small Reconductor	North Coastal	10	2.511915	4	0.68	4	0.47	31	0.42	32	0.4699
14	4.535	Q2	Us 17/92 & SR-436	OH to UG Conversion	North Central	18	1.59782	5	0.61	27	0	10	0.6	15	1.7272
15	4.5034	Q2	Indigo	Small Reconductor	South Coastal	19	1.51844	22	0.1	4	0.47	7	0.864	19	1.551
16	4.4816	Q2	OH Crossing of Turnpike 2 (K1780 @ K5434991 and K1775 @ K5021)	OH to UG Conversion	South Central	23	1.33888	2	0.79	14	0.4	10	0.6	25	1.35296
17	4.4188	Q2	I-4 @ Orange St.	OH to UG Conversion	North Central	14	1.85122	22	0.1	27	0	10	0.6	3	1.86762
18	4.4174	Q2	Florida Turnpike @ Sandlake Rd (485)	OH to UG Conversion	North Central	34	0.903	3	0.7	14	0.4	10	0.6	8	1.81444
19	4.4118	Q3	OH Crossing of Turnpike (K1780 @K2379)	OH to UG Conversion	South Central	20	1.50773	22	0.1	14	0.4	10	0.6	10	1.80402
20	4.3708	Q3	US 301 - Citra	Small Reconductor	North Coastal	32	0.94731	35	0.05	23	0.27	1	1.6098	22	1.49372
21	4.3267	Q3	Feeder X220	Extreme Wind Upgrades	South Coastal	4	3.231025	10	0.49	23	0.27	36	0.3	34	0.0357
22	4.3151	Q3	Sprint Earth Station & Cocoa Water Wells	Small Reconductor	North Central	7	2.634895	22	0.1	4	0.47	6	0.9102	36	0
23	4.307	Q3	I-4 @ SR-436	OH to UG Conversion	North Central	11	2.487765	22	0.1	27	0	10	0.6	27	1.11924
24	4.1526	Q3	Florida Turnpike @ Orange Blossom Trail	OH to UG Conversion	North Central	33	0.93926	16	0.28	14	0.4	10	0.6	1	1.93334
25	4.0112	Q3	Floramar Subdivision	Submersible UG	South Coastal	24	1.29745	13	0.44	1	0.5	30	0.537	26	1.23676
26	3.99	Q3	Hoffner Ave and feeder Tie	Small Reconductor	North Central	15	1.816185	14	0.34	11	0.43	32	0.396	29	1.0078
27	3.9747	Q3	I-4 @ Oranole Road/Lake Destiny Dr.	OH to UG Conversion	North Central	21	1.40749	22	0.1	27	0	10	0.6	4	1.86724
28	3.9336	Q4	OH Crossing of Turnpike (K1025 @ K1025 & K1028 @ K128)	OH to UG Conversion	South Central	30	1.089375	16	0.28	14	0.4	10	0.6	18	1.56426
29	3.8994	Q4	Holden Ave E) Orange Blossom Trail	Small Reconductor	North Central	26	1.24817	10	0.49	11	0.43	8	0.6588	28	1.0724
30	3.6886	Q4	Homosassa - Riverhaven	Submersible UG	North Coastal	25	1.294755	35	0.05	1	0.5	33	0.354	23	1.48966
31	3.6755	Q4	I-4 @ EE-Williamson Rd	OH to UG Conversion	North Central	28	1.1473	22	0.1	27	0	10	0.6	7	1.8282
32	3.6512	Q4	I-4 @ SR-434	OH to UG Conversion	North Central	29	1.146565	22	0.1	27	0	10	0.6	9	1.80462
33	3.6303	Q4	I-4 @ Lee Rd	OH to UG Conversion	North Central	27	1.184365	22	0.1	27	0	10	0.6	13	1.74594
34	3.5972	Q4	I-4 @ Kennedy Blvd	OH to UG Conversion	North Central	31	0.98749	22	0.1	27	0	10	0.6	2	1.9097
35	3.1964	Q4	Highland Park	Small Reconductor	South Central	36	0.37163	5	0.61	4	0.47	35	0.3078	24	1.437
36	2.2727	Q4	Hibiscus Feeder Tie	Small Reconductor	South Central	35	0.736225	7	0.52	4	0.47	34	0.3468	33	0.19974

**FCTA 8/15/07 Updated Responses To FPSC Final Issues List
For Progress Energy In Docket No. 070298-EI**

1. Does the Company's Plan meet the desired objectives of enhancing reliability and reducing restoration costs and outage times in a prudent, practical, and cost-effective manner to the affected parties? [Rule 25-6.0342(2)].

Please see response to Question 14 below.

2. Does the Company's Plan address the extent to which, at a minimum, the Plan complies with the National Electric Safety Code (ANSI C-2) [NESC] that is applicable to subsection 25-6.0345(2), F.A.C. [Rule 25-6.0342(3)(a)].

No objection.

3. Does the Company's Plan address the extent to which the extreme wind loading standards specified by Figure 250-2(d) of the 2007 edition of the NESC are adopted for new distribution facility construction? [Rule 25-6.0342(3)(b)1].

FCTA supports PEF's plan to use Grade C as the basic standard for new distribution facility construction with evaluation using AIS.

4. Does the Company's Plan address the extent to which the extreme wind loading standards specified by Figure 250-2(d) of the 2007 edition of the NESC are adopted for major planned work on the distribution system, including expansion, rebuild, or relocation of existing facilities, assigned on or after the effective date of this rule distribution facility construction? [Rule 25-6.0342(3)(b)2].

FCTA supports PEF's plan to use Grade C as the basic standard for major planned work with evaluation using AIS subject to the information exchange provided for in the proposed Third Party Notification Process.

5. Does the Company's Plan address the extent to which the extreme wind loading standards specified by Figure 250-2(d) of the 2007 edition of the NESC are adopted for distribution facilities serving critical infrastructure facilities and along major thoroughfares taking into account political and geographical boundaries and other applicable operational consideration? [Rule 25-6.0342(3)(b)3].

FCTA supports PEF's plan to adopt either Grade B and extreme wind loading standards for limited pilot projects for critical infrastructure subject to the information exchange provided for in the proposed Third Party Notification Process.

6. Does the Company's Plan address the extent to which its distribution facilities are designed to mitigate damage to underground and supporting overhead transmission and distribution facilities due to flooding and storm surges? [Rule 25-6.0342(3)(b)(3)(c)].

No objection.

7. Does the Company's Plan address the extent to which the placement of new and replacement distribution facilities facilitate safe and efficient access for installation and maintenance pursuant to Rule 25-6.0341, F.A.C.? [Rule 25-6.0342(3)(d)].

No objection.

**FCTA 8/15/07 Updated Responses To FPSC Final Issues List
For Progress Energy In Docket No. 070298-EI**

8. **Does the Company's Plan provide a detailed description of its deployment strategy including a description of the facilities affected; including technical design specifications, construction standards, and construction methodologies employed? [Rule 25-6.0342(4)(a)].**

Yes subject to the information exchange provided for in the proposed Third Party Notification Process.

And, PEF has stated that it is using Pole Foreman for its strength and loading assessments. However, Pole Foreman may not take into account the guying effects of the lines on the poles. PEF's engineering criteria for strength testing should include the guying effects of other lines and guys on the pole.

9. **Does the Company's Plan provide a detailed description of the communities and areas within the utility's service area where the electric infrastructure improvements, including facilities identified by the utility as critical infrastructure and along major thoroughfares pursuant to subparagraph (3)(b)3 are to be made? [Rule 25-6.0342(3)(b)].**

Yes subject to the information exchange provided for in the proposed Third Party Notification Process.

10. **Does the Company's Plan provide a detailed description of the extent to which the electric infrastructure improvements involve joint use facilities on which third-party attachments exists? [Rule 25-6.0342(4)(c)].**

Yes, the Company's Plan, as supplemented August 7, 2007, complies, subject to the ongoing information exchange provided for in the proposed Third Party Notification Process.

11. **Does the Company's Plan provide an estimate of the costs and benefits to the utility of making the electric infrastructure improvements, including the effect on reducing storm restoration costs and customer outages? [Rule 25-6.0342(4)(d)].**

Yes subject to 12.

12. **Does the Company's Plan provide an estimate of the costs and benefits, obtained pursuant to subsection (6) below, to third-party attachers affected by the electric infrastructure improvements, including the effect on reducing storm restoration costs and customer outages realized by the third-party attachers? [Rule 25-6.0342(4)(e)].**

PEF's storm hardening plan does not provide enough information about the costs and benefits to third party attachers to enable attachers to provide a specific estimate of the costs and benefits that PEF's plan will have on its cable operator members. However, the costs that may be recovered from cable operators are tightly prescribed by the FCC. Under the federal scheme, FCTA members pay both makeready costs – i.e., the cost of making the pole ready for its attachments (including the cost of rearranging existing facilities on the pole, guying the pole to increase strength, or replacing the pole where necessary) and annual rent pursuant to the FCC's rate formula, which assures that pole owners receive the fully allocated costs of accommodating the attachment. The annual pole attachment rent is determined by multiplying the percentage of the total usable space occupied by the pole attachment by the sum of the operating expenses and actual capital costs of the utility attributable to the entire pole. In addition, depending upon the circumstances, cable operators may incur the cost of transferring their facilities to a new pole.

Resolution is tied to resolution of Issue 13.

**FCTA 8/15/07 Updated Responses To FPSC Final Issues List
For Progress Energy In Docket No. 070298-EI**

13. **Does the Company's Plan include written Attachment Standards and Procedures addressing safety, reliability, pole loading capacity, and engineering standards and procedures for attachments by others to the utility's electric transmission and distribution poles that meet or exceed the edition of the National Electrical Safety Code (ANSI C-2) that is applicable pursuant to Rule 25-6.034, F.A.C.? [Rule 25-6.0342(5)].**

- Subject to conditions set forth in Bullets 3, 4 and 5, FCTA is willing to stipulate that PEF has standards and procedures for attachments by others that meet or exceed the NESC.
- Subject to conditions set forth in bullets 3, 4 and 5, FCTA is willing to stipulate that PEF's standards and procedures address safety, reliability, pole loading capacity, and engineering standards and procedures for attachments by others to PEF's poles.
- FCTA does not agree with all aspects of PEF's standards and procedures as currently set forth in the plan. FCTA is willing to stipulate that the details of PEF's standards and procedures should not be in the plan but instead should be established through good faith contract negotiation with input from attachers as required by rule 26-06.0342(6) and/or FCC resolution.
 - Input should include pre-construction coordination and on site meetings (which FPL has committed to do).
- PEF's Plan needs to be amended to delete specific standards and procedures.
- PEF's Plan needs to be amended to clarify how it will obtain input from third party attachers in developing attachment standards and procedures and in modifying its storm hardening plan going forward as required by Rule 26-06.0342(6).
- Subject to agreement on Bullets 3, 4, and 5, FCTA's position is that PEF's attachment standards and procedures should not be approved by the Commission.

14. **Based on the resolution of the preceding issues, should the Commission find that the Company's Plan meets the desired objectives of enhancing reliability and reducing restoration costs and outage times in a prudent, practical, and cost-effective manner to the affected parties. [Rule 25-6.0342(1) and (2)]**

Yes, subject to Issue 13 and information exchange provided for in the proposed Third Party Notification Process.

**AT&T Florida's Initial Responses to Staff's Preliminary Draft Issu
Dockets 070297-EI – 070301-EI re: Progress Energy Storm Hardening Plan**

- 1. Does the Company's Plan meet the desired objectives of enhancing reliability and reducing restoration costs and outage times in a prudent, practical, and cost-effective manner to the affected parties? [Rule 25-6.0342(2)]**

It is AT&T Florida's understanding that Staff is removing this issue as redundant of issue number 14 below.

- 2. Does the Company's Plan address the extent to which, at a minimum, the Plan complies with the National Electric Safety Code (ANSI C-2) [NESC] that is applicable pursuant to subsection 25-6.0345(2), F.A.C. [Rule 25-6.0342(3)(a)]**

No, until AT&T Florida completes its review of Progress Energy's proposed 2007 projects as set forth in response 14 below, AT&T Florida is not in a position to stipulate to this issue at this time.

- 3. Does the Company's Plan address the extent to which the extreme wind loading standards specified by Figure 250-2(d) of the 2007 edition of the NESC are adopted for new distribution facility construction? [Rule 25-6.0342(3)(b)]**

No, until AT&T Florida completes its review of Progress Energy's proposed 2007 projects as set forth in response 14 below, AT&T Florida is not in a position to stipulate to this issue at this time.

- 4. Does the Company's Plan address the extent to which the extreme wind loading standards specified by Figure 250-2(d) of the 2007 edition of the NESC are adopted for major planned work on the distribution system, including expansion, rebuild, or relocation of existing facilities, assigned on or after the effective date of this rule distribution facility construction? [Rule 25-6.0342(3)(b)2]**

No, until AT&T Florida completes its review of Progress Energy's proposed 2007 projects as set forth in response 14 below, AT&T Florida is not in a position to stipulate to this issue at this time.

- 5. Does the Company's Plan address the extent to which the extreme wind loading standards specified by Figure 250-2(d) of the 2007 edition of the NESC are adopted for distribution facilities serving critical infrastructure facilities and along major thoroughfares taking into account political and geographical boundaries and other applicable operational considerations? [Rule 256.0342(3)(b)3]**

No, until AT&T Florida completes its review of Progress Energy's proposed 2007 projects as set forth in response 14 below, AT&T Florida is not in a position to stipulate to this issue at this time.

- 6. Does the Company's Plan address the extent to which its distribution facilities are designed to mitigate damage to underground and supporting overhead transmission and distribution facilities due to flooding and storm surges? [Rule 25-6.0342(3)(c)]**

No, until AT&T Florida completes its review of Progress Energy's proposed 2007 projects as set forth in response 14 below, AT&T Florida is not in a position to stipulate to this issue at this time.

7. **Does the Company's Plan address the extent to which the placement of new and replacement distribution facilities facilitate safe and efficient access for installation and maintenance pursuant to Rule 25- 6.0341, F.A.C? [Rule 25-6.0342(3)(d)]**

No, until AT&T Florida completes its review of Progress Energy's proposed 2007 projects as set forth in response 14 below, AT&T Florida is not in a position to stipulate to this issue at this time.

8. **Does the Company's Plan provide a detailed description of its deployment strategy including a description of the facilities affected; including technical design specifications, construction standards, and construction methodologies employed? [Rule 25-6.0342(4)(a)]**

No, until AT&T Florida completes its review of Progress Energy's proposed 2007 projects as set forth in response 14 below, AT&T Florida is not in a position to stipulate to this issue at this time.

9. **Does the Company's Plan provide a detailed description of the communities and areas within the utility's service area where the electric infrastructure improvements, including facilities identified by the utility as critical infrastructure and along major thoroughfares pursuant to subparagraph (3)(b)3. are to be made? [Rule 25-6.0342(4)(b)]**

No, until AT&T Florida completes its review of Progress Energy's proposed 2007 projects as set forth in response 14 below, AT&T Florida is not in a position to stipulate to this issue at this time.

10. **Does the Company's Plan provide a detailed description of the extent to which the electric infrastructure improvements involve joint use facilities on which third-party attachments exist? [Rule 25-6.0342(4)(c)]**

No, until AT&T Florida completes its review of Progress Energy's proposed 2007 projects as set forth in response 14 below, AT&T Florida is not in a position to stipulate to this issue at this time.

11. **Does the Company's Plan provide an estimate of the costs and benefits to the utility of making the electric infrastructure improvements, including the effect on reducing storm restoration costs and customer outages? [Rule 25-6.0342(4)(d)]**

No, until AT&T Florida completes its review of Progress Energy's proposed 2007 projects as set forth in response 14 below, AT&T Florida is not in a position to stipulate to this issue at this time.

12. **Does the Company's Plan provide an estimate of the costs and benefits, obtained pursuant to subsection (6) below, to third-party attachers affected by the electric infrastructure improvements, including the effect on reducing storm restoration costs and customer outages realized by the third-party attachers? [Rule 25-6.0342(4)(e)]**

No, because AT&T Florida does not have adequate information to complete its cost-benefit analysis of Progress Energy's proposed 2007 hardening projects as set forth in response 14, AT&T Florida is not in a position to stipulate to this issue at this time.

13. **Does the Company's Plan include written Attachment Standards and Procedures addressing safety, reliability, pole loading capacity, and engineering standards and procedures for attachments by others to the utility's electric transmission and distribution poles that meet or exceed the edition of the National**

Electrical Safety Code (ANSI C-2) that is applicable pursuant to Rule 25-6.034, F.A.C.? [Rule 25-6.0342(5)]

No, pending further discussions with Progress Energy regarding its Attachment Standards and Procedures, AT&T Florida is not in a position to stipulate to this issue at this time.

14. Based on the resolution of the preceding issues, should the Commission find that the Company's Plan meets the desired objectives of enhancing reliability and reducing restoration costs and outage times in a prudent, practical, and cost-effective manner to the affected parties.[Ride 25-6.0342(1) and (2)]

No. AT&T Florida is still gathering and reviewing details of Progress Energy's proposed 2007 projects so that AT&T Florida can determine the total number of its attachments that will be impacted and the extent and type of work that needs to be done. Until that review is complete and it has been determined what costs, if any, Progress Energy will seek from AT&T Florida, AT&T Florida cannot assess whether Progress Energy's plan meets the desired objectives of enhancing reliability and reducing restoration costs and outage times in a prudent, practical and cost-effective manner. AT&T Florida has been having a continuous dialogue with Progress Energy regarding these issues and hopes to reach a resolution on these issues. Additionally, AT&T Florida will not be able to take a position on this issue with regard to Progress Energy's proposed hardening projects for 2008 and 2009 until detailed information on those projects is provided for AT&T Florida's review and analysis.

**Preliminary Generic Draft Issues: Docket 070298-EI
Verizon Positions on PEF Plan**

1. Does the Company's Plan meet the desired objectives of enhancing reliability and reducing restoration costs and outage times in a prudent, practical, and cost-effective manner to the affected parties? [Rule 25-6.0342(2)]

See Verizon's response to Issue No. 14.

2. Does the Company's Plan address the extent to which, at a minimum, the Plan complies with the National Electric Safety Code (ANSI C-2) [NESC] that is applicable pursuant to subsection 25-6.0345(2), F.A.C. [Rule 25-6.0342(3)(a)]

No. Although the Company's Plan addresses this subject, Verizon cannot complete its assessment of this aspect of the Plan until sufficient project level detail has been provided.

3. Does the Company's Plan address the extent to which the extreme wind loading standards specified by Figure 250-2(d) of the 2007 edition of the NESC are adopted for new distribution facility construction? [Rule 25-6.0342(3)(b)1]

No. Although the Company's Plan addresses this subject, Verizon cannot complete its assessment of this aspect of the Plan until sufficient project level detail has been provided.

4. Does the Company's Plan address the extent to which the extreme wind loading standards specified by Figure 250-2(d) of the 2007 edition of the NESC are adopted for major planned work on the distribution system, including expansion, rebuild, or relocation of existing facilities, assigned on or after the effective date of this rule distribution facility construction? [Rule 25-6.0342(3)(b)2]

No. Although the Company's Plan addresses this subject, Verizon cannot complete its assessment of this aspect of the Plan until sufficient project level detail has been provided.

5. Does the Company's Plan address the extent to which the extreme wind loading standards specified by Figure 250-2(d) of the 2007 edition of the NESC are adopted for distribution facilities serving critical infrastructure facilities and along major thoroughfares taking into account political and geographical boundaries and other applicable operational considerations? [Rule 25-6.0342(3)(b)3]

No. Although the Company's Plan addresses this subject, Verizon cannot complete its assessment of this aspect of the Plan until sufficient project level detail has been provided.

6. Does the Company's Plan address the extent to which its distribution facilities are designed to mitigate damage to underground and supporting overhead transmission and distribution facilities due to flooding and storm surges? [Rule 25-6.0342(3)(c)]

No. Although the Company's Plan addresses this subject, Verizon cannot complete its assessment of this aspect of the Plan until sufficient project level detail has been provided.

**Preliminary Generic Draft Issues: Docket 070298-EI
Verizon Positions on PEF Plan**

7. Does the Company's Plan address the extent to which the placement of new and replacement distribution facilities facilitate safe and efficient access for installation and maintenance pursuant to Rule 25-6.0341, F.A.C? [Rule 25-6.0342(3)(d)]

No. Although the Company's Plan addresses this subject, Verizon cannot complete its assessment of this aspect of the Plan until sufficient project level detail has been provided.

8. Does the Company's Plan provide a detailed description of its deployment strategy including a description of the facilities affected; including technical design specifications, construction standards, and construction methodologies employed? [Rule 25-6.0342(4)(a)]

No. The Plan provides a general description of the facilities affected for 2007, including a list of possible projects identified by the AIS model, but the Plan lacks such a general description for 2008-09 projects and lacks project level detail for 2007-09. Verizon notes that the Company has provided certain additional project information to Verizon that is not included in the Plan.

9. Does the Company's Plan provide a detailed description of the communities and areas within the utility's service area where the electric infrastructure improvements, including facilities identified by the utility as critical infrastructure and along major thoroughfares pursuant to subparagraph (3)(b)3, are to be made? [Rule 25-6.0342(4)(b)]

No. The Plan provides a general description of the facilities affected for 2007, including a list of possible projects identified by the AIS model, but the Plan lacks such a general description for 2008-09 projects and lacks project level detail for 2007-09. Verizon notes that the Company has provided certain additional project information to Verizon that is not included in the Plan.

10. Does the Company's Plan provide a detailed description of the extent to which the electric infrastructure improvements involve joint use facilities on which third-party attachments exist? [Rule 25-6.0342(4)(c)]

No. The Plan does not provide a detailed description of the extent to which the electric infrastructure improvements involve joint use facilities with third-party attachments.

11. Does the Company's Plan provide an estimate of the costs and benefits to the utility of making the electric infrastructure improvements, including the effect on reducing storm restoration costs and customer outages? [Rule 25-6.0342(4)(d)]

No. Although the Plan includes high level cost estimates for 2007-09 of making infrastructure improvements, Verizon cannot complete its assessment of this aspect of the Plan until sufficient project level detail has been provided. Moreover, the Plan does not estimate or quantify the net benefits, if any, of implementing the Plan.

**Preliminary Generic Draft Issues: Docket 070298-EI
Verizon Positions on PEF Plan**

12. Does the Company's Plan provide an estimate of the costs and benefits, obtained pursuant to subsection (6) below, to third-party attachers affected by the electric infrastructure improvements, including the effect on reducing storm restoration costs and customer outages realized by the third-party attachers? (Rule 25-6.0342(4)(e))

No. The Plan does not provide such an estimate. Based on the information that has been provided thus far, Verizon is working to provide an initial estimate of its costs. Verizon will not be able to provide a complete assessment of the costs and benefits (if any) until sufficient project level detail has been provided.

13. Does the Company's Plan include written Attachment Standards and Procedures addressing safety, reliability, pole loading capacity, and engineering standards and procedures for attachments by others to the utility's electric transmission and distribution poles that meet or exceed the edition of the National Electrical Safety Code (ANSI C-2) that is applicable pursuant to Rule 25-6.034, FAC.? [Rule 25-6.0342(5)]

No. Although the Company's Plan includes attachment standards and procedures, Verizon objects to them to the extent they purport to impose rates, terms and conditions that are inconsistent with the parties' joint use agreement.

14. Base on the resolution of the preceding issues, should the Commission find that the Company's Plan meets the desired objectives of enhancing reliability and reducing restoration costs and outage times in a prudent, practical, and cost-effective manner to the affected parties. [Rule 25-6.0342(1) and (2)]

No. The Plan should be supplemented to provide sufficient project level detail. Moreover, based on Verizon's objections stated in response to the previous issues, the Plan fails to demonstrate that it achieves the objectives of enhancing reliability and reducing restoration costs and outage times in a prudent, practical, and cost-effective manner to the affected parties.

**Embarq Florida, Inc.'s Initial Responses to Staff's Preliminary Draft Issues
Dockets 070297-EI – 070301-EI**

- 1. Does the Company's Plan meet the desired objectives of enhancing reliability and reducing restoration costs and outage times in a prudent, practical, and cost-effective manner to the affected parties? [Rule 25-6.0342(2)]**

Embarq understands that Staff is removing this issue as redundant of issue number 14 below.

- 2. Does the Company's Plan address the extent to which, at a minimum, the Plan complies with the National Electric Safety Code (ANSI C-2) [NESC] that is applicable pursuant to subsection 25-6.0345(2), F.A.C. [Rule 25-6.0342(3)(a)]**

FPL: Embarq has no position at this time.

PEC: Embarq has no position at this time.

TECO: Embarq has no position at this time.

GULF: Embarq has no position at this time.

- 3. Does the Company's Plan address the extent to which the extreme wind loading standards specified by Figure 250-2(d) of the 2007 edition of the NESC are adopted for new distribution facility construction? [Rule 25-6.0342(3)(b)]**

FPL: Embarq has no position at this time.

PEC: Embarq has no position at this time.

TECO: Embarq has no position at this time.

GULF: Embarq has no position at this time.

- 4. Does the Company's Plan address the extent to which the extreme wind loading standards specified by Figure 250-2(d) of the 2007 edition of the NESC are adopted for major planned work on the distribution system,**

including expansion, rebuild, or relocation of existing facilities, assigned on or after the effective date of this rule distribution facility construction? [Rule 25-6.0342(3)(b)2]

FPL: Embarq has no position at this time.

PEC: Embarq has no position at this time.

TECO: Embarq has no position at this time.

GULF: Embarq has no position at this time.

5. Does the Company's Plan address the extent to which the extreme wind loading standards specified by Figure 250-2(d) of the 2007 edition of the NESC are adopted for distribution facilities serving critical infrastructure facilities and along major thoroughfares taking into account political and geographical boundaries and other applicable operational considerations? [Rule 256.0342(3)(b)3]

FPL: Embarq has no position at this time.

PEC: Embarq has no position at this time.

TECO: Embarq has no position at this time.

GULF: Embarq has no position at this time.

6. Does the Company's Plan address the extent to which its distribution facilities are designed to mitigate damage to underground and supporting overhead transmission and distribution facilities due to flooding and storm surges? [Rule 25-6.0342(3)(c)]

FPL: Embarq has no position at this time.

PEC: Embarq has no position at this time.

TECO: Embarq has no position at this time.

GULF: Embarq has no position at this time.

7. Does the Company's Plan address the extent to which the placement of new and replacement distribution facilities facilitate safe and efficient access for installation and maintenance pursuant to Rule 25- 6.0341, F.A.C? [Rule 25-

6.0342(3)(d)]

FPL: Embarq has no position at this time.

PEC: Embarq has no position at this time.

TECO: Embarq has no position at this time.

GULF: Embarq has no position at this time.

8. Does the Company's Plan provide a detailed description of its deployment strategy including a description of the facilities affected; including technical design specifications, construction standards, and construction methodologies employed? [Rule 25-6.0342(4)(a)]

FPL: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its position.

PEC: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its position.

TECO: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding,

Embarq reserves the right to revise its position.

GULF: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its position.

9. Does the Company's Plan provide a detailed description of the communities and areas within the utility's service area where the electric infrastructure improvements, including facilities identified by the utility as critical infrastructure and along major thoroughfares pursuant to subparagraph (3)(b)3. are to be made? [Rule 25-6.0342(4)(b)]

FPL: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its position.

PEC: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its position.

TECO: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an

ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its position.

GULF: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its position.

10. Does the Company's Plan provide a detailed description of the extent to which the electric infrastructure improvements involve joint use facilities on which third-party attachments exist? [Rule 25-6.0342(4)(c)]

FPL: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its position.

PEC: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its position.

TECO: Embarq has received information from the Company that appears to provide the necessary detail related to

Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its position.

GULF: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its position.

11. Does the Company's Plan provide an estimate of the costs and benefits to the utility of making the electric infrastructure improvements, including the effect on reducing storm restoration costs and customer outages? [Rule 25-6.0342(4)(d)]

FPL: Embarq has no position at this time.

PEC: Embarq has no position at this time.

TECO: Embarq has no position at this time.

GULF: Embarq has no position at this time.

12. Does the Company's Plan provide an estimate of the costs and benefits, obtained pursuant to subsection (6) below, to third-party attachers affected by the electric infrastructure improvements, including the effect on reducing storm restoration costs and customer outages realized by the third-party attachers? [Rule 25-6.0342(4)(e)]

FPL: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq is currently reviewing the information provided and revising its costs based on the additional detail provided. Embarq understands that it is currently contemplated that details for years

2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its costs and position on this issue, based on these revisions.

PEC: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq is currently reviewing the information provided and revising its costs based on the additional detail provided. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its costs and position on this issue, based on these revisions.

TECO: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Based on the information provided, it appears TECO's current plan will have no cost impact on Embarq. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its costs and position on this issue, based on these revisions.

GULF: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq is currently reviewing the information provided and revising its costs based on the additional detail provided. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that

the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its costs and position on this issue, based on these revisions.

13. Does the Company's Plan include written Attachment Standards and Procedures addressing safety, reliability, pole loading capacity, and engineering standards and procedures for attachments by others to the utility's electric transmission and distribution poles that meet or exceed the edition of the National Electrical Safety Code (ANSI C-2) that is applicable pursuant to Rule 25-6.034, F.A.C.? [Rule 25-6.0342(5)]

FPL: Embarq is in the process of reviewing the Company's Attachment Standards and Procedures included with the plan and the affect of those standards and procedures on Embarq's current operations, if any.

PEC: Embarq is in the process of reviewing the Company's Attachment Standards and Procedures included with the plan and the affect of those standards and procedures on Embarq's current operations, if any.

TECO: Embarq is in the process of reviewing the Company's Attachment Standards and Procedures included with the plan and the affect of those standards and procedures on Embarq's current operations, if any.

GULF: Embarq is in the process of reviewing the Company's Attachment Standards and Procedures included with the plan and the affect of those standards and procedures on Embarq's current operations, if any.

14. Based on the resolution of the preceding issues, should the Commission find that the Company's Plan meets the desired objectives of enhancing reliability and reducing restoration costs and outage times in a prudent, practical, and cost-effective manner to the affected parties.[Ride 25-6.0342(1) and (2)].

FPL: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq is currently reviewing the information provided and preparing revised estimates of its cost/benefit analysis based on the additional detail provided. Embarq understands that it is

currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its position.

PEG: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq is currently reviewing the information provided and preparing revised estimates of its cost/benefit analysis based on the additional detail provided. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its position.

TECO: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Based on the information provided, it appears TECO's current plan will have no cost impact on Embarq. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a result of this proceeding, Embarq reserves the right to revise its position.

GULF: Embarq has received information from the Company that appears to provide the necessary detail related to Embarq for the Company's storm hardening plans for Calendar Year 2007. Embarq is currently reviewing the information provided and preparing revised estimates of its cost/benefit analysis based on the additional detail provided. Embarq understands that it is currently contemplated that details for years 2008 and 2009 will be finalized through an ongoing process and review and that the parties are currently working to reach a stipulation on this process. To the extent that the Company's plan is revised as a

result of this proceeding, Embarq reserves the right to revise its position.