

**BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

In re: Petition for rate increase by  
Progress Energy Florida, Inc.

Docket No. 090079-EI

Submitted for filing:  
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**REBUTTAL TESTIMONY  
OF  
STEVEN P. HARRIS**

**On behalf of Progress Energy Florida**

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STEVEN P. HARRIS**

1        **Introduction and Summary**

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

3        A.     My name is Steven P. Harris. My business address is ABS Consulting, Inc.  
4        (“ABS Consulting”), 475 14<sup>th</sup> Street Suite 550, Oakland, California 94612.

5  
6        **Q.     Did you previously submit direct testimony in this proceeding?**

7        A.     Yes. I submitted direct testimony and sponsored a study entitled Hurricane Loss  
8        and Reserve Performance Analyses (“Study”).

9  
10       **Q.     Do you have any exhibits to your rebuttal testimony?**

11       A.     No.

12  
13       **Q.     What is the purpose of your rebuttal testimony?**

14       A.     My rebuttal responds to the testimony Office of Public Counsel witness Schultz  
15       and FIPUG witness Marz concerning PEF’s request for an increase in the annual  
16       storm accrual, including their express or implied criticisms of my Study.

17  
18       **Q.     Please summarize your testimony.**

1 A. My storm Study is not biased by pre-conceptions or the use of selective data on  
2 past hurricane events. The most reliable methodology to establish the expected  
3 annual loss is to utilize the longest available historical record of losses. For  
4 hazards like hurricanes that are characterized by low probabilities of occurrence  
5 with high consequence, there are too few historical loss events to reliably estimate  
6 the expected annual loss. For these perils, simulation models are the standard  
7 method used the insurance industry. The USWIND model is one of only four  
8 models evaluated and determined acceptable by the Florida Commission on  
9 Hurricane Loss Projection Methodology (FCHLPM) for projecting hurricane loss  
10 costs.

11  
12 The Study's Reserve Performance Analysis demonstrates that the \$133 million  
13 reserve balance with a \$16 million annual accrual will result in an increase in the  
14 expected balance to \$152 million at the end of five years. With this accrual, there  
15 is still a 10% chance that the reserve will have negative balances over the  
16 prospective five year period. An annual accrual of \$6 million would result in an  
17 expected reserve balance below \$100 million at the end of five years and a 14%  
18 chance that the reserve will have negative balances over the five year period.

19  
20 **Q. Was the Study based on a pre-determined conclusion that the only way to**  
21 **adjust the annual storm accrual was to increase it, as Mr. Schultz suggests at**  
22 **page 7?**

1 A. No. The Loss Analysis portion of the Study was performed without any pre-  
2 determined conclusions. The analysis takes the data on locations and values of  
3 Progress Energy Florida's (PEF) transmission and distribution (T&D) assets and  
4 uses them directly, along with data on PEF historical storm costs, to model the  
5 expected annual loss from storms.

6  
7 The Loss Analysis shows that expected storm costs have increased over the prior  
8 study which was conducted in 2005. This is a result of increases in all the major  
9 storm cost factors, including the value of T&D assets, actual storm cost history,  
10 and expected frequency of hurricanes.

11  
12 **Q. Mr. Schultz suggests at page 8 that the Study results could be skewed by the**  
13 **use of storm data applicable to areas outside of PEF's service territory. Is**  
14 **this a valid criticism?**

15 A. No. I assume that "storm data" as used by Mr. Schultz means historical storms  
16 that have made landfall outside of PEF's service territory and that the  
17 consideration of these in some way distorts the storm costs faced by PEF. For  
18 example, consider the 2004 season in which Hurricanes Charley, Frances and  
19 Jeanne all made landfall at locations in Florida Power & Light's service territory.  
20 After landfall, each of these storms tracked through PEF's territory well inland  
21 from the coasts. These storms did significant damage in PEF's service territory  
22 and imposed significant service restoration costs to PEF.

23

1 The EQECAT USWind model utilizes a stochastic set of simulated hurricanes  
2 that are possible based on the over one hundred years' of hurricane history. These  
3 storms include a full range of sizes, intensities from Category 1 through 5, and  
4 tracks. The model simulates thousands of possible events along the Gulf and  
5 Atlantic coasts. Many of these events make landfall large distances from PEF's  
6 service territory and do not result in damage to PEF T&D assets. Some will make  
7 landfall within PEF's service territory and some, like the 2004 Hurricanes, will  
8 make landfall outside PEF's territory, but will have tracks that take them into  
9 PEF's territory. Only those storms that affect the locations of PEF's T&D assets  
10 contribute to calculation of the expected annual damage.

11  
12 **Q. Please respond to Mr. Schultz' statement at page 8 that the Study provides**  
13 **no indication as to what factors were used to determine the estimated annual**  
14 **average loss of \$20.2 million.**

15 A. The methodology utilized and the important factors in the Loss Analysis Study  
16 are described in Sections 1, 2 and 3 of the Study. Further details on the  
17 methodology utilized by the ABS Consulting/EQECAT USWind software are  
18 available in the annual EQECAT submissions for review and recertification of our  
19 software by the Florida Commission on Hurricane Loss Projection Methodology.

20  
21 **Q. Is there any basis to justify excluding the 2004 storms from the analysis of**  
22 **expected losses and appropriate reserve levels?**

1 A. No. Calculating an actual or simulated expected annual storm damage amount  
2 that selectively excludes any possible damage events, whether large and  
3 infrequent or small and frequent, is neither meaningful nor appropriate. Any  
4 reliable estimate of the expected annual windstorm damage to which PEF is  
5 exposed (expected annual loss) must include the most complete and full damage  
6 distribution that can be determined both from actual experience and from  
7 simulated possible damage.

8  
9 It is true that not all years will experience damage equal to or greater than any  
10 estimate of the expected annual loss. Many years may experience no damage and  
11 others greater damage. Therefore, in developing expected annual loss estimates,  
12 the most reliable methodology is to utilize the longest, most complete historical  
13 record available. Since Florida's recorded hurricane history is just over 100 years  
14 old, insurers rely on simulation modeling to extend this "known" history into  
15 thousands of simulated years for the purpose of estimating likely damage. The  
16 simulated expected annual loss to PEF's system is the best estimate of the annual  
17 damage considering all possible future hurricanes. It does not arbitrarily exclude  
18 the "extraordinary" damage from the 2004 season as proposed by Mr. Schultz, or  
19 begin the analysis after the 2004 season as proposed by Mr. Marz.

20  
21 **Q. Mr. Marz suggests on pages 33 to 34 of his testimony that the reserve balance**  
22 **of \$133 million is adequate to fund all Category 1 and 2 hurricanes. Do you**  
23 **agree?**

1 A. No. Mr. Marz has misinterpreted SPH-1 page 19 and 20. These figures present  
2 the frequency-weighted average damage for all Category 1 and Category 2  
3 hurricanes making landfall with each ten mile segment of the coast. This average  
4 value means that there are some storms resulting in lesser damage and some  
5 resulting in greater damage than the average presented in the figures. The \$140  
6 million damage value is not the greatest damage that might be expected from a  
7 Category 2 storm. Large Category 2 storms with wind speeds near the high end of  
8 the Category 2 hurricane range would result in substantially greater damage than  
9 the average.

10  
11 **Q. Mr. Marz suggests at pages 36-37 that future studies should be required to**  
12 **take into account only Category 1 and potentially Category 2 storms. Would**  
13 **such a study produce meaningful results?**

14 A. No. The Florida Commission on Hurricane Loss Projection Methodology  
15 (FCHLPM), an independent panel of experts that evaluates computer models and  
16 actuarial methodologies for projecting hurricane losses, goes to great lengths to  
17 ensure that all models used in the State for insurance rating purposes  
18 appropriately capture the full range of the hurricane hazard. This includes  
19 hurricanes of Categories from 1 to 5. The PEF reserve is established to act as self-  
20 insurance and the expected annual loss similarly should be estimated based on all  
21 possible hurricane losses.

22

1 **Q. Mr. Marz says at page 32 that the Study assumes that the storm reserve**  
2 **should be adequate to cover damage from all storms. Is he correct?**

3 A. No. The Loss Analysis Study estimate of the expected annual loss is based on the  
4 full hurricane hazard with events from Category 1 through 5. Estimating the  
5 expected annual loss based on all storms does not mean that PEF's accrual should  
6 or will be adequate to fund damage from all storms. A proper level of reserve  
7 funding is a matter of setting an appropriate accrual to cover most but not all  
8 storms. The Reserve Performance Analysis in our Study provides information on  
9 the effect of various levels of accrual on the reserve performance over a  
10 prospective five year period.

11  
12 **Q. Mr. Schultz suggests that the Study placed undue emphasis on a 1921 storm**  
13 **that hit Pinellas County (page 8) and states that the reserve is not intended to**  
14 **recover costs for a storm of that significance (page 9). Did the Study in fact**  
15 **assume that the reserve should cover the costs of such a storm?**

16 A. No, the Study did not assume that the reserve should cover the cost of a 1921 type  
17 of storm. The 1921 storm is also not the worst case scenario as suggested by  
18 witness Schultz. There are other storms that could result in greater damage than a  
19 re-occurrence of the 1921 storm. Exhibit SPH 1 Figure 4-4 shows that there are  
20 many landfalls where average Category 3 storms can do greater damage than the  
21 \$250 million damage from the 1921 storm, and Figure 4-5 shows that average  
22 Category 4 storms, like the 2004 Hurricane Charlie, can result in over \$500  
23 million in damage over a 60 mile stretch of the coast near Pinellas County. The



1 1921 storm, along with all of the other storms over the past century that have  
2 affected Florida, are used in development of the historical hurricane hazard in the  
3 USWind software. Based on this historical hurricane hazard all possible storm  
4 severities and frequencies are simulated and included in the calculation of the  
5 expected annual loss.

6  
7 **Q. Mr. Schultz questions the appropriateness of including the 1921 storm in the**  
8 **Study since there have been no storms of similar strength and point of**  
9 **landfall since that time (page 11-12). Is this a legitimate basis to exclude the**  
10 **1921 storm from the analysis?**

11 A. No. The simulation of the 1921 storm that is presented in the Study is only an  
12 example to illustrate the impact that a recurrence of this historic event might have  
13 on PEF's T&D system today. It is illustrative of only one of many other events  
14 that could occur that would result in large losses to PEF's T&D assets. The  
15 expected annual loss estimate is based on a large set of simulated hurricane events  
16 ranging from Category 1 to 5. Hurricanes like the 1921 event have low  
17 probabilities of occurrence compared to less severe Category 1 and 2 events, but  
18 the severity and frequency of occurrence of all events are properly represented in  
19 the analysis.

20  
21 **Q. Mr. Marz asserts at page 36 that given the expected annual loss chargeable to**  
22 **the reserve, the balance is sufficient to provide coverage for eight years, while**

1 **it is sufficient for 30 years if losses remain at the levels experienced from**  
2 **2006-2008. Is this an appropriate analysis?**

3 A. No. The Reserve Performance analysis in our Study demonstrates that even with  
4 the current \$6 million accrual, the reserve balance is expected to decline from  
5 \$133 million to under \$100 million over a five year prospective period. There is  
6 also a 14% probability that the reserve balance could be less than zero during this  
7 five year period. For the \$133 million reserve to be adequate for a prospective 30  
8 years would require a multi-decadal recurrence of the quiet and favorable storm  
9 activity experienced over the 2006 to 2008 period. This is not consistent with the  
10 prevailing view of the meteorological community that we are in a period of  
11 heightened hurricane formation.

12  
13 **Q. At page 30, Mr. Marz quotes from a recent TECO order describing a**  
14 **regulatory framework which includes “a storm reserve adequate to**  
15 **accommodate most, but not all, storm years.” Would Mr. Schultz’ and Mr.**  
16 **Marz’ recommendations to cease accruals to the storm reserve be consistent**  
17 **with this regulatory framework?**

18 A. No. First, remember that prior to 1993, PEF had insurance to cover storm damage  
19 to PEF’s transmission and distribution assets. After Hurricane Andrew in 1992,  
20 insurers essentially withdrew from the market and adequate amounts of  
21 transmission and distribution insurance at reasonable prices became unavailable.  
22

1 The concept of self-insurance using a reserve with accruals is to allow the  
2 accumulation of funds during periods of favorable storm experience that will be  
3 available for infrequent future hurricane losses. The Commission authorized the  
4 current PEF \$6 million annual accrual to the reserve in 1994. Since 1994, PEF  
5 has relied on its storm reserve to self-insure for storm damage to its transmission  
6 and distribution assets, using the \$6 million annual contributions to the reserve.  
7 However, after ten years of favorable storm history, the accumulated reserve  
8 accrual of approximately \$47 million was exceeded by damage of over \$285  
9 million from the 2004 storm season.

10  
11 PEF estimates that the value of its T&D assets has increased by more than a factor  
12 of three since 1993, when the current accrual was approved by the Commission,  
13 and believes that a higher accrual is appropriate to reflect the current increased  
14 value of its T&D assets.

15  
16 **Q. Witnesses Marz and Schultz suggest that PEF's annual storm reserve accrual**  
17 **does not need to be increased substantially, if at all, because the accrual has**  
18 **been sufficient to cover actual storm damages incurred up until 2003. Mr.**  
19 **Schultz states at page 8 and 13 that since 1994, with the exception of 2004**  
20 **and 2005, PEF has charged an average of \$3 million to the reserve.**  
21 **Similarly, Mr. Marz states at page 33 that the reserve has been charged an**  
22 **average of \$4.3 million over the last three years. Do you agree?**

1 A. The reason that PEF's annual accrual may appear to have been sufficient between  
2 1994 and 2003 (when you exclude the losses from the hurricanes of 2004) is  
3 PEF's favorable storm history. There were no hurricanes that made direct  
4 landfalls in PEF's service territory during this period.

5  
6 The intervenors' suggestions would only be acceptable if PEF's management and  
7 the Commission are willing to speculate that PEF's recent good luck over a brief,  
8 selective storm period considered by Marz and Schultz will continue. However,  
9 over the 100-year history, there have been many more hurricane landfalls and  
10 damaging events than in the last 15 years. Also, there is a growing body of  
11 evidence suggesting that the North Atlantic Oscillation (NAO) and the El Niño or  
12 Southern Oscillation (ENSO) are important climate variables in modulating  
13 hurricane return periods. The damage estimated in the current ABS Consulting  
14 Study assumes the average hurricane activity over the century. If you accept the  
15 opinion that changes in the ENSO and NAO variables indicate we have entered a  
16 more active period for hurricane formation like the 1920s and 1940s, PEF may  
17 expect to experience higher than average damage to T&D and other assets over  
18 the next several years and the ABS Consulting damage estimates could understate  
19 the actual risk going forward.

20  
21 **Q. Mr. Schultz questions the relevance of the Study results because of**  
22 **disclaimer language included in the Study. Please comment.**

1 A. The Study is based on a simulation model using historical data. The disclaimer  
2 language acknowledges that there are significant uncertainties associated with  
3 hurricane occurrences, the extent of damage when they occur, and actual cost for  
4 service restoration after damage. The likely performance of the reserve illustrates  
5 these uncertainties. For the \$6 million accrual case, the expected balance at the  
6 end of five years is \$99 million. However, there is a 5% chance that the balance  
7 would be greater than \$179 million and a 5% chance that the balance would be  
8 less than negative (\$104 million). The uncertainty about actual future storm  
9 damage does not detract from the fact that this type of simulation modeling is the  
10 best method available to estimate future storm losses.

11  
12 **Q. Please comment on Mr. Marz' statement that a storm inflicting damage in**  
13 **the amount of approximately \$33 million is likely to occur once every 33**  
14 **years.**

15 A. This statement reflects a misinterpretation of Table 3-1 in the Study. First, the  
16 Study shows that there is a 3.3% probability of a storm season that causes  
17 aggregate losses greater than \$130 million. This is not necessarily a single storm,  
18 as Mr. Marz suggests, but it could be the result of multiple storms, such as  
19 occurred during the 2004 storm season. Second, while there is a 3.3% probability  
20 of a loss of this magnitude in any storm season, this does not imply that such  
21 losses will occur only at 33 year intervals. In any given season, there is a 3.3%  
22 probability of such a loss, and more than one severe storm season could occur in  
23 succession similar to the experience of the 2004-2005 seasons.

1

2 **Q. Does that conclude your rebuttal testimony?**

3 A. Yes, at this time.

4