MARIA BROWNE
DIRECT (202) 973-4281
MariaBrowne@dwt.com

November 2, 2007

Via Hand Delivery

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

Re: Docket No. 070301-EI
Review of 2007 Electric Infrastructure Storm Hardening Plan Filed Pursuant To Rule 25-6.0342, Florida Administrative Code, Submitted by Florida Power and Light Company

Dear Ms. Cole:

Enclosed, for filing in the above matter is the Post-Hearing Brief of the Florida Cable Telecommunications Association, Inc. Service has been made as indicated on the Certificate of Service. If there are any questions regarding this filing, please contact me at 202-973-4281.

Sincerely,

/s/ Maria T. Browne
Maria T. Browne
John D. Seiver

Enclosures

CERTIFICATE OF SERVICE

I hereby certify that a true copy of the foregoing *Post-Hearing Brief of the Florida Cable Telecommunications Association, Inc.* was furnished by electronic and regular U.S. mail, on this the 2nd day of November, 2007 to the following:

Florida Public Service Commission
Katherine E. Fleming, Senior Attorney
Keino Young, Esquire /Lisa Bennett, Esquire
Rick Mann, Esquire/Adam Teitzman, Esquire
Office of the General Counsel
Division of Legal Services
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399 – 0850
keflemin@psc.state.fl.us
kyoung@psc.state.fl.us
lbennett@psc.state.fl.us
rmann@psc.state.fl.us
ateitzma@psc.state.fl.us

AT&T Florida
J.Meza/E.Edenfield/J. Kay
c/o Nancy H. Sims
150 South Monroe Street, Suite 400
Tallahassee, FL 32301-1556
nancy.sims@bellsouth.com

Florida Power & Light Company
John T. Butler
Senior Attorney
700 Universe Boulevard
Juno Beach, FL 33408-0420
John_butler@fpl.com

Florida Power & Light Company
Bill Walker
215 South Monroe Street, Suite 810
Tallahassee, FL 32301-1859
bill_walker@fpl.com

Verizon Florida LLC
Dulaney L. O'Roark III
6 Concourse Parkway, Suite 600
Atlanta, GA 30328
de.oroark@verizon.com

Verizon Florida LLC
David Christian
106 East College Avenue, Suite 710
Tallahassee, FL 32301-7721
david.christian@verizon.com

Embarq Florida, Inc.
Susan S. Masterton
Mailstop: FLTLHO0102
1313 Blair Stone Rd.
Tallahassee, FL 32301
susan.masterton@embarq.com

Young van Assenderp, P.A
Robert Scheffel Wright
John T. LaVia, III
225 South Adams Street, Suite 200
Tallahassee, Florida 32301
swright@yvlaw.net
jlavia@yvlaw.net

MUUC/Town of Palm Beach, Florida
Thomas G. Bradford, Deputy Town Mgr
360 South County Road
Palm Beach, FL 33480
Tbradford@townofpalmbeach.com

Akerman Law Firm
Beth Keating
106 East College Avenue, Suite 1200
Tallahassee, FL 32301
beth.keating@akerman.com

Town of Jupiter Island
The Hon. Charles Falcone, Mayor
c/o Donald R. Hubbs, Asst Town Manager
Post Office Box 7
Hobe Sound, FL 33475
cafalcone@adelphia.net

Florida Cable Telecommunications Association, Inc.
246 E. 6th Avenue, Suite 100
Tallahasee, FL 32303
Via US First Class Mail

/s/ Maria T. Browne
Maria T. Browne

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

Review of 2007 Electric Infrastructure Storm Hardening Plan Filed pursuant to Rule 25-6.0342, F.A.C., Submitted by Florida Power & Light Company.	**Docket No. 070301-EI** **Filed: November 2, 2007**

POST-HEARING BRIEF OF THE FLORIDA CABLE TELECOMMUNICATIONS ASSOCIATION, INC.

Pursuant to the Order Consolidating Dockets and Establishing Procedure, Order No. PSC-07-0573-PCO-EI, issued July 10, 2007, and Prehearing Order, No. PSC-07-0796-PHO-EI, issued September 28, 2007, the Florida Cable Telecommunications Association, Inc. ("FCTA") hereby submits its Post-Hearing Brief.

STATEMENT OF ISSUES REMAINING TO BE RESOLVED POST-HEARING:

The issues in this docket are Nos. 40-52. Issues 40, 45 and 51 were stipulated and adopted at the hearing.[1] Specifically, with respect to Issue 51, FCTA changed its position to "Yes. FPL is not seeking approval of the standards and procedures, but instead is stating that it has attachment standards and procedures for third-party attachments that meet or exceed the NESC." In its Prehearing Statement filed September 14, 2007, FCTA took no position on Issue 44. On issues 47, 48 and 49, FCTA had stated objections, but noted in its Prehearing Statement that the proposed Process to Engage Third Party Attachers would likely resolve FCTA's concerns regarding the level of detail currently missing from FPL's Plan pertinent to these enumerated issues.

[1] Transcript of Proceedings ("TR") 18, line 24 – 20, line 24. FCTA also withdrew page 36, line 3 through page 45, line 14 from the testimony of its expert witness Michael T. Harrelson in this docket. TR 348, lines 5 – 18.

Because the proposed Process to Engage Third Party Attachers has been agreed to by FPL (as well as the other IOUs) and was approved at the hearing,[2] FCTA changes its position on issues 47, 48 and 49 to "no objection." In this post-hearing brief, FCTA addresses the remaining issues, nos. 41, 42, 43, 46, 50 and 52, and specifically objects to FPL's adoption of extreme wind loading standards in its Storm Hardening Plan, the details of its deployment of extreme wind loading standards throughout its service area for all its facilities, and the lack of benefits (and importantly, increased costs) that make FPL's Plan neither "prudent, practical or cost-effective," all as set forth in more detail below:

ISSUE 41: 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: *The Company's Plan, which proposes to adopt EWL for new distribution facility construction, is not prudent, practical or cost effective.*

ISSUE 42: 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: *The Company's Plan, which proposes to adopt EWL for all major planned work, including expansion, rebuild, or relocation of existing facilities, is not prudent, practical or cost effective.*

[2] TR 11, line 25 – 12, line 18. FCTA's expert witness Mr. Harrelson agreed that the Process provides a "useful mechanism for dialogue between electric utilities and third-party attachers about . . . future projects." TR (Harrelson) 403, lines 21-25.

ISSUE 43: 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: *The Company's Plan to use EWL criteria for critical infrastructure circuits is prudent, practical and cost-effective. However, as set forth in more detail below, the Company's deployment strategy for hardening critical infrastructure circuits is not prudent, practical or cost-effective.*

ISSUE 46: 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)]

FCTA: *FPL's Plan does not provide the required detailed description of its deployment strategy. Based upon the information in the Plan and information made available during this proceeding, the Company's Plan to harden its infrastructure is not being deployed in a prudent, practical or cost effective manner.*

ISSUE 50: 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)]

FCTA: *There is insufficient information about the costs and benefits of FPL's storm hardening plan to affected third party attachers. Given the lack of such information, the Commission should only approve limited pilot projects, which will enable affected parties to better understand the true costs and potential benefits of FPL's planned hardening activities.*

ISSUE 52: 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)]

FCTA: *The Commission should not find that FPL's storm hardening plan is prudent, practical, or cost-effective. Accordingly, the Company's Plan should not be approved.*

Introduction and Discussion of FCTA's Position on Issues 41, 42, 43, 46, 50 and 52

The Storm Hardening Plan ("Plan") submitted by Florida Power & Light Company ("FPL" or the "Company") utilizes extreme wind loading ("EWL") standards for all new construction and major planned work, including expansion, rebuild, and relocation of existing facilities throughout the entirety of its service area. This is not prudent, practical or cost effective. Similarly, although it is prudent, practical and cost-effective to use EWL criteria for major highway crossings and for hardening critical infrastructure circuits ("CIF") on a pilot project basis, many aspects of FPL's deployment strategy for CIF are not.

FPL's EWL proposal is based largely on its experience with one of seven hurricanes it experienced in its service area in 2004 and 2005, Hurricane Wilma. Because FPL concluded that damage to its facilities caused by Wilma was unusual – in that most poles were damaged due to "wind only" and not trees or debris – FPL determined that it should storm harden *all* its poles to

EWL, regardless of the poles' heights and locations, including those shorter distribution poles for which the NESC considered and rejected EWL criteria.

There will be no benefit (indeed, most likely a detriment) associated with building all of FPL's distribution poles to EWL in areas proximate to trees. Distribution poles, generally 60 feet or less in height, that are located near trees will be subject to impact from nearby wind-blown trees, which EWL construction will most likely not prevent. Specifically, under FPL's Plan, CIF and other parts of the Company's infrastructure located away from open coastal areas and in close proximity to trees already have been or will be storm hardened. These facilities most likely will be damaged notwithstanding EWL construction when high winds dislodge or snap trees near FPL's lines. Restoration, rental, and routine maintenance costs will also be higher for these facilities. There likely will be substantial increases in transfer costs, pole rental rates as well as make-ready costs. Moreover, the number of cable operator attachments on which rents are paid also will increase as additional poles are set in existing spans for EWL purposes, poles that will also need to be repaired if they are damaged during a hurricane.

In addition, there is insufficient information about the costs and benefits of FPL's Plan to provide a reliable estimate of all the costs and possible benefits for ratepayers as well as FCTA's cable operator members who will regardless pay a portion of these storm hardening costs by way of increases in the operators' FCC regulated pole attachment rental, make-ready, and other related costs. Even if storms with high winds like Hurricane Wilma impact FPL's service area every three years, FPL predicts that less than 70% of the costs of EWL construction will be recovered in restoration and outage savings. Moreover, if Wilma-type storms only impact FPL's service area once every *five* years, the percentage of costs recovered in storm outage savings and restoration drops to less than 50%.

Compounding this scenario of added costs and fewer benefits is the fact that FPL made no independent meteorological study or prediction of the reoccurrence or location of future Wilma-type storms. Given that trees and wind-blown debris in the other major storms brought down the relatively shorter distribution poles – whether hardened to EWL criteria or not – and these poles will likely come down in non-Wilma type storms, FPL's hoped for benefits from reductions in outages and restoration costs are likely to be even less than that predicted.

Given the substantial costs associated with deploying EWL throughout FPL's territory, the significant flaws in FPL's deployment strategy, and the uncertainty about the benefits to be gained from such deployment, FCTA only supports using EWL for major highway crossings and limited pilot projects on circuits serving CIF where trees are not proximate, with continued monitoring to enable affected parties to study the potential benefits of EWL deployment. In addition, FCTA believes the Plan should be amended to give more emphasis to alternative, more practical and cost-effective methods for ensuring that FPL's pole plant is able to withstand extreme weather. In short, the Company's Plan should not be approved as submitted.

ANALYSIS AND ARGUMENT

FCTA's member cable operators[3] rely upon Florida's investor owned utility ("IOU") pole infrastructure, including that of FPL, to distribute video, voice and broadband services to over five million residents throughout the state of Florida.[4] As such, FPL's Storm Hardening Plan, which requires a substantial commitment of resources and significant increased capital expenditures and ongoing expenses – up to $300 million over the three year Plan period – to

[3] Cable operators currently pass 95 percent of Florida homes and provide services to 78 percent of those homes. *See* William Taylor, Intermodal Competition and Deregulation in Florida, (Feb. 16, 2007), at http://www.purc.ufl.edu/documents/Taylor_presentation.pdf.

[4] The FCTA members with facilities on FPL poles and participating in this docket include Bright House Networks, Comcast Corporation and Atlantic Broadband. FCTA Response to FPL Interrogatory No. 7. Combined, these operators have 625,727 invoiced attachments on FPL poles. *Id.* at No. 8(b).

strengthen FPL's pole infrastructure, has the potential to impact significantly FCTA member operators' ability to service their customers in a timely and cost-effective manner. Testimony of Michael T. Harrelson on behalf of FCTA, admitted into the record at TR 348-394 (hereinafter "TR (Harrelson)") at 379, line 15 – 380, line 3.[5]

FCTA and its member cable operators recognize the importance of strengthening the state's electric pole infrastructure against extreme weather conditions and adopting strategies that will reduce storm restoration costs and delays associated with such conditions. Florida's cable operators have significant first-hand experience with storm-related outages. When the 2004-2005 hurricane seasons struck, cable operators experienced substantial outages and damage to their facilities. Cable companies worked alongside the utilities to resolve weather related outages and spent millions of dollars in repairing their own cable facilities and restoring cable service.

Cable operators are in an intensely competitive industry (competing with satellite operators, telephone companies and other providers of multichannel video service)[6] and have a fervent interest in ensuring that poles stay up—and their facilities too—to minimize service interruptions, provide access to the Internet, phone service, cable service and important emergency and information services. (TR (Harrelson) 356, lines 9-12.) FCTA and its members also are interested in ensuring that the State's utility poles are safe and reliable and that

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[5] Mr. Michael T. Harrelson, a registered Professional Engineer in the states of Georgia and Florida and a consultant to the cable television, telecommunications and electric utility industries, served as an engineering consultant to FCTA, submitted pre-filed testimony on behalf of FCTA and its members in this docket (TR (Harrelson) 315 – 345 and 349 – 395) and testified at the consolidated hearing held October 2-3, 2007. (*Id.* 280 – 304 and 395 – 425.) A copy of his Curriculum Vitae was attached to his prefiled testimony as Hearing Exhibit 28. Mr. Harrelson has extensive experience reviewing and testifying as an expert or consultant about (1) the National Electrical Safety Code requirements; (2) electric power distribution design, construction, engineering, operation, and maintenance procedures; (3) joint use of utility poles by power and communications companies; (4) OSHA electric power and communications safety regulation; and (5) the National Electric Code, which applies to electric power utilization systems. (*Id.* 317-318.)

[6] *See* http://www.consumerreports.org/cro/electronics-computers/televisions/service-providers/tv-services/get-the-best-tv-service-3-07/overview/0307_cable_ov.htm.

construction, maintenance and inspection costs are reasonable. (*Id.* 356, lines 13-14.) Because of quality service objectives and competitive pressures, cable operators must be sure there are no unreasonable delays in restoring damaged facilities that would also delay restoring cable service to customers, or unreasonable costs imposed that would jeopardize cable operators' ability to invest in new and innovative services. (*Id.* 356, lines 15-18.)

FCTA's members are committed to ensuring that the state's electric pole infrastructure is hardened to better withstand damage, and in the event that such plant is damaged, that strategies are deployed to rapidly restore electric service as well as valued communication services to Florida residents. This is important because cable operators directly reimburse utilities for the cost of making the poles ready for their attachments, and also pay to make the pole compliant with the NESC when a cable operator attaches or is responsible for bringing the pole out of compliance with the NESC. (*Id.* 356.) While FCTA members generally support FPL's efforts to strengthen its poles, FCTA also wants to ensure that FPL's Plan complies with the requirements of Rule 25-6.0342, F.A.C. (hereinafter "Rule 25-6.0342" or "Rule"). (*Id.* 357.) Specifically, Rule 25-6.0342 requires each storm hardening plan to describe *in detail* the IOU's construction standards, policies, practices and procedures, as well as its deployment strategy, for cost effective strengthening of the IOU's distribution and transmission infrastructure against extreme weather conditions and for reducing restoration costs and outages to end-use customers. In addition, the Rule requires each IOU to seek input from and attempt in good faith to address the concerns of third party attachers, and to include in the plan an estimate of the costs and benefits of the utility's plan to third party attachers.[7] Finally, in meeting the desired objectives of enhancing reliability and reducing storm restoration costs and outage times, the IOUs were

[7] Rule 25-6.0342(6). The stipulated and approved "Process to Engage Third Party Attachers" is expected to resolve the majority of the concerns about the level of detail missing from the IOUs', including FPL's, storm hardening plans. (TR 11, line 25 – 12, line 18; TR 403, lines 21-25.)

charged with employing *prudent*, *practical* and *cost-effective* standards and procedures.[8] As detailed below, FPL's Plan does not meet this standard.

Issues 41, 42 and 43 – Extreme Wind Loading

FPL's Plan, while thorough and admirable in many respects, does not comply with the requirements of the FPSC Rule. While strengthening Florida's pole infrastructure to better withstand extreme weather is the undisputed goal of FPL's Plan, FPL's methodology for achieving this goal must be closely scrutinized to ensure that it provides cost-effective sustainable solutions for the long term that will actually achieve the desired results of reducing storm related outages and restoration costs.[9] That is an unlikely conclusion with respect to FPL's Plan because it alone has decided to adopt extreme wind loading ("EWL") construction standards for its entire distribution plant throughout its service territory.[10]

The NESC only requires EWL for poles that are taller than 60 feet above grade, which generally are transmission poles and not distribution poles. (TR (Harrelson) 363, line 18 – 364, line 12; Slavin Dep., Ex. 44 at 66, lines 8-22.)[11] FPL's distribution poles, both feeder or lateral,

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[8] Rule 25-6.0342(2), (5).

[9] For example, replacing sound poles and shortening span lengths to 150 feet or less may not be prudent, practical or cost-effective in most existing distribution lines. Among the undesirable effects of these projects are traffic hazards and congestion, damage to existing utilities, damage to highways and right of ways, greatly increased number and size of poles near roadways, and more non-standard poles to replace when damaged by extreme storms, tornadoes, and vehicular accidents. (TR (Harrelson) 381, line 24 – 382, line 15.)

[10] Rule 250C of the 2007 NESC contains the EWL standard and describes the application of the extreme wind loading required in Rule 250A1 on poles and their supported facilities, including wires, transformers, etc. for purposes of determining the required strength of the pole. The current edition of the NESC expressly exempts from the EWL criteria any structure and its supported facilities that are 60 feet or less above ground. As a clarifying point, only Rule 250C specifies when extreme wind loading is required, not Figure 250-2(d), which is the NESC provision referenced in Rule 25-6.0342.

[11] Mr. Harrelson included the affidavit of Dr. Larry Slavin as MTH-2 to his testimony (Hearing Exhibit 29) in this docket. Dr. Slavin's affidavit had been submitted on behalf of Verizon in FPSC Dockets 060173-EU and 060172-EU. Dr. Slavin is the current Chairman of the NESC Subcommittee 5, responsible for issues relating to overhead lines strength and loading. (TR (Harrelson) 364, line 25 – 366, line 2.) Dr. Slavin served on the NESC subcommittee that considered and rejected adopting the EWL for distribution poles. (*Id.* 366, lines 2-3.) Also, pages 1-4, 61-70, the certificate of service and errata sheet of Dr. Slavin's deposition testimony ("Slavin Dep.") were also admitted in this docket as Exhibit 44. (TR 13, line 24 – 15, line 6; TR 304, line 19 – 305, line 9.) As Dr. Slavin

generally are less than 60 feet above grade and the forensics purportedly relied on by FPL actually indicate that increased wind speeds do not correlate with the failure of feeders and laterals, so EWL is *not* an appropriate standard for these structures. (TR (Miranda) 197, line 18 – 199, line 1; TR (McEvoy) 573, line 24 – 574, line 2; *id.* 576, lines 13-23.) [12] Indeed, the data on success of transmission poles, generally taller than 60 feet, and built to EWL under the NESC, are not directly comparable to distribution feeders and laterals that often are the same height as, or shorter than, nearby trees. *Cf.* (TR (Miranda) 614, line 8 – 615, line 9).

FPL's adoption of EWL is based largely on its experience with one storm in 2005 – Hurricane Wilma. (TR (Miranda) 197, lines 4-17; Slavin Dep., Ex. 44 at 62, lines 19-24.) There has been no meteorological study to predict the timing of a recurrence of another Wilma-type storm and the forensic analysis of its "wind only" devastation that caused cascading actually shows that such devastation will not likely be prevented or ameliorated (on any basis, let alone a cost effective basis) by building to EWL. (TR (Miranda) 195, lines 5-8; *id.* 203, lines 20-23; *id.* 186, lines 8-15.) Using EWL also is questionable given that damage caused by another storm that heavily impacted Florida – Hurricane Katrina – was due primarily to wind-blown debris and falling trees hitting power lines. (TR (McEvoy) 572, line 22 – 573, line 11.) Indeed, on an overall basis, the most common causes of hurricane related pole failures are falling trees, flying building debris, soft soil made worse by heavy rains, weak guy failure, rotten pole failure, and finally wind force on poles, lines and attachments. (TR (Harrelson) 365, lines 19-21.)

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made clear, the application of EWL to distribution poles would not be prudent or cost effective. Ex. 29, § 3.1. Dr. Slavin also agrees with FCTA that EWL should be applied to distribution poles only as part of a limited "pilot study." (Slavin Dep., Ex. 44 at 67, lines 4-19.)

[12] Dr. Slavin even questioned the KEMA report's conclusions if "wind only" damage as that was "contrary from what's reported from the rest of the industry." (Slavin Dep., Ex. 44 at 63, lines 4-5.) Mr. Harrelson also noted in his testimony that he was concerned that personal judgment of a few inspectors may have too quickly led to the "wind-only" conclusion.

Moreover, tornados and micro bursts within hurricanes – another common cause of pole failure – have winds in excess of "extreme wind design speeds" which can and frequently do break poles that meet extreme wind criteria.

It is significant too that no other utility is planning to use EWL for all its distribution plant construction. (TR (Harrelson) 364, lines 13-19.)[13] Instead of blanket, unfocused deployment of EWL, each of the other utilities have proposed a targeted "pilot project" approach that would allow the evaluation of the performance of "hardened" system components in future storms so that any improvements in system performance or degradation could be quantified and a reliable cost/benefit analysis could be performed. *(Id.)*

Another common cause of wood pole failures is cascading of solid (strong) poles because an adjacent pole breaks in high wind because of flying debris, rot or another defect. (TR (McEvoy) 577, lines 3-14.) Mr. Harrelson noted that when he observed hurricane damage and cascading: "Another issue that I observed is very important: The poles that the cascading event stopped on was usually one of the guyed poles, angle poles or junction poles where there was additional strength to that particular pole by these *other* effects that FPL is now considering."

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[13] The utility industry resoundingly agreed in comments submitted to the NESC committee that most distribution pole failures in extreme weather events are the result of secondary damage effects from trees and debris, not wind alone, and that the system would have failed even if designed to the significantly more expensive EWL criteria. (TR (Harrelson) 364, lines 7-12.) The other three IOUs in this consolidated docket, Progress Energy Florida ("PEF"), Gulf Power ("Gulf") and Tampa Electric Company ("TECO") all have stated that EWL is not the right standard for poles less than 60 feet tall. For example, TECO's Plan states, "Tampa Electric's experience continues to show that there is no substantial evidence that building distribution structures to extreme wind construction Grades will prevent damage from falling trees, tree limbs and flying debris during major storm events." (TR (Harrelson) 354, line 23 – 365, line 1). Gulf decided not to adopt the NESC EWL standards for all of its existing overhead distribution facilities because it is not cost effective to do so, stating, "Gulf's experience is that wind-blown debris is the predominant cause of damage versus pure wind." (TR (Harrelson) 365, lines 4-5). Furthermore, Jason Cutliffe, on behalf of PEF explained "the EWL standard would have no appreciable benefit for PEF's distribution poles with respect to preventing wind-caused damage" and "other coastal utilities and utilities that experience tornados, [support] the fact that the EWL standard has no appreciable wind damage prevention benefit for their distribution poles." (TR (Harrelson) 365, lines 6-10) The KEMA report "also strongly establishes that pole breakage rates in Wilma were greatest in open areas where multiple breaks (cascading) were commonplace. (*Id.* 370, lines 10-12.)

(TR (Harrelson) 407, lines 4-17 (emphasis added).)[14] Even FPL's forensic engineer who led the Hurricane Wilma analysis agreed it would be helpful to have more data and, in particular, determine what was stopping the cascading of poles in hurricane winds. (TR (McEvoy) 577, line 15 – 578, line 23.) And yet, rather than evaluating EWL in pilot projects, FPL has proposed simply to "build now" and "pay now and later." *See* (TR (Harrelson) 395, lines 6-15; *id.* 397, line 4 – 398, line 4.)[15]

In support of its decision to expand greatly the use of EWL, FPL relies heavily on "extensive analyses that FPL conducted either directly, or with the aid of external resources, such as KEMA Incorporated," including forensic observations of how the system performed during Hurricane Wilma. Plan at 6 (referring to Technical Report: Post Hurricane Wilma Engineering Analysis, KEMA Final Report for FP&L, Project No. 05-349 (Jan. 12, 2006)) ("KEMA Report"); TR (Miranda) 185, line 16 - 196, line 22.) Based on that analysis it concludes that the root cause of pole breakage was wind in Hurricane Wilma, and that FPL's taller transmission poles built to extreme wind loading, performed well overall. Plan at 12. Mr. Miranda, in his testimony, also relies on the KEMA Report to estimate the improved resilience of hardened distribution facilities. (TR (Miranda) 186, lines 1-3; *id.* 201, line 11 – 202, line 4.) However, the KEMA Report is a lengthy detailed report and analysis, which contains several significant disclaimers and explanations of assumptions made. For example:

- At page 50 in Section 7.1, the KEMA Report states "Specific additions to this forensic study and data collection process together with improved accuracy in the pole

[14] By "other," Mr. Harrelson was referring to maintenance of poles, guy wires and the right-of-way (i.e., trimming vegetation) together with additional storm guying, especially in open areas. (TR (Harrelson) 370, lines 12-14.)

[15] This does not mean that EWL is *never* appropriate. There is consensus in Florida that the EWL standard is appropriate for Interstate highway line crossings and pilot projects to research the possible advantages and disadvantages of EWL standards being applied to distribution lines less than 60 feet high. (TR (Harrelson) 397, line 18 – 398, line 1.)

population data would enable more specific and targeted engineering solutions." (TR (Harrelson) 368, lines 10-13.)

- At page 58 in Section 7.2.5, the KEMA Report states: "FPL verbally confirms that assignment of root causes is a personal judgment call irrespective of the pole ownership." (*Id.* 368, lines 14-16.)
- At page 77 in Section 7.4, the KEMA Report states "Design overload is not a major contributor to poles breaking during Hurricane Wilma. Focusing on the 53 FPL owned poles broken by the suspicion of design overload as a contributing factor, most of these were multiple breaks investigated by one inspector." Here KEMA is discrediting the "personal judgment call" of the "one inspector" that actually investigated those breaks. (*Id.* 368, lines 17-22.)
- The "Forensic Data" the KEMA analysis is based on is questionable. The forensic data was gathered on mostly feeder poles while FPL has mostly lateral poles. KEMA concluded from the forensic data that 52% of the poles broken were by wind only. However, it also found that as much as 85% of the broken poles were "multiple failures" which is also known as cascading. One defective pole or guy wire can allow one pole to break and take down several solid poles which would not have fallen otherwise. Cascading can be started by trees or flying debris hitting facilities on one pole. (*Id.* 368, line 23 – 369, line 6; TR (McEvoy) 577, line 3 – 578, line 4.)
- At page 77 in Section 7.4, the KEMA Report states that "the counties and areas with highest pole failure rates coincide with the areas with highest wind speeds and are bordering ***open*** areas in the path of Hurricane Wilma." (emphasis added) This finding validates the well known fact that trees and buildings shelter lines from winds whereas

open areas do not. This sheltering effect of course results in trees falling and flying debris as the wind force increases. The trees and flying debris can and do frequently break poles designed to EWL standards. (*Id.* 369, lines 7-13.)

- At page 59 in Table 7-7, KEMA reports that 66% of feeder pole failures were mostly cascading failures and were caused by wind only. However, the "wind only" determination was based upon the personal judgment calls of the inspectors. A better forensic analysis would have sought to determine the cause or causes of the cascading failures which accounted for "85% of the recorded failures." FPL's witness, McEvoy, agreed. (TR (McEvoy) 578, lines 12-13.) The same Table 7-7 attributes only 12% of the lateral pole failures to wind only, 33% is attributed to tree and 47% to presence of deterioration. Lateral lines are the smaller lines which serve such areas as neighborhoods where more trees and buildings are common. Significantly, 55% of FPL poles broken during Wilma were lateral poles. (TR (Harrelson) 369, lines 14-23.)
- At page 68, the KEMA Report refers to a group of "wind only" failures where "half of them fell to the east and half of them fell to the west." That is consistent with an embedded tornado-type wind for which EWL would not likely provide adequate protection. (*Id.* 370, lines 1-4.)
- At page 80, KEMA asserts, "Wind was the predominant root cause of pole breakage in general and tree breakage causing pole breakage in particular." (*Id.* 370, lines 5-6.)

In sum, Mr. Harrelson found that nothing in the KEMA Report suggested that EWL is justified for distribution poles in Florida; in fact, the KEMA Report concludes that FPL poles are not actually completely up to the Grade B standard. (*Id.* 370, lines 7-9.) Osmose found a 5.63% defective pole rate in 2006 which failed to meet the Grade B strength required. The report also

strongly establishes that pole breakage rates in Wilma were greatest in open areas where multiple breaks (cascading) were commonplace. Mr. Harrelson rightly concluded that good maintenance of poles, guy wires and the right-of-way (i.e., trimming vegetation) together with additional storm guying, especially in open areas, is the best preventive strategy for cascading failures. (*Id.* 370, lines 9-14.) Certainly more detailed forensic analysis of a better quality in the future would be very valuable. (*Id.* 370, lines 15-16; TR (McEvoy) 577, line 15 – 578, line 23.)

The Davies study shows that stronger hurricanes generally result in more downed poles. (TR (Harrelson) 370, lines 17-20.) There are far too many variables at issue however to conclude that EWL will decrease pole failures. For example, a significant percentage of outages were caused by falling trees, rotten poles, cascading breaks, imbedded tornados, etc. It does not support a finding that building to EWL will result in fewer downed poles. Indeed, the NESC committee responsible for strengths and loadings of overhead electrical systems has considered on numerous occasions whether to apply EWL criteria to distribution lines 60 feet or less in height. (*Id.* 370, lines 21-24.) In fact, during each of the last two code cycles, the NESC committee considered proposed changes that would have required application of EWL to distribution systems of any height. (*Id.* 364, lines 5-7.) The utility industry resoundingly agreed in comments submitted to the committee that most distribution pole failures in extreme weather events are the result of secondary damage effects from trees and debris, not wind alone, and that the system would have failed even if designed to the significantly more expensive EWL criteria. Based largely on this feedback from the field, the NESC committee retained the EWL exemption for structures 60 feet and less in the 2007 Code. (TR (Miranda) 605, lines 3-20; *see also* TR (McEvoy) 570, lines 7-11 and 571, lines 7-13; TR (Harrelson) 364, lines 7-12.) FPL's witness

was aware of and "sympathetic" to the NESC's sub-committee's conclusion, but FPL rejected it anyway. (TR (Miranda) 604, line 25 – 606, line 3.)[16]

Issue 46 – Deployment Strategy

Although the Company's Plan addresses the extent to which it complies with the NESC to the extent required by Rule 25-6.0342(3)(a), FPL's Plan to adopt the NESC's EWL criteria for all new construction, major planned work, CIF, and incremental hardening grossly and unnecessarily exceeds the requirements of the NESC, and as such, is not prudent, practical or cost effective. (TR (Harrelson) 360, line 11 – 361, line 6; Plan at 3.)[17] FPL proposes to harden the distribution system on a massive system wide scale by increasing the number of structures per mile and/or increasing individual pole strength, for example, by replacing sound wood poles with a mix of larger wood and concrete poles and adding many more poles between existing poles. (*Id.* 380, lines 16-19.)

The deployment strategy set forth in the Company's Plan fails to recognize the inherent problems associated with extending a construction standard designed for poles of a certain size (i.e., poles taller than 60 feet) to a different class of poles entirely. In addition, the Plan does not adequately account for the different variables attributable to open coastal areas and heavily treed,

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[16] If an IOU is going to apply EWL to poles under 60 feet, there must be some consideration made to accommodate the design and location of such shorter poles. (Slavin Dep., Ex. 44 at 65, line 23 – 67, line 3; TR (Harrelson) 381, lines 5 – 20; TR (McEvoy) 572, lines 3-8) Indeed , Dr. Slavin pointed out that if an IOU is going to use EWL for poles under 60 feet, FPL's approach is wrong: The IOU should use the "reduced overload factors that are recommended in the NESC for Grade C construction. It's a .75 overload factor instead of a 1.0 overload factor." (Slavin Dep., Ex. 44 at 66, line 23 – 67, line 3.) In addition there is evidence to suggest that concrete poles will diminish wind load resistance for attached lines. For square cross-section poles the NESC requires the use of a 1.6 load factor for wind loads on the pole itself as compared to a 1.0 load factor for wind loads on a wood pole which is round. With increasing wind speed, more of the square pole's ultimate strength is consumed to resist wind load on the pole itself and less is available to resist wind load on the overhead wires and other equipment.

[17] FPL's Plan would apply the NESC EWL criteria to existing and new feeders as well as any associated laterals directly serving CIF, critical poles and designated interstate highway crossings, and to ***all*** new overhead facilities, major planned work, relocation projects and daily work activities – regardless of pole height or location. FPL also states that it will "incrementally harden"—i.e., apply standards up to and including EWL—certain feeders serving community needs such as grocery stores, gas stations and pharmacies. (TR (Harrelson) 360, line 20 – 361, line 2.)

inland areas. (*Id.* 361, 11-12 and 373, lines 18-20.) It also gives too little weight to effective and less costly methods for ensuring that facilities better withstand extreme weather conditions, including the use of storm guying, the guying effect of lateral lines on the poles, vegetation management, and inspections to identify deteriorated and rotten poles. Finally, the Plan does not adequately account for the potential problems associated with replacing sound wood poles with a mix of larger wood and concrete poles and adding many more poles between existing poles

FPL has not limited its deployment to open coastal areas but instead has targeted its entire footprint, including heavily treed inland areas such as Lake City and Lee County where it commenced its storm hardening efforts. (TR (Harrelson) 361, line 11 – 12; *id.* 421, line 16 – 422, line 21.) The KEMA Report on forensic information gathered by FPL after Wilma noted in several places that severe damage involving cascading failures of poles was in open areas, in areas near the coast and in areas where trees caused poles to break. (*Id.* 374, lines 2-4.) "Lake City . . . has a lot of tall pine trees similar to Tallahassee, a lot of large oak trees, and I believe that if a 105-mile-an-hour wind comes through Lake City, a lot of that work there will be torn down by those large trees falling into those lines." (*Id.* 422, lines 16-21.)

As set forth above, the NESC exemption from EWL criteria for poles 60 feet or less in height is based in part upon the fact that shorter poles are more protected (than taller poles) by trees up to wind speeds greater than 60 miles per hour at which point they are more susceptible (than taller poles) to damage caused by falling trees. Without an adjustment in its Plan to accommodate for these different pole heights, many of the stronger and more numerous poles installed under FPL's plan will be broken by large trees towering above many of the lines being hardened to EWL when those trees are blown over by the very wind for which the hardened line was designed. (Slavin Dep., Ex. 44 at 67, lines 4-14; TR (Harrelson) 381, lines 5-16.) Two

photographs from the CIF projects at the Lake City Veterans Administration Hospital (Columbia County) and the Lee County Memorial Hospital (Fort Myers) that were attached to Mr. Harrelson testimony as MTH-5 and MTH-6 (Hearing Ex. 32 MTH-5 Lee County, and Hearing Ex. 33 MTH-6 Lake City) illustrate this point.[18]

Indeed, as reflected by questioning of FPL witness Mr. Miranda by Commissioner Argenziano on the size of the typical FPL easement, it is illogical to build circuits to EWL when such circuits are located in close proximity to towering trees. Power easements typically are approximately 10 feet wide, and thus, Mr. Miranda agreed that even with EWL construction the proximity to trees would continue to be a problem. (TR (Miranda) 616, line 18 – 620, line 10.)

The Plan also fails to adequately account for other cost effective tools for improving the resiliency of poles in the face of extreme weather. Guying is a most effective tool, which FPL is utilizing to storm harden major highway crossings. (TR (Harrelson) 372, lines 13-17.) FPL states in its Plan, and FPL witness Mr. Miranda confirmed at hearing that "storm guying" is one of the first "tools" considered for use in designing to EWL standards by FPL. Mr. Miranda also has committed to evaluating the feasibility of adding a methodology into its engineering procedures to account for the *guying effects* of other lines, cables and guys on poles in its consideration of the strength of a given pole. (*Id.* 376, lines 4-8.) The Plan should be amended to prioritize guying in lieu of pole replacement, where feasible. Rotten or deteriorated poles caused many failures and logically initiated cascading failures of other poles. (*Id.* 374, lines 4-5.) Thus, routine groundline inspections, which were included, as required, in the storm preparedness plan filed by FPL in Docket No. 060198- EI, are intended to identify and replace rotten or deteriorated poles. Before deploying EWL throughout its entire service territory, FPL

[18] These pictures are examples of instances in which FPL set new EWL hardened poles near large trees, and in one case, where such trees are actually towering above the line.

should be required to evaluate the effectiveness of its groundline inspection program and other initiatives implemented in the storm preparedness plan, such as vegetation management.

Indeed, many proven distribution power system initiatives and storm recovery preparations can produce greatly increased electric service reliability, decreased storm damage, and reduced restoration time and expense other than EWL construction. Storm hardening initiatives for overhead electric power distribution lines that are prudent, practical and cost effective include (TR (Harrelson) 383, line 6 – 384, line 23):

- Small conductor replacement projects to decrease line breakage during storms. Indeed, many more outages in hurricanes involve broken wires than broken poles, especially in the impacted areas outside the central path of strong storms. These projects should be coordinated with pole inspections and vegetation management and include major maintenance and guying improvements. (*Id.* 383, lines 11-15.)
- Right of way access improvement projects for lines which are inaccessible due to ditches, fences, small roadways, etc., including removing or providing access across such strategic obstacles to line sections. This will allow repair crews to access lines much more quickly during emergencies. (*Id.* 383, lines 16-19.)
- The use of specialized equipment and or contractors for work in difficult right of way conditions such as back lot line, off road or swampy area lines for more efficient restoration. (*Id.* 383, lines 20-22.)
- Pole inspection with strengthening or replacement or guying of deteriorated or overloaded poles. All deteriorated, broken or missing guys should be replaced. All buried anchor heads should be extended to above grade or water levels to prevent guy wires from rusting off. (*Id.* 383, line 23 – 384, line 2.)

- Installation of storm guying projects for line segments where it is feasible, including lines where poles are subject to lean over in soft soil during high winds. Larger poles do little to solve the problem of leaning in soft soil without guying. (*Id.* 384, lines 3-5.)
- Adding line segment sectionalizing switches, breakers and fuses as needed to isolate sections of line which sustain heavy storm damage. This can greatly improve time to restore power to lightly damaged main line segments before all major storm damage in an area is repaired. (*Id.* 384, lines 6-9.)
- Updating automatic electric primary circuit coordination of breakers and line sectionalizing fuses, and adding devices as appropriate to assure automatic line sectionalizing initially and facilitate power restoration after storms pass. (*Id.* 384, lines 10-13.)
- Converting selected distribution systems' voltage from 12 or 13 kV to 25 kV. Four times the electric power can be delivered by the same circuit if the voltage is doubled. Higher distribution voltage decreases the need for larger primary wire sizes and multiple circuits as electric system load grows. The long-term effect on wind loading is positive, and there are many other economic benefits of 25 kV systems. (*Id.* 384, lines 13-18.)
- Developing an improved procedure to avoid cutting of fiber optic cables by debris clearing and electric repair crews. In many instances fiber optic circuits have survived the hurricanes, still functional, but on the ground in places only to be cut repeatedly by others' restoration efforts. (*Id.* 384, lines 19-22.)

By failing to account adequately for the substantial differences in conditions and factors prevalent in FPL's coastal and inland, more heavily treed areas, ignoring beneficial guying

effects of other power lines, guys and cables on the poles which FPL evaluates for EWL projects as stated above, FPL's deployment strategy is not prudent, practical, or cost effective for EWL projects which may be approved by the Commission. It would be prudent only to "use EWL criteria for limited pilot projects with wind speed measuring devices to enable the utilities to collect forensic data about the costs and benefits of building to this standard in Florida." (*Id.* 372, lines 3-5.) If EWL is applied to more than pilot projects and Interstate crossings by FPL, the areas where it is applied should be justified on the basis of well described criteria including that they are located near the coast where the winds normally are highest and in open areas where the lines are not sheltered from the direct effects of the wind. In addition, before changing out a pole with a stronger class wood pole or concrete pole, the guying effects of other lateral lines and guy wires on the poles should be taken into consideration. Cf. *id.* 608, line 14 – 609, line 10.[19]

Issue 50 – Costs and Benefits

FPL estimates spending up to $61.5 million on hardening efforts in 2007, $125 million in 2008 and another $150 million in 2009 (Plan at 4; TR (Miranda) 183, line 13 – 184, line 8), for a combined three year cost of nearly $300 million dollars.[20] Notwithstanding this proposed massive investment, FPL's Plan states "it is impossible at this time to estimate the full extent of the benefits with any precision." Plan at 25. Mr. Miranda states in his testimony, "FPL does not have sufficient information at this time to distinguish between the benefits attributable to one

[19] Poles can be designed to be held upright by as few as three guy wires when nothing else is attached. A guy wire is a strong steel wire which is attached to a pole near the height on the pole where the pole needs additional support. The other end of the guy may be attached to a strong steel anchor in the ground or to another pole in the direction that the pull of the guy is needed. The horizontal component of the pull of the guys is what must equal or exceed the applied force of the wind. Power lines near the top of the poles create the effect of having two sets of "guys" attached to the poles. These wires are much stronger than the tension at which they are strung from pole to pole.

[20] This is in addition to the already substantial yearly expenditures that FPL will make on other storm hardening activities (which include another $40 million for the distribution pole inspection program and another $90 million on the 10 storm preparedness initiatives), for a combined total of almost $500 million on storm related efforts.

type of hardening activity versus another," and "there is little directly measured data on the improved resilience." (TR (Miranda) 185, lines 3-5 and 11-12.) Mr. Harrelson agreed, stating his "opinion that there's not sufficient information to do a detailed analysis." (TR (Harrelson) 420, line 24 – 421, line 1.)

Notwithstanding these uncertainties, in response to Staff Interrogatory Number 38, FPL estimates that over an analytical study period of 30 years, the net present value of restoration costs savings per mile of hardened feeder would at best be 70 percent if Wilma-type storms hit every three years but could be as little as 45 percent of the cost to harden that mile of feeder if the frequency is only once every 5 years. (TR (Miranda) 187, lines 11 – 23; TR (Harrelson) 362, lines 8 – 9; TR (Miranda) 193, line 24 – 196, line 9.) In other words, FPL would only recover less than half of every dollar spent on storm restoration if the number of storms drops to one every 5 years. (TR (Miranda) 195, line 20 – 196, line 5.) Moreover, as further discussed below, even these minimal perceived benefits are highly suspect, and the Plan as currently expressed might actually have some adverse effects on system reliability and storm recovery. Lines designed to EWL are more costly and difficult to restore when they fail. After a storm event, the concrete pole industry cannot easily provide the large quantity of poles that may be required in a few days. In addition, the installation of the heavier concrete poles requires equipment with more lifting capacity than a standard power company line truck, so there could be a lack of adequate equipment to make timely repairs. (TR (Harrelson) 367, lines 13-17.)

As testified to by Mr. Harrelson, and as recognized by even the FPL witnesses, if a Wilma-type storm hits FPL's service territory only once in 5 years, the expected benefit will be only 50 cents for every storm hardening dollar spent. Even if a Wilma type storm hits every 3 years, the benefit is only 70 cents. If a truly catastrophic storm hits, then even EWL poles,

concrete or wood, will come down as a result of flying debris (including such large items as tool sheds and parts of houses) and falling trees. (TR (Harrelson) 573, lines 15-23; Slavin Dep., Ex. 44 at 65, lines 5-22.) This is one of the main reasons the NESC never adopted EWL for distribution poles 60 feet and shorter in height. (Slavin Dep., Ex. 44 at 65, line 5 – 66, line 22.)

In addition, FPL's Plan does not provide sufficient details about its deployment of EWL for new construction, major planned work, relocations, daily work or incremental hardening to enable third party attachers or the Commission to gauge the true cost of the Plan. The estimated costs of hardening set forth in the Plan for 2007 - 2009 ("approximately $40-70 million" for 2007, $75 to $125 million for 2008, and $100 to $150 million for 2009) and revised in Mr. Miranda's testimony based on actual expenditures in 2007 to date are far too wide-ranging to be useful. (TR (Harrelson) 377, lines 11-16.) As set forth above, the perceived "benefits" of the Plan are entirely speculative. *See* Plan at 6 ("FPL's planning and budgeting process cannot provide equivalent detail at this time about deployment plans for 2008 and 2009.") and at 7 ("Of course, FPL's ability to identify and estimate benefits from storm hardening are necessarily incomplete and imprecise at this time."). (TR (Miranda) at 185, line 20 – 186, line 17; TR (Miranda Rebuttal) 590, lines 3-11 ("Mr. Harrelson is right that FPL cannot guarantee that the benefits associated with storm restoration performance or costs will be achieved. . . . At this time it is impossible for FPL or anyone else to predict the outcome on any of those factors.").)

Moreover, FPL has not clearly stated what the impact will be on average make-ready costs or annual pole rents. Indeed, in response to FCTA Interrogatory No. 2, FPL states "FPL does not know the impact (or incremental cost difference) for make-ready that Storm Hardening will have on 3rd party attachers. However, make-ready costs are likely to increase as a result of the construction set forth in FPL's Plan." (TR (Harrelson) 377, lines 22 – 25.) FPL does state

that the cost differential of a wood pole and EWL concrete pole could be as much as $8,000. (TR (Harrelson) 378, lines 1 – 2.) FPL estimates that it will replace 2,100 poles in 2007 alone (70% of which are likely to be joint use poles) and that it will set 700 intermediate poles. (TR (Harrelson) 378 (lines 2 – 5). So, the impact on cable operators potentially could be staggering but as of yet, there is not enough reliable information on which to base an assessment. While FCTA agrees that the Process To Engage Third Parties will remedy this issue in part, because it will provide the required cost information, it still appears that the overall cost of the Plan greatly exceeds the benefits for third parties.

While it is not possible to estimate with precision the cost to third party attachers, it is clear that cable operators will incur significant additional costs as a result of the Company's Plan. They will incur costs related to transferring their facilities to poles that are replaced due to storm hardening. In Mr. Harrelson's experience transfer costs can be as little as $100 for a wood distribution pole but would be significantly more for transferring to a concrete or steel pole, and the costs quickly escalate to the tens of thousands where splicing or new cable runs are required. Annual pole rental rates will increase, possibly significantly. Costs attendant to making the pole ready for third party attachments—including the cost of pre-construction strength—will increase. The number of cable operator attachments on which rents are paid will increase as additional poles are set in existing spans. Cable operators will incur higher costs as a result of constructing to Grade B or EWL. In addition, third party attachers likely will experience significant delays in provisioning service to customers as a result of the fact that more of FPL's resources will necessarily be devoted to building to heightened standards (and thus will have less time to devote to third party attachers' needs), and additional processes will likely be invoked by FPL to ensure

that EWL standards are met by third party attachers. Given the highly competitive market in which third party attachers operate any delays likely will result in lost customers.

Given the potentially staggering cost impact on cable operators and the questionable and as yet untested benefits of FPL's Plan, limited pilot projects will allow FPL to collect the forensic data necessary to determine whether building to EWL will are necessary to better inform the cost benefit analysis. Accordingly, FPL's Plan, as proposed, should not be approved.

Issue 52 – Overall and Conclusion

FPL's plan will not meet the objectives of enhancing reliability, reducing restoration costs and outage times in a prudent, practical and cost-effective manner because the plan applies EWL Grade B to distribution poles that are less than 60 feet above grade for critical infrastructure, new construction, interstate crossings and major rebuild projects, throughout FPL's entire service territory as opposed to applying EWL in only areas where it is likely to have maximum benefits with minimum negative consequences. FPL's plan ignores or at least fails to incorporate the well-documented effects of wind in open and coastal areas as distinct from areas with more dense tree cover as described in the KEMA report and FPL's forensic data from Hurricanes Katrina and Wilma. It also places far too little emphasis on alternative methods for strengthening its infrastructure against extreme weather, many of which already are required by the FPSC (vegetation management, ground line inspections), and others of which FPL itself agrees are prudent and practical methods (storm guying, for example).

FPL is required by the rule to determine where, when and how to apply EWL criteria for distribution poles and lines in a prudent, practical and cost-effective manner. The NESC does not require EWL to be applied to poles and lines less than 60 feet high; therefore, the NESC does not prescribe any guidance for EWL under FPL's Plan. FPL must decide if it should consider

both the sheltering effects which trees and buildings provide for winds, and the related danger of wind-blown debris and falling limbs impacting the lines as a result of placing more poles (and more costly poles) near trees. Where and when the extreme winds hit, some of the tall trees near FPL's new EWL-enhanced lines are sure to fall on the lines after being blown down by the very wind that the EWL-enhanced poles were designed to withstand.

FPL has done a very large volume of good work to develop engineering guidelines for use by field personnel in application of its EWL standards and incremental hardening design plans; however, there are two major deficiencies. In addition to not considering trees and buildings near the lines, the engineering criteria did not consider the strengthening effects, also known as "guying" effects, of angles in the power lines that are guyed, junction poles in the power lines where cables and wires cross such as at intersections, and pull-offs from the power line that are supported by guy wires. As a result, many poles that are actually strong enough to withstand extreme wind are still replaced by FPL at great additional cost and disruption to the public because of the cranes, bucket trucks and other equipment that handle the concrete poles, the equipment that is often used. And this will be quite expensive. FPL intends to spend almost $300 million on implementing EWL for distribution lines in its three-year plan. (TR (Harrelson) 361, lines 13-15.) The cost of one EWL concrete pole can exceed the cost of one Grade B type wood pole by $8,000 per pole. (*Id.* 361, lines 21-23, and 378, lines 1-2.) FPL estimates it will replace 2,100 Grade B poles in 2007 and add 700 new EWL designed poles between existing pole locations to shorten span lengths. (*Id.* 378, lines 2-4.) These numbers will likely double in 2008 and 2009.

FPL lists storm guying, which is placing guy wires and anchors on both sides of straight line power poles, as its first preference and tool in its engineering tool kit to accomplish EWL

strength for existing poles. This is a prudent application and cost-effective. Pilot projects for EWL design with instrumentation for good future forensic information gathering and the aggressive application of storm guying (because it is so cost-effective) and other preventative measures adopted in FPL's storm preparedness plan are the prudent, practical and cost-effective methods for storm-hardening. However, FPL's grand scale of implementing extreme wind for distribution poles is not prudent, practical and cost-effective.

For all the foregoing reasons and those set forth in the testimony of Mr. Harrelson, FPL's storm hardening plan should not be approved.

RESPECTFULLY SUBMITTED this 2nd day of November, 2007.

By: /s/ Maria T. Browne

Maria T. Browne, Esquire
John D. Seiver, Esquire
Davis Wright Tremaine LLP
1919 Pennsylvania Ave., NW, Suite 200
Washington, D.C. 20006
(202) 973 – 4281 (Phone)
(202) 973 – 4499 (Fax)

Attorneys for the Florida Cable Telecommunications Association, Inc.