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CHRIS SPROWLS
Speaker of the House of Representatives

May 31, 2022

Adam J. Teitzman, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: Docket No. 20220051-EI

Dear Mr. Teitzman,

Please find enclosed for filing in the above referenced docket the Direct Testimony and Exhibits of Kevin J. Mara, P.E. This filing is being made via the Florida Public Service Commission's Web Based Electronic Filing portal.

If you have any questions or concerns; please do not hesitate to contact me. Thank you for your assistance in this matter.

Sincerely,

Richard Gentry
Public Counsel

Charles J. Rehwinkel
Deputy Public Counsel

/s/Stephanie A. Morse
Stephanie A. Morse
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CERTIFICATE OF SERVICE
DOCKET NO. 20220051-EI

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished by electronic mail on this 31st day of May 2022, to the following:

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Review of Storm Protection Plan, pursuant to Rule 25-6.030, F.A.C., Florida Power & Light Company.	DOCKET NO. 20220051-EI FILED: May 31, 2022

DIRECT TESTIMONY

OF

KEVIN J. MARA, P.E.

ON BEHALF OF THE CITIZENS OF THE STATE OF FLORIDA

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DIRECT TESTIMONY

OF

KEVIN J. MARA

On Behalf of the Office of Public Counsel

Before the

Florida Public Service Commission

20220051-EI

I. INTRODUCTION

Q. WHAT IS YOUR NAME, OCCUPATION, AND BUSINESS ADDRESS?

A. My name is Kevin J. Mara. My business address is 1850 Parkway Place, Suite 800, Marietta, Georgia 30067. I am the Executive Vice President of the firm GDS Associates, Inc. ("GDS") and Principal Engineer for a GDS company doing business as Hi-Line Engineering. I am a registered engineer in Florida and 22 additional states.

Q. PLEASE STATE YOUR PROFESSIONAL EXPERIENCE.

A. I received a degree of Bachelor of Science in Electrical Engineering from Georgia Institute of Technology in 1982. Between 1983 and 1988, I worked at Savannah Electric and Power as a distribution engineer designing new services to residential, commercial, and industrial customers. From 1989-1998, I was employed by Southern Engineering Company as a planning engineer providing planning, design, and consulting services for electric cooperatives and publicly owned electric utilities. In 1998, I, along with a partner, formed a new firm, Hi-Line Associates, which specialized in the design and planning of electric distribution systems. In 2000, Hi-Line Associates became a wholly owned subsidiary of GDS Associates, Inc. and the name of the firm was changed to Hi-Line Engineering, LLC.

In 2001, we merged our operations with GDS Associates, Inc., and Hi-Line Engineering became a department within GDS. I serve as the Principal Engineer for Hi-Line Engineering and am Executive Vice President of GDS Associates. I have field experience in the operation, maintenance, and design of transmission and distribution systems. I have performed numerous planning studies for electric cooperatives and municipal systems. I have prepared short circuit models and overcurrent protection schemes for numerous electric utilities. I have also provided general consulting, underground distribution design, and territorial assistance.

Q. PLEASE DESCRIBE GDS ASSOCIATES, INC.

A. GDS is an engineering and consulting firm with offices in Marietta, Georgia; Austin, Texas; Auburn, Alabama; Orlando, Florida; Manchester, New Hampshire; Kirkland, Washington; Portland, Oregon; and Madison, Wisconsin. GDS has over 170 employees with backgrounds in engineering, accounting, management, economics, finance, and statistics. GDS provides rate and regulatory consulting services in the electric, natural gas, water, and telephone utility industries. GDS also provides a variety of other services in the electric utility industry including power supply planning, generation support services, financial analysis, load forecasting, and statistical services. Our clients are primarily publicly owned utilities, municipalities, customers of privately owned utilities, groups or associations of customers, and government agencies.

Q. HAVE YOU TESTIFIED BEFORE ANY REGULATORY COMMISSIONS?

A. I have submitted testimony before the following regulatory bodies:

- Vermont Department of Public Service
- Florida Public Service Commission

- Federal Energy Regulatory Commission ("FERC")
- District of Columbia Public Service Commission
- Public Utility Commission of Texas
- Maryland Public Service Commission
- Corporation Commission of Oklahoma

I have also submitted expert opinion reports before United States District Courts in California, South Carolina, and Alabama.

Q. HAVE YOU PREPARED AN EXHIBIT DESCRIBING YOUR QUALIFICATIONS AND EXPERIENCE?

A. Yes. I have attached Exhibit KJM-1, which is a summary of my regulatory experience and qualifications.

Q. ON WHOSE BEHALF ARE YOU APPEARING?

A. GDS Associates, Inc., was retained by the Florida Office of Public Counsel (“OPC”) to review Florida Power & Light’s ("FPL" or "Company") proposed 2023-2032 Storm Protection Plan (“SPP” or “Plan”) on behalf of the OPC. Accordingly, I am appearing on behalf of the Citizens of the State of Florida.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. I am presenting OPC's recommendations regarding FPL’s proposed 2023-2032 Storm Protection Plan. My testimony serves to refute the testimony presented by Michael Jarro regarding the scope of the SPP projects and whether the programs and projects could qualify to be included in the SPP.

Q. WHAT INFORMATION DID YOU REVIEW IN PREPARATION OF YOUR TESTIMONY?

A. I reviewed the Company's filing, including the direct testimony and exhibits. I also reviewed the Company's responses to OPC's discovery and other materials pertaining to the SPP and its impacts on the Company. In addition, I reviewed Section 366.96, Florida Statutes, which requires the filing of the SPP and authorized the Commission to adopt the relevant rules, including Rule 25-6.030, Florida Administrative Code ("F.A.C."), which addresses the Commission's approval of a Transmission and Distribution SPP that covers a utility's immediate 10-year planning period, and Rule 25-6.031, F.A.C., which addresses the utilities' recovery of costs related to their SPPs.

Q. PLEASE DESCRIBE HOW THE REMAINDER OF YOUR TESTIMONY IS ORGANIZED.

A. I first discuss the purpose of storm hardening and an SPP as informed by Rule 25-6.030, F.A.C., and criteria needed for storm hardening projects. I then discuss principles to be applied when reviewing FPL's proposed SPP. I also address the level of spending by FPL. Finally, I discuss my analysis of the programs proposed in the SPP, including principles that should be applied when reviewing FPL's programs. In the discussion of the principles I applied, I include criteria that, in my expert opinion, the Commission must weigh to properly evaluate the sufficiency of the SPP and each SPP program under the statutes and rules governing the SPPs.

II. REVIEW THE PURPOSE OF STORM HARDENING

Q. PLEASE DISCUSS SECTION 366.96, FLORIDA STATUTES.

A. Section 366.96, Fl. Stat., addresses storm protection plan cost recovery for investor-owned utilities. The purpose of storm hardening is to "effectively reduce restoration costs and outage times to customers and improve overall service reliability for customers."[1]

The Florida Legislature has directed the Commission to consider "[t]he estimated costs and benefits to the utility and its customers of making the improvements proposed in the plan."[2] But there is no express ceiling or cap on the magnitude of the upgrades or improvements contained in the SPP or on the rate impact to the customers. Again, while the legislature left the ratemaking impact of both of these considerations to the Commission's discretion it appears that they gave the Commission direction and the tools to limit the utilities' spending in the SPP and SPPCRC approvals. As part of my testimony, I will present some recommended limits to the construction programs.

All of the utilities' SPPs are based on the premise that by investing in storm hardening activities the electric utility infrastructure will be more resilient to the effects of extreme weather events. This resiliency means lower costs for restoration from the storms and reduced outage times experienced by the customers. Some programs have a greater impact on reducing outages times and lowering restoration costs than other programs. Clearly, the goal is to invest in storm hardening activities that benefit the customers of the electric utilities at a cost that is reasonable relative to those benefits.

[1] Section 366.96 (1)(d), Florida Statutes.
[2] Section 366.96 (4)(c), Florida Statutes.

Q. PURSUANT TO SECTION 366.96, FL. STAT., THE COMMISSION ADOPTED RULE 25-6.030, F.A.C. PLEASE DISCUSS RULE 25-6.030, F.A.C., FROM YOUR PERSPECTIVE AS AN ELECTRIC UTILITY DISTRIBUTION ENGINEER.

A. Rule 25-6.030, F.A.C., mandates a storm protection program, which is a group of storm protection projects to enhance the utility's existing infrastructure for "the purpose of reducing restoration costs and reducing outages times associated with extreme weather conditions ... "[3] Further, a storm protection *project* is defined as a specific activity designed for enhancement of the system "for the purpose of reducing restoration costs and reducing outage times associated with extreme weather conditions ... "[4]

Clearly, this two-prong test to reduce restoration costs and reduce outage times as defined in Rule 25-6.030, F.A.C., must be applied to storm protection programs and projects. A project must accomplish both benefits, reduction in restoration costs, and reduction in outage time to be included in the SPP.

Logically, strengthening the electric utility infrastructure is a storm plan requirement and simply replacing like-for-like equipment with the same strength and functionality does not meet the requirements of Rule 25-6.020, F.A.C. The point of the SPP is to enhance the strength of the grid to withstand extreme weather conditions that result in high winds.

Thus, there are two criteria that must be central in each SPP program and project:

(1) Reduce restoration costs, and

(2) Reduce outage times.

Rule 25-6.030, F.A.C., requires utilities to provide budgets for programs and to provide the estimated reduction in restoration costs.[5] These amounts must be balanced

[3] Rule 25-6.030 (2)(a), F.A.C.
[4] Rule 25-6.030 (2)(b), F.A.C.
[5] Rule 25-6.030 (3)(d)(1), F.A.C.

against the benefits to the utilities' customers. Further, the two amounts will allow the Commission and stakeholders to understand the benefits of the capital investments for storm hardening relative to the "reasonableness" of the costs. Any program can purport to reduce outage costs and outage time; however, the program must be cost effective for customers to benefit. To summarize, the Rules require a two-prong test for consideration of a program: reduction in outage costs and reduction in outage time.

Q. CAN YOU PROVIDE AN ILLUSTRATIVE EXAMPLE OF HOW A STORM HARDENING PROJECT MEETS THE TWO CRITERIA OF RULE 25-6.030, F.A.C.?

A. Yes. Hardening means to design and build components of the system to a strength that would not normally be required. For instance, distribution poles per the NESC need only be built based on loading requirement of Rule 250B (60 MPH wind) and Grade C strength. Hardening would specify poles to be built based on loading requirements of Rule 250C extreme wind (120-140 MPH) and Grade B strength factors.[6] By installing poles with greater strength needed to meet this new design criteria, these hardened poles will reduce restoration costs because there will be fewer pole failures and will reduce restoration time because there will be fewer failed poles to repair.

Simply replacing a pole using the same loading requirements and same strength factors will not harden the system. A like-for-like replacement will result in a stronger pole only because it is new, but the performance of the like-for-like replacement will be the same over time. For instance, in transmission system hardening, many utilities are using non-wood poles (steel or concrete) to replace existing wood poles. The upgrade to non-wood poles is not required by the NESC, but these non-wood poles have proven to

[6] The loading of NESC Rule 250C and Grade B do not normally apply to distribution lines.

reduce outages and reduce outage times due the superior ability of the non-wood poles to survive during extreme windstorms.

Alternately, replacing aging infrastructure with new infrastructure of the same strength or purpose does not harden the system. This is because using the same strength components does not reduce outage times nor outage costs when compared to the original components.

Q. CAN YOU PROVIDE EXAMPLES OF ENHANCEMENTS TO AN ELECTRIC UTILITY SYSTEM WHICH DO NOT MEET THE CRITERIA SET FORTH IN RULE 25-6.030 F.A.C.?

A. Yes. Adding new sectionalizing equipment such as smart gird enhancements, SCADA systems and remotely operated air break switches (GOABs) do not reduce outages. The outage will still occur and will still need to be repaired. Thus, there is no change to the restoration costs. These devices only help to isolate a smaller portion of the system that is affected by the outage. Thus, the devices fail to meet the criteria in Rule 25-6.030, F.A.C. While the devices do reduce outage times, they fail to reduce outage costs. Further, adding sectionalizing equipment does not strengthen or harden the system.

Another example is replacement of a bridge on an access road. The bridge does not reduce outages. It can help with access to the transmission right-of-way. However, that purpose of the bridge originally was and continues to be to allow access. Replacing the bridge to allow access does not change its purpose. The utility has a responsibility to maintain its infrastructure and if the bridge is old and in disrepair, it needs to be replaced as a normal course of business and would not qualify as a storm protection project.

While not proposed in FPL's filing, the following is an example to illustrate how utilities could expand the SPP programs if the Commission does not adhere to the stringent

two-prong test for the program. For example, purchasing a new replacement line truck which is more fuel efficient does not reduce outages. It could be argued that it reduces outage costs by being more fuel efficient. Also, since the truck is new, one could argue that it is more reliable and therefore would reduce outage times. However, this type of program does not reduce outages. It does not strengthen or harden the system, and in my opinion, would not meet the requirements of the statute.

Q. WHAT OTHER TYPES OF PROGRAMS DO YOU BELIEVE SHOULD BE EXCLUDED FROM THE SPP PROGRAMS?

A. An electric utility has as a core responsibility to maintain a safe operating system. To that end, aging infrastructure and deteriorated equipment needs to be maintained in safe operating condition. Failure to meet this core responsibility puts the public at risk. However, simply replacing old equipment does not constitute storm hardening. The approved storm hardening programs started with replacement of old poles with stronger poles designed for extreme wind experienced during storms above what is necessary to meet the requirements of the National Electrical Safety Code. This hardening was characterized by stronger than required components and timed improvements such that as poles failed inspection, the system would be naturally strengthened over a period of time.

Q. CAN ALL COSTS THAT REDUCE OUTAGE COSTS, REDUCE OUTAGE TIMES AND STRENGTHEN THE ELECTRIC UTILITY INFRASTRUCTURE BE INCLUDED IN THE SPP AND SPPCRC?

A. Section 366.96, Florida Statutes, and Rule 25-6.030, F.A.C., provide no overt governance regarding limitations to the costs of SPP programs. It is imperative that the Commission consider guidelines to limit the magnitude of each program's costs compared to its benefits.

For this reason, and on behalf of the customers who must bear these costs against the level of projected benefits, elsewhere in my testimony, I propose my limits to projects for the Commission to consider in the public interest.

Q. DID FPL PROVIDE ANY SPECIFIC COST REUDCTION FOR THE PROGRAMS PROPOSED IN THE 2023-2032 SPP?

A. No. FPL did not include any estimate of the cost reduction of the programs. Rule 25-6.030(3)(d)1, F.A.C., specifically requires utilities to file plans "including an estimate of the resulting reduction in outage times and restoration costs due to extreme weather conditions." The rule further requires a comparison of the costs of the programs and the benefits of the programs.[7] Without an estimate of the cost reduction for outages, it is impossible for any party to make a judgment on prudence. Mr. Jarro claims that a purpose of his testimony is to provide a comparison of benefits and costs for each program.[8] Mr. Jarro did not provide this critical information regarding the estimated cost reduction for the programs. Nor is this information contained in FPL's 2023-2032 SPP. Without this data, FPL's SPP fails to meet the requirements of Rule 25-6.030 F.A.C.

FPL's 2023-2032 SPP provides simplistically written descriptions of program benefits which are budgeted in the billions of dollars. This lack of attention to detail to justify the expenditures and to demonstrate the cost effectiveness of the programs undermines the purpose of the SPP.

In my opinion, anyone can claim reduction in outage restoration costs, but in a regulatory setting with the need to comply with specific statutes, it is necessary and

[7] Rule 25-6.030 (3)(d)3 and Rule 25-6.030 (3)(d)4, F.A.C.
[8] Direct testimony of Michael Jarro, p. 4, lines 13-14.

expected that monetized values of these reductions during extreme weather events be provided.

Q. DID FPL PROVIDE ANY SPECIFIC REDUCTIONS IN OUTAGE TIMES FOR THE PROGRAMS PROPOSED IN THE 2023-2032 SPP?

A. No. FPL did not include any estimate of the reduction of outage times. Even though Rule 25-6.030(3)(d)1, F.A.C. mandates "including an estimate of the resulting reduction in outage times and restoration costs due to extreme weather conditions." I believe that the outage times should be monetized on a basis consistent with other utilities to help determine the benefits compared to the costs of the proposed storm hardening programs. FPL failed to provide an estimate, and instead provided only a statement of belief.

Q. WHAT IS YOUR RECOMMENDATION REGARDING THE LACK OF INFORMATION REGARDING THE REDUCTION IN OUTAGE COSTS AND REDUCTION IN OUTAGE TIME?

A. I recommend that FPL be required to amend their filing and provide the necessary data for each program as required by Rule 25-6.030 F.A.C., with an opportunity for intervenors to provide review and testimony.

Q. DID YOU COMPARE THE 10-YEAR CAPITAL COSTS OF FLORIDA POWER & LIGHT'S 2020-2029 SPP AND ITS 2023-2032 SPP?

A. Yes. I compared the combined budget for the 2020-2029 SPP filed by FPL and Gulf Power to the budget for FPL's 2023-2032 SPP. The table below shows an increase of 34% or about $3.5 billion in capital spending over the 10-year plan compared to the previous Plan. This 34% increase in capital costs will put greater pressure on customers' rates.

Capital	FPL and GP 2020-2029 SPP $million	Total 2023-2032 SPP $million	Difference	Percent Increase
Distribution Inspection Program	$ 593.80	$ 628.80	$ 35.00	6%
Transmission Inspection Program	$ 520.50	$ 657.20	$ 136.70	26%
Distribution Feeder Hardening Program	$ 3,499.30	$ 2,437.10	$ (1,062.20)	-30%
Distribution Lateral Hardening Program	$ 5,146.40	$ 9,388.50	$ 4,242.10	82%
Transmission Hardening Program	$ 600.80	$ 498.50	$ (102.30)	-17%
Distribution Vegetation Management Program	$ -	$ 28.40	$ 28.40	
Transmission Vegetation Management Program	$ -	$ -	$ -	
Substation Storm Surge/Flood Mitigation Progr	$ 23.00	$ 16.00	$ (7.00)	-30%
Distribution Winterization Program	$ -	$ 93.00	$ 93.00	New
Transmission Winterization Program	$ -	$ 44.60	$ 44.60	New
Transmission Access Enhancement Program	$ -	$ 115.80	$ 115.80	New
Total Capital	$ 10,383.80	$ 13,907.90	$ 3,524.10	34%

Q. HAVE YOU COMPARED THE CAPITAL COSTS ON A PER RATEPAYER BASIS FOR THE INVESTOR-OWNED UTILITIES THAT HAVE FILED SPP PLANS?

A. Yes. I looked at the ratio of capital spending to the number of customers for the 2020-2029 SPP and the 2023-2032 SPP for the electric utilities that filed plans. This information is in the following table:

Total 10-year Projected SPP Investment per Customer
Includes only Capital Investment

	Customers Total	2020 SPP 10-Year Capital $Millions	2020 SPP $/Customer	2023 SPP * 10-Year Capital $Millions	2023 SPP $/Customer
FPUC	32,993	N/A		$ 243	$ 7,369
Tampa Electric	824,322	$ 1,589	$ 1,928	$ 1,699	$ 2,061
Duke Energy Florida	1,879,073	$ 6,635	$ 3,531	$ 7,318	$ 3,894
Florida Power & Light	5,700,000	$ 11,244	$ 1,973	$ 13,908	$ 2,440

* FPUC's and TECO's plans dated 2022 for a 10-year period

While Tampa Electric and Duke had increases for the ten-year total just under 9%, FPL is showing an increase of 34%. The increase in spending by FPL of 34% is significant and will impact rate payers if left unchecked.

III. SUMMARY OF PROPOSED SPP REDUCTIONS

Q. CAN YOU SUMMARIZE YOUR PROPOSED REDUCTIONS IN FPL'S PROGRAMS?

A. The table below summarizes my recommendations to reduce FPL's 10-year SPP capital budget by $3.6 billion. These recommendations are detailed in my testimony.

Capital	Total 2023-2032 SPP $Millions	Reductions Proposed by Mara	Net 2023-2032 SPP $Millions	Reason for Reduction
Distribution Inspection Program	$ 629	$ -	$ 629	
Transmission Inspection Program	$ 657	$ -	$ 657	
Distribution Feeder Hardening Program	$ 2,437	$ -	$ 2,437	
Distribution Lateral Hardening Program	$ 9,389	$ (3,389)	$ 6,000	Limit impact to customers
Transmission Hardening Program	$ 499	$ -	$ 499	
Distribution Vegetation Management Program	$ 28	$ -	$ 28	
Transmission Vegetation Management Program	$ -	$ -	$ -	
Substation Storm Surge/Flood Mitigation Program	$ 16	$ (16)	$ -	Does not comply with 25-6.030
Distribution Winterization Program	$ 93	$ (93)	$ -	Does not comply with 25-6.030
Transmission Winterization Program	$ 45	$ (45)	$ -	Does not comply with 25-6.030
Transmission Access Enhancement Program	$ 116	$ (116)	$ -	Does not comply with 25-6.030
Total Capital	$ 13,907.9	$ (3,658.4)	$ 10,249.5	

The reductions I am proposing will result in reducing the capital cost per customer to $1,798, which is similar to the cost per customer for the combined FPL and Gulf Power 2020-2029 SPPs.

Q. IF LIMITS ARE PLACED ON THESE PROGRAMS SUCH AS LIMITING THE MAGNITUDE OF DEPLOYMENTS AND SHIFTING AGING INFRASTRUCTURE REPLACEMENT PROGRAMS TO STANDARD RATE BASE TREATMENT, DOES THAT REDUCE BENEFITS OF THE SPP?

A. Yes, it does. However, the reduction in benefits must be balanced against the impact to the ratepayers. In fact, the United States is experiencing its worst inflation in 40 years and consumers have seen steep increases in the price of gas and groceries, as well as escalating electric bills, specifically in Florida. Unless the Commission acts to limit the expenditures,

the unchecked spending on SPP programs will result in an excessive burden on the rate payers.

Q. DO THE BENEFITS OF THESE PROGRAMS SEEM TO BE DEPENDENT ON THE RETURN PERIOD OF THE EXTREME WEATHER EVENTS?

A. Yes, the magnitude of benefits is based on the return period of storms, meaning how frequently the electric utility's service area is impacted by a major storm. The goal is to reduce hurricane restoration costs that are imposed on customers. It is important to consider the recent history of weather events impacting Florida. After a catastrophic two-year period in 2004 and 2005, the Commission undertook to require storm hardening measures. As the companies began implementing these measures, Florida embarked on a 10-year period of relative quiet, with no major storms impacting the state until 2016.

In 2016, a five-year period of major storms began. Over this period the five investor-owned electric utilities have reported the following costs from named hurricanes and tropical storms:

Reported Costs from Named Tropical Storms for Each Florida Investor-Owned Utility
2016 Through 2020
$ Millions

	Storm	FPL	Duke	Gulf	TECO	FPUC	Total
2016	Matthew	310.3	40.0		1.0	0.6	351.9
2016	Hermine	21.2	28.6		5.7	0.0	55.5
2016	Colin - TS		3.6		2.5		6.1
2017	Irma	1,378.4	464.1		101.7	2.3	1,946.5
2017	Nate		5.3				5.3
2017	Cindy - TS					0.0	0.0
2018	Michael		316.5	427.7		67.3	811.5
2018	Alberto - TS		1.0				1.0
2019	Dorian	240.6 *	153.0 *			1.2 *	394.7
2019	Nestor - TS		0.6				0.6
2020	Sally			227.5			227.5
2020	Zeta			11.4			11.4
2020	Isaias	68.5	1.1				69.5
2020	Eta - TS	115.9	20.8				136.7
Total All Years		2,134.9	1,034.5	666.6	111.0	71.4	4,018.4

Note: The reported costs included above represent the actual total Company restoration costs included in each petition filed with the FPSC. They do not include reductions for costs capitalized or determined to be non-incremental (ICCA). They also do not include carrying charges or impacts from requested changes to storm reserve balances. Finally, they do not include changes due to later Company modifications, settlements, and/or any other FPSC action.

* Expenses are mostly all preparation costs because the storm did not make landfall in Florida.

FPL did provide an estimate for a range of avoided restoration expenses for the entire SPP 10-year period, which is from $406 million to a high of $3.082 million.[9] Over a 5-year period (2016 to 2020), FPL's restoration costs are $2.13 billion less $240 million spent in

[9] *See* Exhibit MJ-1, Appendix A Attachment 1.

preparation for Dorian which did not make landfall and where FPL did not incur significant damage. FPL's costs for extreme storm restoration from 2016 to 2020 are $1.89 billion. Comparing this 5-year total restoration cost to the 10-year SPP budget of $13.9 billion shows that the costs far exceeded the *possible* benefits. Further, the cost exceeds FPL's range of avoided costs. In fact, FPL's capital SPP investment for the 10-year period is $13.9 billion which is more than 3.4 times the total cost of all storms affecting all investor-owned utilities in Florida. Thus, ratepayers are paying more for the SPP and reduced storm costs compared to the electric utilities doing no storm hardening.

IV. REVIEW OF SPP PROJECTS

Q. CAN YOU DESCRIBE THE SUBSTATION STORM SURGE/FLOOD MITIGATION PROGRAM?

A. Yes. This program is designed to prevent/mitigate substation equipment damage and customer outages due to storm surge and flooding.[10] The program provides for raising the equipment at certain substations above the flood level and constructing flood protection walls around other substations.[11]

Q. WHAT IS YOUR UNDERSTANDING OF BUILDING A SUBSTATION IN COASTAL FLOOD ZONES?

A. The acquisition of land for a substation is always a challenge but the land needs to be suitable for safe and reliable electric service. The flood maps were not issued until 1973[12] so a substation constructed before 1973 would not have had standards requiring certain

[10] *See* Exhibit MJ-1, p. 51 of 63.
[11] *See* Exhibit MJ-1, p. 51 of 63.
[12] *See* Exhibit KJM-2, *A Chronology of Events Affecting the National Flood Insurance Program,* FEMA, pp. 14-15.

elevations. For example, the St. Augustine Substation was originally built in 1927 and rebuilt in 1969.[13] However, stations built after 1973 should have been designed with the knowledge of potential flood waters, and designs should have accounted for this predictable occurrence. Specifically, the *Standard ASCE-24-14 Flood Resistant Design and Construction* recommends the facilities to be designed for the Basic Flood Elevation (100-year flood level) plus two feet. Details of improvements are not required to be contained in the current SPP; thus no conclusion can be reached regarding prudence of the original design and the proposed mitigation plans.

Q. ARE THERE OTHER MEANS AVAILABLE TO REDUCE OUTAGE TIME FOR CUSTOMERS DUE TO FLOODING OF SPECIFIC SUBSTATIONS?

A. Yes. It is my belief that most of FPL's distribution system is designed for a single contingency failure which is consistent with design of modern distribution systems in suburban and urban areas. Single contingency means designing for the loss of one feeder or one substation transformer. Thus, if a transformer had to be de-energized for flooding it is very likely that the load from this substation can be switched to an adjacent substation that is not flooded. To the extent this is the case, the Substation Storm Surge/Flood Mitigation Program does not reduce outage time and therefore should be excluded from the SPP in accordance with the statute that contemplates reduction in outage time and restoration costs.

[13] Docket No.20200071-E1, FPL's Response to OPC's Fourth Set of Interrogatories, Interrogatory No. 214.

Q. WHAT IS YOUR RECOMMENDATION REGARDING THE SUBSTATION STORM SURGE/FLOOD MITIGATION PROGRAM?

A. I recommend inclusion of this program on a limited basis. The program should exclude any substation where there are alternate feeds to allow the substation to be de-energized due to flooding. The program should also exclude any substation that has not had a history of flooding or for which a flooding threat cannot be demonstrated. The exclusions from the program are substations that do not meet the requirements of Rule 25-6.030, F.A.C. for a known benefit of the project.

Q. CAN YOU DESCRIBE FPL'S WINTERIZATION PROGRAM THAT IS INCLUDED IN FPL'S 2023-2032 SPP?

A. Yes. FPL included two new programs in the 2023 SPP related to winterization: one for distribution winterization and another for transmission winterization. According to FPL, the new projects contained in FPL's 2023 SPP will focus on increasing capacity to certain T&D facilities to better meet the forecasted increase in demand associated with an extreme cold weather event.[14] Mr. Jarro claims that the intent is to mitigate restoration costs and outage times associated with extreme cold weather events similar to what occurred in Texas.[15] For the Distribution Winterization Program, FPL proposes a ten-year budget of $93 Million[16] and for the Transmission Winterization Program, FPL proposes a ten-year budget of $44.6 million.[17]

[14] Direct Testimony of Michael Jarro, p. 10, lines 11-13.
[15] Direct Testimony of Michael Jarro, p. 10, lines 18-20.
[16] *See* Exhibit MJ-1, Appendix C.
[17] *See* Exhibit MJ-1, Appendix C.

Q. IN YOUR OPINION DOES THE ENABLING LEGISLATION ALLOW FOR WINTERIZATION PROGRAMS?

A. No. Per Rule 25-6.030, the purpose of the SPP is to "strengthen the electric utility infrastructure to withstand extreme weather conditions by promoting the overhead hardening of electrical transmission and distribution facilities, the undergrounding of certain electrical distribution, and vegetation management."[18] Extreme weather conditions are not defined within the Rule; however, all of the mitigation programs described in the rule focus on hardening the systems for hurricanes and tropical storms with high winds. Section 366.96, Fla. Stat. provides guidance on the definition of extreme weather conditions in that the enabling legislation begins with the statement "[d]uring extreme weather conditions, high winds can cause vegetation and debris to blow into and damage electric transmission and distribution facilities, resulting in power outages."[19] Further 366.96(1)(b), Fla. Stat. also states that "a majority of power outages that occur during extreme weather conditions in the state are caused by vegetation blown by wind." Thus, it is clear that the extreme weather conditions contemplated by the statute are wind-driven events that directly impact the facilities themselves. There are no references to winter or hot summer events in the statute nor are there any references to very low temperatures or very high temperatures which could cause high load conditions.

[18] Rule 25-6.030 (3)(a), F.A.C.
[19] Section 366.96 (1)(a), Florida Statutes.

Q. CAN YOU DESCRIBE HOW PLANNING CRITERIA ARE USED IN THE DESIGN OF TRANSMISSION AND DISTRIBUTION SYSTEMS AS THEY RELATE TO THIS WINTERIZATION PROGRAM?

A. Yes. Normally, electric utilities develop load projections for planning studies often based on a 90/10 methodology which uses the highest peak in the last ten year period to help ensure that the load projection will meet the hottest summer (or winter) peak in a ten-year period. Often there are projections based on past system and regional peaks, which in Florida, are more often summer peaks. Some utilities also consider winter peaks depending on the loading of the system. These load projections, coupled with operational planning criteria, are used to determine when system components need to be upgraded. In this case, it appears that FPL is proposing to change its planning criteria to now include a winter event that FPL speculates will occur once every 35 years.[20] This change in planning criteria has resulted in projected overloads of system components that FPL apparently did not previously consider. This change in loading criteria results in what amounts to a request to spend $137.6 million in capital to increase capacity of electrical components for what appears to be an indeterminately low probability event. It is my understanding that FPL made no attempt to estimate the probability of an extreme cold event in the future.

Q. SHOULD INCREASED CAPACITY TO SERVE LOW PROBABILITY, LOW TEMPERTURE EVENTS BE INCLUDED IN THE SPP?

A. No. When there are increases in load on an electric utility system, the utility will increase capacity as needed to adequately serve customers. Increasing electrical capacity is not, in my view as an engineer, permitted by the controlling statute, as previously discussed. If

[20] See Exhibit KJM-5, FPL's Response to OPC's Fifth Request for Production of Documents, Production of Document No. 33, p. 10 of 28.

these base rate-type capacity upgrades resulting from a change in planning criteria for abnormal winter temperatures can be funded through the SPP, then logically, one would expect that nearly all new substations, existing substation capacity increases, transmission line upgrades, many distribution feeder upgrades, and upgrades to distribution transformers will all be funded through the SPP and SPPCRC rather than through a standard rate case, as would be required in the normal course of business. This is clearly not what the SPP process was intended to permit. In my opinion, FPL's budgets for the winterization programs will increase as loads grow in the future. Capacity increases are necessitated due to increased load which in turn leads to increased revenue to help offset the investment of the capital. Review of these investments compared to the load increases should be subject to a prudence review by stakeholders. Embedding these upgrades in an SPP cost recovery process eliminates the vital role of base rate prudence reviews for capacity increases.

Q. DID FPL DEMONSTRATE THAT RESTORATION COSTS ARE REDUCED AND THAT OUTAGE TIMES ARE REDUCED AS A RESULT OF THE DISTRIBUTION WINTERIZATION PROGRAM?

A. No. Rule 25-6.030(3)(a), F.A.C. and Rule 25-6.030(3)(d)(1), F.A.C. require utilities to describe how implementation of a proposed SPP program will reduce restoration costs and outage times, and to compare program costs to the benefits of the program. However, not only did FPL fail to show that there have been any historical outages due to winter events from electrical overloads on field transformers, voltage regulators, or substation transformers, but FPL also failed to show there have been any costs associated with the restoration of the alleged outages caused by overloaded field transformers, voltage regulators or transformers in its territory caused by winter events. Instead, FPL alleged that the historical "extreme" cold weather events limited availability of Florida purchases or

imports of electricity to meet increased demand and resulted in customer outages.[21] For the Distribution Winterization Program, FPL did not include any evidence regarding outages to customers from abnormally low winter temperatures. Nor did FPL provide evidence of failures of substation transformers, voltage regulators, phase reactors or field transformers.

In terms of mitigation, FPL only claimed that the Distribution Winterization Program will help mitigate restoration costs and outage times associated with what it characterizes as extreme cold weather events[22] without providing any evidence for this statement. Absent any evidence of outages, it is not possible to ascertain an improvement of the system performance during an abnormally low winter temperature. Specifically, the rule requires a reduction in restoration costs, and FPL has not provided any evidence of any restoration at all, hence there can be no reduction. Thus, there is no evidence that increasing the capacity of these distribution assets will reduce outage times or restoration costs.

Q. ARE YOU AWARE OF ANY EVIDENCE OF DISTRIBUTION SYSTEM OUTAGES ON FPL'S SYSTEM DUE "EXTREME" WINTER EVENTS?

A. Yes. In response to data requests by OPC, FPL provided a PowerPoint presentation entitled January 2010 Winter Analysis.[23] The analysis discussed outages occurring in and around a low temperature winter event from 12 years ago that occurred on January 10, 2010. For Gulf Power's service area, the outages primarily only required re-fusing to restore power rather than repair or replacement of system components. For overhead equipment, 69% of the outage causes did not result in the need to replace the transformer. The causes were

[21] *See* Exhibit MJ-1 p. 53 of 63.
[22] *See* Exhibit MJ-1, p. 54 of 63.
[23] *See* Exhibit KJM-3, FPL's Response to OPC's First Request for Production of Documents, Production of Document No. 1.

bad jumpers, bad connectors, fuse switches, etc. Normally, short-term overloading of a transformer does not require replacement of the unit.

FPL's analysis also noted that Gulf Power's outages were simply a result of a limitation of the feeder to carry the load and that no repair or restoration was needed, such as replacing poles during the event. FPL had 43 outages listed as equipment failure and these appear to be mostly related to bad jumpers and connectors.[24]

Q. WHAT IS FPL'S PROPOSED CRITERIA FOR REPLACING TRANSFORMERS DUE TO "EXTREME" WINTER EVENTS?

A. Based solely on FPL's response to OPC's request for production of documents,[25] it appears that FPL suggests using a multiplier of 1.35 on the projected summer peak to predict the winter peak. This proposed change in philosophy about sizing transformers results in a significant cost increase to rate payers. The method proposed by FPL is too simplistic for prudent engineering practice. An engineer should be aware of the types of loads (type of heating) at a particular transformer prior to using an across-the-board 1.35 multiplier on a projected summer load to make determinations about equipment replacement and upgrade. A transformer should be considered for replacement only after clearly researching and demonstrating the potential for a probable winter.

[24] *See* Exhibit KJM-3, FPL's Response to OPC's First Request for Production of Documents, Production of Document No. 1, (page 21 of the 2010 winter event or Bates FPL 000140).
[25] *See* Exhibit KJM-3, FPL's Response to OPC's First Request for Production of Documents, Production of Document No. 1 (page 15 of the 2010 winter event or Bates FPL 000133).

Q. DID FPL DEMONSTRATE BENEFITS FOR THE TRANSMISSION WINTERIZATION PROGRAM?

A. No. Rule 25-6.030(3)(a), F.A.C. and Rule 25-6.030(3)(d)(1), F.A.C. require utilities to describe how implementation of a proposed SPP program will reduce restoration costs and reduce outage times, and to compare program costs to the benefits of the program. As with the Distribution Winterization Program, FPL only noted limitations on imports of power during cold weather events and suggested those limitations caused outages.[26] FPL did not indicate any specific transmission outages caused by historical "extreme" cold weather events which will be solved by upgrading certain transmission lines.

Q. ARE YOU AWARE OF ANY EVIDENCE OF TRANSMISSION SYSTEM OUTAGES ON FPL'S SYSTEM DUE TO "EXTREME" WINTER EVENTS?

A. Yes. In response to data requests by OPC, FPL provided a PowerPoint presentation entitled January 2010 Winter Analysis.[27] The analysis discussed outages occurring in and around a low temperature winter event from 12 years ago that occurred on January 10, 2010.

There were only a few transmission outages during the event in January 2010 which resulted in 1.97 million customer minutes interrupted (CMI). [28] Approximately 70% of the CMI were caused by failure of substation equipment and the remaining 30% of the CMI was attributed to a deteriorated transmission line and thermal loading on two transmission lines resulting in service interruption of less than 100 minutes.[29] For system benefits, FPL claims the Transmission Winterization Program will enable FPL to better serve forecasted

[26] *See* Exhibit MJ-1, p. 53 of 63.
[27] *See* Exhibit KJM-3, FPL's Response to OPC's First Request for Production of Documents, Production of Document No. 1.
[28] *See* Exhibit KJM-3, FPL's Response to OPC's First Request for Production of Documents, Production of Document No. 1 (page 18 of the 2010 winter event or Bates FPL 000137).
[29] *See* Exhibit KJM-3, FPL's Response to OPC's First Request for Production of Documents, Production of Document No. 1 (page 18 of the 2010 winter event or Bates FPL 000137).

loads during postulated "extreme" cold weather that could become overloaded and fail. The proposed transmission capacity increases will not correct 70% of the CMI that occurred in 2010 and the total time for the winter related to transmission line outages for thermal loading was limited 110 minutes. It is important to note that in the 2010 event, no transmission conductor was replaced, and no transmission structures had to be repaired or replaced to restore electric service.

If a component is approaching its capacity limit, a properly designed system will isolate the component prior to failure. This type of isolation is totally different from extreme wind events which result in catastrophic failures of structures and conductors. With a system isolation, the restoration cost is minimal because the system component does not fail. Outage times during an isolation can occur, but simply reducing these outage times which have not been estimated nor considered does not justify this program as required by Rule 25-6.030, F.A.C.

Q. WHAT IS YOUR RECOMMENDATION REGARDING THE DISTRIBUTION AND TRANSMISSION WINTERIZATION PROGRAMS PROPOSED BY FPL?

A. I recommend that these newly proposed Distribution and Transmission Winterization programs be excluded from FPL's Storm Protection Plan. These programs were budgeted for $93 million and $44.6 million in capital respectively.

Q. CAN YOU DESCRIBE FPL'S TRANSMISSION ACCESS ENHANCEMENT PROGRAM THAT IS INCLUDED IN FPL'S 2023-2032 SPP?

A. Yes. This is a newly proposed program which is supposed to permit access to transmission facilities for restoration activities following an extreme weather event.[30] The projected capital budget for this program is $115.8 million.[31]

Q. HOW DOES FPL USE ITS TRANSMISSION RIGHT OF WAY?

A. Electric utilities such as FPL use transmission right-of-way to maintain a clear distance from vegetation and to maintain clearances to transmission conductors. In order to maintain structures, maintain the right of way (cutting brush and trees), and to inspect lines, utilities will have a means such as a road or access drive to accomplish these tasks. The maintenance of these roads and access points is a core function of an electric utility that owns transmission lines. When the line was originally constructed, large vehicles needed access to install poles and the access roads were established. The utility normally maintains this access into the future. For example, FPL has reported that 99% of the transmission structures in the former FPL service area are now steel or concrete due to the transmission hardening program.[32] To replace wood transmission poles with the newer steel or concrete poles, FPL needed access to the poles. It is not clear why FPL did not previously see the need to prudently maintain its access roads in the ordinary course of business to allow for replacement and maintenance of transmission structures in the future.

[30] *See* Exhibit MJ-1, p. 57 of 63.
[31] *See* Exhibit MJ-1, Appendix C.
[32] *See* Exhibit MJ-1, p. 39 of 63.

Q. DID FPL DESCRIBE ALTERNATIVES TO THE NEWLY PROPOSED TRANSMISSION ACCESS ENHANCEMENT PROGRAM?

A. Yes. FPL mentions the use of specialized equipment to access difficult terrain including track vehicles, large tire vehicles and floating equipment.[33] It is true that these vehicles often have limited availability during storm events.[34] However, purchasing and maintaining these vehicles may be more cost effective than expending $115.8 million in capital cost for maintenance of roads and bridges. Another concern is that the roads may not be passable for normal trucks due to high water but could be passable with specialized vehicles. In my opinion, this alternative needs to be fully explored and evaluated to determine the most prudent course of action before including the $115.8 million in the SPP.

Q. DID FPL DEMONSTRATE REDUCTION IN OUTAGE RESTORATION COSTS AND OR REDUCTION IN OUTAGE TIMES FOR THE TRANSMISSION ACCESS ENHANCEMENT PROGRAM?

A. No. In Section IV(K)(4), FPL listed the benefits associated with the Transmission Access Enhancement Program discussed in Section II(A) and Section IV(K)(1)(b). Section II(A) only discusses the existing SPP programs and does not address this new program.[35] Section IV(K)(1)(b) does not exist in the FPL filing. Section IV(K)(1) discusses benefits in vague terms with no defined outage time reduction or restoration cost reduction. Adding a culvert or bridge can increase access but if the right of way is flooded, it does not matter if there is a bridge or culvert and the investment of $115.8 million will have not resulted in enhanced access. Regarding the benefits of this new program, the storm analysis included

[33] *See* Exhibit MJ-1, p. 58 of 63.
[34] *See* Exhibit MJ-1, p. 58 of 63.
[35] *See* Exhibit MJ-1, p. 8 of 63.

as Appendix A to Exhibit MJ-1 is not applicable since the program did not exist at the time of that analysis.

Q. IN YOUR OPINION DOES REPLACEMENT OF BRIDGES AND IMPROVEMENTS TO ACESS ROADS CONSTITUTE ENHANCEMENTS?

A. No. An electric utility has a duty to maintain their infrastructure including roads. Replacing bridges, adding or modifying existing culvert, and re-building roads are not enhancement programs but rather simply maintaining infrastructure at the same status quo.

Storm hardening is about increasing the integrity of system components beyond what is normally required such as replacing a pole with pole stronger than that required by the NESC that will help reduce storm damage and storm damage restoration costs. Storm hardening in this portion of the business means more aggressive vegetation management or more frequent pole inspection. It is not clear why FPL has not maintained its access roads and bridges. Any reduction in outage times or restoration costs should be measured against a well-maintained infrastructure of roads and bridges. Since FPL is only bringing the existing status of inadequate or poor-quality roads and bridges to a well-maintained state, there is no reduction in storm restoration costs and no reduction in outage time. These projects to do not meet the two-prong test for Rule 25-6.030, F.A.C., which requires a reduction in restoration costs and a reduction in outage time when compared to the *status quo*.

Another consideration, similar to the rationale underlying the winterization proposal, is that if this program truly adds benefits of better access, then a similar program could be justified for building roads, bridges, and culverts to any hard to access distribution line. Obviously, distribution lines impact fewer customers, but if the only justification needed is claiming reduction of restoration time, then the program could easily be

expanded to distribution lines. As guardians of the SPP, the Commission should resist creating this slippery slope as a means of minimizing customer rate impacts caused by "mission creep."

For these reasons, it is my opinion, that FPL fails to meet the requirements of Rule 25-6.030(3)(d)(4), F.A.C.

Q. WHAT IS YOUR RECOMMENDATION REGARDING THE TRANSMISSION ACCESS ENHANCEMENT PROGRAM PROPOSED BY FPL?

A. I recommend that the newly proposed Transmission Access Enhancement program with a capital budget of $115.8 million be excluded from the Storm Protection Plan.

Q. CAN YOU DESCRIBE THE DISTRIBUTION LATERAL HARDENING PROGRAM?

A. Yes. This program was introduced as part of FPL's 2018 Storm Hardening Plan as the Storm Security Underground Plan (SSUP) pilot that was identified as a program targeting certain overhead laterals that were impacted by recent storms, and which have a history of vegetation-related outages and other reliability issues, for conversion from overhead to underground.[36] In the Settlement of the 2022 SPP, this plan was renamed Distribution Lateral Hardening pilot program.[37] The pilot was to extend to the end of 2022.[38] Thus, the Distribution Lateral Hardening Program is actually a new program to the current SPP. This program now has two options for existing overhead laterals; harden the overhead lateral[39] or underground the lateral. The hardening option is not well-defined in FPL's

[36] *See* Exhibit MJ-1, p. 29 of 63.
[37] *See* Exhibit KJM-4, Order No. PSC-2020-0293-AS-EI, issued August 28, 2020, in Docket No. 20200092-E1, p. 5 (a.k.a. 2020 Settlement Order for SPP).
[38] *See* Exhibit MJ-1, p. 29 of 63.
[39] *See* Exhibit MJ-1, p. 28 of 63.

filing but appears similar to the performance standards for hardening an overhead feeder. The scope for undergrounding laterals is similar to the scope for undergrounding used for the pilot program.

Q. CAN YOU DESCRIBE WHAT IS MEANT BY THE TERM LATERAL?

A. Yes. The term lateral is critical to understanding the purpose of the Distribution Lateral Hardening program. A distribution circuit can be described as a combination of the mainline feeder with laterals stemming from the main line. The Distribution Feeder Hardening program increases the strength of the feeder from the substation to some point further along the circuit, such as a three-phase tie point with another circuit. Some describe the mainline feeder as the first zone of protection out of the substation, meaning the breaker in the substation protecting the entire circuit will trip for any fault in this zone of protection. Thus, by hardening the first zone of protection, it greatly reduces the chance of a structure failure during an extreme wind event which could cause an extended outage for all customers served by the circuit. Simply, laterals are taps off the main line and FPL has 27,000 miles of laterals on its system compared to approximately 14,000 miles of mainline feeders.[40] These laterals can be single-phase taps into residential neighborhoods or three-phase taps to subdivisions or businesses. Many of the laterals are behind customers' premises. The design goal is this: by hardening/strengthening the mainline feeder and undergrounding the laterals, the circuit will have fewer outages from a major wind event.

[40] *See* Exhibit MJ-1, p. 27 of 63.

Q. WHAT IS THE MAGNITUDE OF THE DISTRIBUTION LATERAL HARDENING PROGRAM?

A. The total 10-year capital budget is $9.39 billion.[41] This is an increase of 26% from the 2020 SPP which includes Gulf Power and FPL. The $9.39 billion capital expenditure is approximately 67% of FPL's total SPP budget for 2023-2032.

Q. WHAT BENEFIT IN TERMS OF REDUCTION IN OUTAGE RESTORATION COST AND REDUCTION IN OUTAGE TIME MAY RESULT FROM UNDERGROUNDING THESE LATERALS?

A. The benefit value is unknown. FPL did not meet the requirements of Rule 25-6.030, F.A.C. because the 2023-2032 SPP does not contain any estimate of the cost reduction to be realized from the Distribution Lateral Hardening program. This program, which is 67% of the total SPP budget, should have a magnitude in reduction in costs commensurate to the total budget.

FPL provides their estimate of the 40-year net present value to reducing storm recovery costs for the entire hardening program, and this value depends on the assumed frequency of storms (every 3 years or 5 years) and the type of storm (Hurricane Michael and Hurricane Irma). The range of FPL's analysis shows a low of $406 million and a high of $3,082 million.[42]

Even at the highest range and including all hardening projects, the benefit to cost ratio ranges from 3% to 20% of the total hardening budget. In my opinion this suggests the benefit to cost ratio for undergrounding laterals will also range from 3% to 20%.

This ratio indicates that for every $5 spent only $1 in benefit is gained.

[41] *See* Exhibit MJ-1, Appendix C, p. 2.
[42] *See* Exhibit MJ-1, Appendix A Attachment 1.

Q. WHAT IS THE PRIORITY OF THE DISTRIBUTION LATERAL HARDENING PROGRAM?

A. FPL will prioritize based on an overall feeder performance methodology.[43] That is, FPL will identify the worst performing feeders and initially focus on these feeders. Starting in 2025, FPL proposes an additional selection methodology that targets hurricane-prone areas, highest concentration of customers, and areas that would require significant transit for out of state crews.[44] Once a feeder is identified, FPL will determine which laterals on the feeder will be undergrounded or hardened.[45]

Q. DO YOU AGREE WITH THE METHODOLOGY PROPOSED BY FPL FOR THE UNDERGROUNDING OF LATERALS?

A. No. Undergrounding power lines/laterals is an expensive proposition and one that should not be undertaken lightly. On average there 20-30 laterals on a feeder. The average cost to underground a lateral ranges from $653,875 to $871,833.[46] Thus, if a feeder will have all laterals undergrounded, the cost per feeder ranges from $13.0 million to $26.1 million.[47] The average feeder on FPL's system serves 1,593 customers,[48] which means the investment per customer ranges from $8,158 to $16,379. My point is that the dollars are concentrated such that only a few customers will see a reduction in customer outage minutes and enjoy the aesthetics and other benefits of an undergrounded system. The remaining customers only see a benefit cost ratio that is upside down meaning more costs than benefits.

[43] *See* Exhibit MJ-1, p. 36 of 63.
[44] *See* Exhibit MJ-1, p. 36 of 63.
[45] See Exhibit MJ-1, p. 35 of 63.
[46] *See* Exhibit MJ-1, Appendix C, p. 2.
[47] 20 times $653,875 for the low range and 30 times $871,833 for the high range.
[48] *See* Exhibit MJ-1, Appendix E (which was updated in early May).

This is a significant investment in a small portion of the system (one feeder) and in a single community. There needs to be a mechanism to help spread the undergrounding and hardening to more communities, which is important since all customers will be contributing to the cost of undergrounding.

Q. DO YOU HAVE A RECOMMENDATION FOR TRACKING COSTS ASSOCIATED WITH THE DISTRIBUTION LATERAL HARDENING PROGRAM?

A. Yes. This program should be separated into two projects. One for hardening overhead laterals and one for undergrounding laterals. There is a significant cost difference between hardening an overhead lateral and undergrounding a lateral. Tracking costs and reviewing the prudence of projects would be easier if these two distinct solutions are tracked separately.

Q. DO YOU HAVE A RECOMMENDATION FOR THE DISTRIBUTION LATERAL HARDENING PROGRAM?

A. Yes. I recommend reducing the budget for the Distribution Lateral Hardening program. I recommend a capital budget of roughly $6.0 billion. Essentially, my recommendation uses the same budgets proposed by FPL for the first 2 years (2023 to 2024) and then caps the annual spending for this program to roughly $606 million per year for the years 2025 to 2032. This recommended budget is shown in the following table.

Overhead Lateral Hardening

Year	FPL 2023 SPP $millions	Recommended 2023 SPP $millions
2023	$ 523	$ 523
2024	$ 628	$ 629
2025	$ 758	$ 606
2026	$ 889	$ 606
2027	$ 1,019	$ 606
2028	$ 1,049	$ 606
2029	$ 1,081	$ 606
2030	$ 1,113	$ 606
2031	$ 1,147	$ 606
2032	$ 1,181	$ 606
Total	**$ 9,389**	**$ 6,000**

The basis for the reduction is two-fold. First, FPL has failed to demonstrate any cost reduction from outages due to this program of undergrounding laterals or hardening existing laterals. It is apparent from experiences in Florida that undergrounding and hardening poles will reduce outage costs and outage times, but the extent to which this will be true for the Overhead Lateral Hardening program is unknown, and therefore should be scaled back. Second, FPL's overall 2023 SPP has a high cost per customer and will result in higher rates for customers. Capping the spending is also necessary to relieve some of the rate impacts on customers and ensure the costs are reasonable, as required by the SPP statute.

Q. DOES THIS COMPLETE YOUR PREFILED TESTIMONY?

A. Yes, it does.

GDS Associates, Inc.
ENGINEERS & CONSULTANTS

KEVIN J. MARA, P.E.

Exec. Vice President & Principal Engineer

EDUCATION

BS Electrical Engineering, Georgia Institute of Technology, 1982

PROFESSIONAL MEMBERSHIPS

Institute of Electrical and Electronic Engineers Power Engineering Society – Senior Member

National Electric Safety Code Subcommittee 5 – Alternate Member

Past Member - Insulated Conductor Committee

PROFESSIONAL REGISTRATIONS

Registered Professional Engineer in Alabama, Arkansas, Georgia, Florida, Idaho, Indiana, Kansas, Kentucky, Louisiana, Michigan, Mississippi, Missouri, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, Washington, and Wisconsin.

AREAS OF EXPERTISE

Overhead and Underground Distribution Design, Distribution System Planning, Power System Modeling and Analysis, Training

DESIGN

Mr. Mara has over 30 years of experience as a distribution engineer. He worked six years at Savannah Electric as a Distribution Engineer and ten years with Southern Engineering Company as a Project Manager. At Savannah Electric, Mr. Mara gained invaluable field experience in the operation, maintenance, and design of transmission and distribution systems. While at Southern Engineering, Mr. Mara performed planning studies, general consulting, underground distribution design, territorial assistance, and training services. Presently, Mr. Mara is a Vice President at GDS Associates, Inc. and serves as the Principal Engineer for GDS Associates' engineering services company known as its trade name Hi-Line Engineering.

Overhead Distribution System Design

Mr. Mara is in responsible charge of the design of distribution lines for many different utilities located in a variety of different terrains and loading conditions. Mr. Mara is in responsible charge of the design of over 100 miles of distribution line conversions, upgrades, and line reinsulation each year. Many of these projects include acquisition of right-of-way, obtaining easements, and obtaining permits from various local, state and federal agencies. In addition, Mr. Mara performs inspections at various stages of completion of line construction projects to verify compliance of construction and materials with design specifications and applicable codes and standards.

Underground Distribution System Design

Mr. Mara has developed underground specifications for utilities and was an active participant on the Insulated Conductor Committee for IEEE. He has designed underground service to subdivisions, malls, commercial, and industrial areas in various terrains. These designs include concrete-encased ductlines, direct-burial, bridge attachments, long-bores, submarine, and tunneling projects. He has developed overcurrent and overvoltage protection schemes for underground systems for a variety of clients with different operating parameters.

PLANNING

Mr. Mara has prepared numerous planning studies for electric cooperatives and municipal systems in various parts of the country. The following is a representative list of specific projects:

- Little River Electric Cooperative, SC
  - Long Range Plan
  - Four Construction Work Plans
- Maxwell AFB, AL - Long Range Plan
- Fall River Electric, ID – Long Range Plan
- Chugach Electric, AK - Long Range Plan
- Newberry Electric Cooperative, SC - Construction Work Plan, Long Range Plan
- Lackland AFB, TX - Long Range Plan
- Rio Grande ECI, TX - Construction Work Plan, Long Range Plan
- Northern Virginia Electric Cooperative, VA - Construction Work Plan
- BARC Electric Cooperative - Construction Work Plan
- Dixie Electric Cooperative - Construction Work Plan
- Joe Wheeler Electric Cooperative - Construction Work Plan
- Cullman Electric Cooperative - Long Range Plan, Construction Work Plan

TRAINING SEMINARS

Mr. Mara has developed engineering training courses on the general subject of distribution power line design. These seminars have become extremely popular with more than 25 seminars being presented annually and with more than 4,000 people having attended seminars presented by Mr. Mara. A 3-week certification program is offered by Hi-Line Engineering in eleven states. The following is a list of the training material developed and/or presented:

- Application and Use of the National Electric Safety Code
- How to Design Service to Large Underground Subdivisions
- Cost-Effective Methods for Reducing Losses/Engineering Economics
- Underground System Design
- Joint-Use Contracts – Anatomy of Joint-Use Contract
- Overhead Structure Design
- Easement Acquisition
- Transformer Sizing and Voltage Drop

Construction Specifications for Electric Utilities

Mr. Mara has developed overhead construction specifications including overhead and underground systems for several different utilities. The design included overcurrent protection for padmounted and pole mounted transformers. The following is a representative list of past and present clients:

- Cullman EMC, Alabama
- Blue Ridge EMC, South Carolina
- Buckeye Rural Electric Cooperative, Ohio
- Three Notch EMC, Georgia
- Little River ECI, South Carolina
- Lackland Air Force Base
- Maxwell Air Force Base

System Privatization/Evaluation

- Central Electric Power Cooperative, Columbia, SC
  - 2017 Independent Certification of Transmission Asset Valuation, Silver Bluff to N. Augusts 115kV
  - 2015 Independent Certification of Transmission Asset Valuation, Wadmalaw 115kV
- Choctawhatchee Electric Cooperative, DeFuniak Springs, FL
  - Inventory and valuation of electrical system assets at Eglin AFB prior to 40-year lease to private-sector entity.

Publications

- Co-author of the NRECA "Simplified Overhead Distribution Staking Manual" including editions 2, 3 and 4.
- Author of "Field Staking Information for Overhead Distribution Lines"
- Author of four chapters of "TVPPA Transmission and Distribution Standards and Specifications"

Testimonies & Depositions

Mr. Mara has testified as an expert at trial or by deposition in the following actions.

- Deposition related to condemnation of property
  Newberry ECI v. Fretwell, 2005
  State of South Carolina

- Testimony in Arbitration regarding territory dispute
  Newberry ECI v. City of Newberry, 2003
  State of South Carolina
  Civil Action No. 2003-CP-36-0277

- Expert Report and Deposition, 2005
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  Case No CIV F-o1-5167 OWW DLB

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  United States District Court of South Carolina
  Case No. 1:05-1509-MBS

- Affidavit October 2007
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- Affidavit February 26, 2008
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- Direct Filed Testimony date December 15, 2006
  Before the Public Utility Commission of Texas
  SOAH Docket No 473-06-2536
  PUC Docket No. 32766
- Expert Report and Direct Testimony April 2008
  United States Tax Court
  Docket 25132-06
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- Direct Testimony September 17, 2009
  Public Service Commission of the District of Columbia
  Formal Case 1076
  Reliability Issues
- Filed Testimony regarding the prudency of hurricane restoration costs on behalf of the City of Houston, TX, 2009
  Cozen O'Connor P.C.
  TX PUC Docket No. 32093 – Hurricane Restoration Costs
- Technical Assistance and Filed Comments regarding line losses and distributive generation interconnection issues, 2011
  Office of the Ohio Consumer's Counsel
  OCC Contract 1107, OBM PO# 938 for Energy Efficiency T & D
- Technical Assistance, Filed Comments, and Recommendations evaluating Pepco's response to Commission Order 15941 concerning worst reliable feeders in the District of Columbia.
  2011, 2012 Office of the People's Counsel of the District of Columbia
  Formal Case No. 766
- Technical Assistance, Filed Comments, and Recommendations on proposed rulemaking by the District of Columbia PSC amending the Electric Quality of Service Standards (EQSS), 2011.
  Office of the People's Counsel of the District of Columbia
  Formal Case No. 766
- Yearly Technical Review, Filed Comments, and Recommendations evaluating Pepco's Annual Consolidated Report for 2011 through 2021.
  Office of the People's Counsel of the District of Columbia
  Formal Case Nos. 766; 766-ACR; PEPACR(YEAR)
- Technical Evaluation, Filed Comments, and Recommendations evaluating Pepco's response to a major service outage occurring May 31, 2011. (2011)
  Office of the People's Counsel of the District of Columbia
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- Technical Assistance, Filed Comments, and Recommendations evaluating Pepco's response to Commission Order 164261 concerning worst reliable neighborhoods in the District of Columbia, 2011.
  Office of the People's Counsel of the District of Columbia
  Formal Case No. 766
- Technical Review, Filed Comments, and Recommendations on Pepco's Incident Response Plan (IRP) and Crisis Management Plan (CMP), 2011.
  Office of the People's Counsel of the District of Columbia
  Formal Case No. 766

- Technical Assistance, Filed Comments, and Recommendations assessing Pepco's Vegetation Management Program and trim cycle in response to Oder 16830, 2012.
  Office of the People's Counsel of the District of Columbia
  Formal Case No. 766
- Technical Review, Filed Comments, and Recommendations on Pepco's Secondary Splice Pilot Program in response to Order 16426, 2012.
  Office of the People's Counsel of the District of Columbia
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- Technical Review, Filed Comments, and Recommendations on Pepco's Major Storm Outage Plan (MSO), 2012 - active.
  Office of the People's Counsel of the District of Columbia
  Formal Case No. 766
- Technical Assistance and Direct Filed Testimony for fully litigated rate case, 2011-2012.
  Office of the People's Counsel of the District of Columbia
  Formal Case No. 1087 – Pepco 2011 Rate Case. Hearing transcript date: February 12, 2012.
- Evaluation of and Filed Comments on Pepco's Storm Response, 2012.
  Office of the People's Counsel of the District of Columbia
  Storm Dockets SO-02, 03, and 04-E-2012
- Technical Assistance and Direct Filed Testimony for fully litigated rate case, 2013 - 2014.
  Office of the People's Counsel of the District of Columbia
  Formal Case No. 1103 – Pepco 2013 Rate Case. Hearing transcript date: November 6, 2013.
- Evaluation of and Filed Comments on Prudency of 2011 and 2012 Storm Costs, 2013 – 2014.
  State of New Jersey Division of Rate Counsel
  BPU Docket No. AX13030196 and EO13070611
- Technical Assistance and Direct Filed Testimony for DTE Acquisition of Detroit Public Lighting Department, 2013 – 2014.
  Office of the State of Michigan Attorney General
  Docket U-17437
- Evaluation of and Filed Comments on the Siemens Management Audit of Pepco System Reliability and the Liberty Management Audit, 2014.
  Office of the People's Counsel of the District of Columbia
  Formal Case No. 1076
- Expert witness for personal injury case, District of Columbia
  Koontz, McKenney, Johnson, DePaolis & Lightfoot LLP
  Ghafoorian v Pepco 2013 - 2016
  Plaintive expert assistance regarding electric utility design. operation of distribution systems and overcurrent protection systems.
- Technical Assistance and Direct Filed Testimony in the Matter of the Application for approval of the Triennial Underground Infrastructure Improvement Projects Plan, 2014 – 2017.
  Office of the People's Counsel of the District of Columbia
  Formal Case No. 1116
- Technical Assistance and Direct Filed Testimony in the Matter of the Merger of Exelon Corporation, Pepco Holdings, Inc., Potomac Electric Power Company, Exelon Energy Delivery Company, LLC and New Special Purpose Entity, LLC, 2014 – 2016.
  Office of the People's Counsel of the District of Columbia
  Formal Case No. 1119. Hearing transcript date: April 21, 2015.

- Technical Assistance to Inform and advise the OPC in the matter of the investigation into modernizing the energy delivery system for increased sustainability. 2015 - active
  Office of the People's Counsel of the District of Columbia
  Formal Case No 1130.
- Technical Assistance and Direct Filed Testimony in the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc., 2014 – 2016.
  State of Maryland and the Maryland Energy Administration
  Case No. 9361.
- Technical Assistance and Direct Filed Testimony for fully litigated rate case, 2015 – 2016.
  State of Oklahoma Office of the Attorney General
  Cause No. PUD 201500273 - OG&E 2016 Rate Case. Hearing transcript date: May 17, 2016.
- Technical Assistance and Filed Comments on Notice of Inquiry, The Commission's Investigation into Electricity Quality of Service Standards and Reliability Performance, 2016 - 2018.
  Office of the People's Counsel of the District of Columbia
  Formal Case No. 1076; RM36-2016-01-E.
- Technical Assistance and Direct Filed Testimony for fully litigated rate case, 2016 - 2017.
  Office of the People's Counsel of the District of Columbia
  Formal Case No. 1139 – Pepco 2016 Rate Case. Hearing transcript date: March 21, 2017.
- Technical Assistance in the Matter of the Application for approval of the Biennial Underground Infrastructure Improvement Projects Plan, 2017.- active
  Office of the People's Counsel of the District of Columbia
  Formal Case No. 1145
- Technical Assistance to Inform and advise the OPC Regarding Pepco's Capital Grid Project, 2017 - active.
  Office of the People's Counsel of the District of Columbia
  Formal Case No. 1144. Confidential Comments and Confidential Affidavit filed November 29, 2017.
- Expert witness for personal injury case Mecklenburg County, NC
  Tin, Fulton, Walker & Owen, PLLC
  Norton v Duke, Witness testimony December 1, 2017
- Technical assistance and pre-filed Direct Testimony on behalf of the Joint Municipal Intervenors in a rate case before the Indiana Utility Regulatory Commission.
  Cause No. 44967. Testimony filed November 7, 2017.
- Prefiled Direct Testimony and Prefiled Surrebuttal Testimony on behalf of the Vermont Department of Public Service in a case before the State of Vermont Public Utility Commission, Tariff Filing of Green Mountain Power Corp.
  Case No. 18-0974-TF. Direct Testimony Filed August 10, 2018. Surrebuttal Testimony Filed October 8, 2018.
- Technical assistance and pre-filed Direct Testimony on behalf of McCord Development, Inc. and Generation Park Management District against CenterPoint Energy Houston Electric, LLC in a case before the State Office of Administrative Hearings of Texas.
  TX PUC Docket No. 48583. Direct Testimony filed April 5, 2019.

- Technical Assistance, Direct Filed Testimony, Rebuttal Testimony, Surrebuttal Testimony, and Supplemental Testimony for fully litigated rate case, 2019 – active.
  Office of the People's Counsel of the District of Columbia
  Formal Case No. 1156 – Pepco 2019 Rate Case. Direct Testimony Filed March 6, 2020. Rebuttal Testimony Filed April 8, 2020. Surrebuttal Testimony Filed June 1, 2020. Supplemental Testimony filed July 27, 2020.
- Technical assistance and pre-filed Direct Testimony on behalf of The State of Florida Public Counsel for Review of 2020-2029 Storm Protection Plan pursuant to Rule 25-6.030, F.A.C.
  Docket No. 20200071-EI.
  Gulf Power SPP. Direct Testimony filed May 26, 2020.
  Florida Power& Light Company SPP. Direct Testimony filed May 28, 2020.
- Prefiled Direct Testimony on behalf of the Vermont Department of Public Service in a case before the State of Vermont Public Utility Commission, Petition of Green Mountain Power for approval of its climate Plan pursuant to the Multi-Year Regulation Plan.
  Case No. 20-0276-PET. Direct Testimony Filed May 29, 2020.
- Technical assistance and Filed Comments on behalf of East Texas Electric Cooperative on a Proposal for Publication by the Public Utility Commission of Texas on Project 51841 Review of 16 TAC § 25.53 Relating to Electric Service Emergency Operations Plans.
  Project 51841. Comments filed January 4, 2022.
- Technical assistance, filed affidavit and direct testimony on behalf of Bloomfield, NM in an action concerning Bloomfield's exercise of its right to acquire from Farmington the electric utility system serving Bloomfield.
  Bloomfield v Farmington, NM. State of New Mexico, County of San Juan, Eleventh Judicial District Court Action No. D-1116-CV-1959-07581.
- Technical assistance and pre-filed Direct Testimony on behalf of Sawnee EMC in a territorial dispute with Electrify America.

A Chronology of Major Events Affecting the National Flood Insurance Program

December 2005

Completed for the Federal Emergency Management Agency Under Contract Number 282-98-0029

The American Institutes for Research
The Pacific Institute for Research and Evaluation
Deloitte & Touche LLP

Acronyms
CRS
FEMA
FHBM
FIA
FIMA
FIRM
FY
GAO
NFIP
PL
SFHA
TVA
USGS
WYO

Community Rating System
Federal Emergency Management Agency
Flood Hazard Boundary Map
Federal Insurance Administration
Flood Insurance and Mitigation Administration
Flood Insurance Rate Map
Fiscal year
General Accounting Office
National Flood Insurance Program
Public Law
Special Flood Hazard Area
Tennessee Valley Authority
United States Geological Survey
Write Your Own

Please inform Marion Chastain (mchastain@air.org) of all errors and significant omissions.

Date

1824

In Gibbons v. Ogden, the U.S. Supreme Court construes the Constitution's commerce clause (Article I, Section 8) to permit the federal government to finance and construct river improvements. Within two months, Congress appropriates funds and authorizes the Corps of Engineers to remove certain navigation obstructions from the Ohio and Mississippi Rivers.

1849-50

The Swamp Land Acts of 1849 and 1850 transfer swamp and overflow land from federal control to most state governments along the lower Mississippi River on the condition that the states use revenue from the land sales to build levees and drainage channels. The Acts require no federal funds.

1853

Charles S. Ellet, Jr., a leading civil engineer, produces a congressionally man-

dated report on the Ohio and Mississippi Rivers, insisting that the flood problem is growing as cultivation increases. He suggests enlarging natural river outlets, constructing higher and stronger levees, and building a system of headwaters reservoirs on the Mississippi River and its tributaries. Most engineers of the period disagree.

1861

In a Report upon the Physics and Hydraulics of the Mississippi River, Captain Andrew A. Humphreys, Corps of Topographical Engineers, and Lieutenant Henry L. Abbott support the completion of the existing levee system and exclude alternative flood controls, partly for economic reasons. The emphasis on levees represents the primary focus of U.S. policy on flood control well into the 20th century.

1866

Captain Humphreys becomes Chief of Engineers of the U.S. Army and labors to quash opposition to the “levees-only” policy he advocates.

1879

Congress creates the Mississippi River Commission and gives it authority to survey the Mississippi and its tributaries, formulate plans for navigation and flood control, and report on the practicability and costs of the various alternative courses of action.

By 1890

The entire 700-mile, lower Mississippi Valley, from St. Louis to the Gulf of Mexico, is divided into state and locally organized levee districts.

1891

W. J. McGee, in “The Floodplains of Rivers,” published in Forum, XI, states that “as population has increased, men have not only failed to devise means for suppressing or for escaping this evil [flood], but have a singular shortsightedness, rushed into its chosen paths.”

1913

A flood in the Ohio River Valley kills 415 people and causes about $200 million in property loss. The flood spurs public interest in flood control, leading to the creation of basin-wide levee associations and other lobbying groups.

1916

The U.S. House of Representatives’ Committee on Flood Control is created. The committee becomes a forum for congressional proponents of flood control.

1917

A Flood Control Act (PL 64-367) is approved. Congress appropriates $45 million for a long-range and comprehensive program of flood control for the lower Mississippi and Sacramento Rivers. In doing so, Congress accepts federal responsibility for flood control. The Act includes a requirement for local financial contributions in flood-control legislation and authorizes the Corps of Engineers to undertake examinations and surveys for flood-control improvements and to provide information regarding the relation of flood control to navigation, waterpower, and other uses. The Act establishes important precedents and frameworks for the Flood Control Act of 1936 (see 7/1936).

1927

The Great Mississippi River Flood shows the limits of Humphreys’ “levees-

only" policy. The death toll is 246 but may have reached 500, more than 700,000 people are homeless, 150 Red Cross camps care for more than 325,000 refugees, and property damage exceeds $236 million. Nearly 13 million acres of land are flooded.

5/1928

Through a new Flood Control Act (PL 70-391), Congress adopts a flood-control plan that abandons the levees-only approach. The Act commits the federal government to pay for the construction of protective measures. The non-federal contribution is to provide rights-of-ways for the levees along the main stem. Levee districts and state governments will maintain the levees. Expenditures of $325 million are authorized.

1929

The private insurance industry abandons the coverage of flood losses.

5/1933

Congress creates the Tennessee Valley Authority (TVA)through PL 73-17 as a government corporation armed with the power to plan, build, and operate multipurpose development projects for water resources within the 40,000 square miles of the Tennessee River basin.

1933

In response to a major earthquake in California, and contrary to past traditions, Congress enacts legislation to provide direct assistance to private citizens suffering disaster damage by issuing federal loans through the Reconstruction Finance Corporation.

4/1934

In response to several disasters that befell communities in disparate parts of the country, Congress enacts PL 73-160, which makes $5 million in loans available to victims of all natural disasters, including floods.

7/1936

The Flood Control Act of 1936 (PL 74-738) provides for the construction of approximately 250 projects using funds for work relief. Congress appropriates $310 million to initiate construction and $10 million to complete examinations and surveys. The Act establishes a two-pronged attack on the problem of reducing flood damages: the Department of Agriculture will develop plans to reduce runoff and retain more rainfall and the Corps of Engineers will develop engineering plans for downstream projects. The Act represents the initial development of a national flood-control program.

1938

Harlan H. Barrows, one of 12 members on the Water Resources Committee (WRC), submits a report to the WRC President, expressing his views that good planning requires linking land and water use. A report submitted by the Ohio-Lower Mississippi Regulation Subcommittee, which Barrows chairs, states that, "if it would cost more to build reservoir storage than to prevent floodplain encroachment, all relevant factors considered, the latter procedure would appear to be the best solution."

1938

President Franklin Roosevelt forwards to the Water Resources Committee a Corps of Engineers' document calling for the construction of 81 reservoirs in the Ohio and Mississippi River basins. Barrows expresses concern that further studies are needed. The need for more studies temporarily ends further con-

struction proposals.

1942

Gilbert White finishes Human Adjustment to Floods: A Geographic Approach to the Flood Problem in the United States. He advocates, “adjusting human occupancy to the floodplain, and at the same time, of applying feasible and practicable measures for minimizing the detrimental impacts of floods.” He characterizes the prevailing national policy as “essentially one of protecting the occupants of floodplains against floods, of aiding them when they suffer flood losses, and of encouraging more intensive use of floodplains.”

9/1950

The Disaster Relief Act of 1950 (PL 81-875) provides “an orderly and continuing means of assistance by the Federal Government to States and local governments in carrying out their responsibilities to alleviate suffering and damage resulting from major disasters,” including floods. State governments must formally request the president to declare a major disaster. If granted, the federal government will then provide disaster assistance “to supplement the efforts and available resources of states and local governments in alleviating the disaster.” The law creates the first permanent system for disaster relief without the need for congressional action.

1950

An internal report from the TVA, Major Flood Problems in the Tennessee River Basin, notes that many communities have flood problems but because of insufficient development in flood-prone areas, flood-control projects cannot be justified. Gordon Clapp, Chairman of the TVA’s Board, responds, “What should TVA do, wait for development of the floodplains so that a flood control project could be justified?” He recommends circulating the report to solicit other reactions, particularly from the Division of Regional Studies.

After reviewing the report, Aldred J. Gray, director of the Division of Regional Studies, and a proponent of White’s concepts, proposes a different approach to the problem. TVA and state representatives will join in a technical appraisal of the possible application of flood data to planning programs. The joint appraisal will include research into the types and forms of flood information needed by state and local planning programs and how such data can be applied to community planning, land-use controls, and capital improvement programs. During its early work in this area, TVA coins the term “floodplain management.”

8/1951

Following massive flooding in Kansas and Missouri that causes more than $870 million in damage, President Harry Truman recommends the creation of a “national system of flood disaster insurance, similar to the war damage insurance of World War II.” In Truman’s words: “The lack of a national system of flood disaster insurance is now a major gap in the means by which a man can make his home, his farm, or his business secure against events beyond his control.” Truman proposes a system of flood insurance based on private insurance with re-insurance by the federal government.

1/1952

President Truman calls for the enactment of legislation to establish a federal flood insurance program and recommends that $50 million be appropriated to create a flood insurance fund.

5/1952

President Truman submits proposed legislation to Congress to establish a national system of flood-disaster insurance. The proposed legislation would establish a maximum amount of insurance of $25,000; establish rates to cover all

expenses, including a proper reserve for losses; and authorize federal agencies that make or guarantee loans to require borrowers to purchase flood insurance where it is available.

1953

The TVA embarks on a pioneering cooperative program to tackle local flood problems. In cooperation with each of the states in the Tennessee River's watershed, they prepare an initial list of 150 communities with significant flood problems and agree on an order for undertaking studies to identify flood hazards. Communities having the most urgent need can request a study of their flood problems from the TVA, which will fund the process. This offer, however, does not meet universal acceptance.

Circumstances surrounding these studies significantly retard the early progress of TVA's assistance program for floodplain management. To solve this impasse, two hypothetical floods are computed: the "maximum probable" and the "regional." The TVA uses the maximum probable flood to design flood-control works. This leads to development of a model by the TVA's engineers that is large enough to use in planning and that state planners believe to be fair and reasonable. The model is based on actual flood occurrences near the studied streams. The TVA's flood-hazard information reports developed during this period do not change substantially until the mid-1970s.

8/1954

The Watershed Protection and Flood Prevention Act (PL 83-566) authorizes flood-protection structures in upstream watersheds (defined as smaller than 250,000 acres). The Act also authorizes the U.S. Department of Agriculture's Soil Conservation Service (now the Natural Resources Conservation Service) to participate in comprehensive watershed management projects in cooperation with states and their subdivisions.

1954

Walter B. Langbein, an employee of the U.S. Geological Survey (USGS), designs a report format consisting of a map with pertinent text in the margins. This report becomes the Hydrologic Investigations Atlas No. 1 (HA-1). This successful format is often repeated in following years.

6/1955

PL 84-71, the Coastal and Tidal Areas – Survey – Damages Act, requires the Corps of Engineers to conduct a study of the behavior and frequency of hurricanes on the eastern and southern coasts and to assess "possible means of preventing loss of human lives and damages to property…."

1955

William G. Hoyt and Walter B. Langbein, two noted hydrologists, endorse White's concepts in their book, Floods, which traces the evolution of public flood-control policies, describes current problems, and suggests desirable changes. White characterizes their work as the first to synthesize the scientific information about floods.

1/1956

In a budget message to Congress, President Dwight Eisenhower recommends legislation to establish, on an experimental basis, an "indemnity and reinsurance program, under which the financial burden resulting from flood damage would be carried jointly by the individuals protected, the States, and the Federal Government." He requests $100 million to start the program.

8/1956

The Federal Flood Insurance Act of 1956 (PL 84-1016) directs the Housing and Home Finance Agency to establish a program of federal insurance and re-insurance against the risks of losses resulting from floods and tidal disasters. The program is intended to provide up to $10,000 in insurance per dwelling and to encourage private companies to provide coverage for risks above that amount. The cost of coverage for policyholders will be the same regardless of their location.

9/1956

The Housing and Home Finance Agency creates the Federal Flood Indemnity Administration to carry out tasks set forth in the Federal Flood Insurance Act of 1956.

1956

A study for the American Insurance Association on floods and flood losses strengthens insurers' conviction that flood insurance is not commercially fea-sible.

6/1957

In the absence of technical studies to determine the costs of starting a federal program for flood insurance, Congress does not appropriate any funds for the Federal Flood Indemnity Administration. As a consequence, the administration ceases to exist.

11/1958

A study by Gilbert White and his colleagues, Changes in Urban Occupancy of Flood Plains in the United States, reveals what had happened during the previ-ous two decades. With land-use pressures and few incentives to stay out of po-tential flood zones, occupancy in these zones is increasing, even in urban areas where population is declining. Federal incentives are creating a new perception that if a serious flood hazard develops, the federal government will deal with it.

11/1958

In Regulating Flood Plain Development, Francis C. Murphy notes that no more than eight communities had enacted floodplain zoning before 1955. By 1958, 49 communities had ordinances. To convince others of the need for more regulations, he argues that regulating development on the floodplain is a nec-essary and practicable way to reduce the drain of both floods and protective measures on the national economy. He observes that governments are reluctant to enact land-use management practices because they have no flood maps or other data that indicate the extent and character of local flooding.

12/1958

The growing loss of property and the cost of flood damage from several major hurricanes and floods convinces the Council of State Governments to recom-mend that one federal agency be directed by Congress to cooperate with other federal agencies and state governments to prepare reports providing data on the magnitude and frequency of floods in flood-prone areas.

1958

By this time, only seven states have enacted and are enforcing floodplain man-agement regulations, principally for narrow-channel encroachment areas.

1958

The Corps of Engineers prepares draft legislation providing for the systematic collection and dissemination of flood data as a new Corps' mission.

8/1959

The TVA submits a report to Congress proposing a program to reduce damages associated with floods (A Program for Reducing the National Flood Damage Potential: Memorandum of the Chairman to Members of the Committee on Public Works, U.S. Senate, 86th Cong., 1st Sess., 31 Aug. 1959). In its letter of transmittal, the TVA states that it "believes that local communities have the responsibility to guide their growth so that their future development will be kept out of the path of floodwaters. With the States and communities of the Tennessee Valley, TVA has developed a means of putting this proposition into action." Floodplain management formally enters the federal agenda with the report's submission.

1959

Floods at Topeka, Kansas (HA-14) is published, the first in a series flood atlases.

1959

The USGS adopts flood-inundation maps as a means to depict information about floods. Publishing such maps, which delineate boundaries of inundated areas, provide profiles of water surfaces, and show flood-frequency relations, becomes a standard means of reporting about floods.

7/1960

Amendments to the Flood Control Act contained in PL 86-645 authorize the Corps of Engineers to compile and disseminate information on floods and flood damages at the request of a state or responsible local agency. As a result of the Act, the Corps of Engineers establishes a Flood Plain Management Service and thus promotes the use of nonstructural measures for dealing with floods.

1960

John R. Sheaffer publishes the first comprehensive study on floodproofing, Flood Proofing: An Element in a Flood Damage Reduction Program.

1/1961

The U.S. Senate's Select Committee on National Water Resources issues a report on floodplain management. The report becomes the means through which the concepts of floodplain management are officially recommended. The report calls for major efforts in five categories. Among these are recommendations that the federal government delineate flood-hazard areas and encourage enactment of land-use regulations for floodplains.

1961

A flood atlas, Floods at Boulder, Colorado (HA-41), summarizes the results of a study of Boulder Creek in which areas inundated by floods of several frequencies were constructed synthetically from past records and physical surveys of the floodplain.

1962

The State of Washington enacts a law that provides for the establishment of flood-control zones when data are available.

8/1964

Following the "Good Friday" earthquake and subsequent seismic waves in Alaska in March, Congress ushers in the direct subsidy, or grant, as a federal

disaster relief policy through PL 88-451 (the 1964 Amendments to the Alaska Omnibus Act).

1964

Gilbert White's Choice of Adjustment to Floods, based on a field study in La-Follette, Tennessee, analyzes existing methods and practices and addresses alternative means of dealing with flood problems by occupants, communities, and federal agencies. His study aids the ongoing discussions and debates concerning the paths that should be taken and the ways of canvassing the whole range of alternatives for achieving desirable land use.

7/1965

The Water Resources Planning Act of 1965 (PL 89-90) creates the Water Resources Council (WRC), an independent agency composed of the secretaries of federal agencies with responsibilities for water resource management. Its purpose will be to study, coordinate, and review water and related land resource requirements, policies, and plans.

11/1965

The Southeast Hurricane Disaster Relief Act (PL 89-339) is passed in response to Hurricane Betsy and other hurricanes, which devastated the south in 1963 and 1964. The Act mandates the Secretary of the Department of Housing and Urban Development to "undertake an immediate study of alternative programs which could be established to help provide financial assistance to those suffering property losses in floods and other natural disasters, including alternative methods of Federal disaster insurance…."

1965

The TVA has prepared 92 reports on floodplains covering 112 communities. Forty-three of these communities have officially adopted floodplain regulations in their zoning ordinances, subdivision regulations, or both.

1965

California encourages "local levels of government to plan land use regulations to accomplish floodplain management and to provide state assistance and guidance as appropriate."

1965

The Bureau of the Budget's Task Force on Federal Flood Control Policy is established. It represents a significant step toward a unified federal policy for managing the nation's floodplains.

1965

The National Association of Insurance Commissioners' Flood and Hurricane Committee and National All-Industry Flood Insurance Committee are created.

8/1966

The Task Force on Federal Flood Control Policy, with Gilbert White as chair, issues A Unified National Program for Managing Flood Losses (U.S. House of Representatives, House Document 465, 89th Cong., 2nd Sess.). The report examines ways in which the federal government can decrease flood losses without large expenditures for flood control. It is supportive of state and local regulation of the use of lands exposed to flood hazard.

Concluding that federally subsidized insurance will provide an important incentive to local communities to participate in a flood insurance program, the report recommends a system of structural and nonstructural approaches to

flood control. In addition, the report recommends that a practicable national program of flood insurance be established and calls for an integrated program to manage losses from floods that would involve federal, state, and local governments and the private sector. The report also recommends a limited, experimental test of a national flood insurance program before nationwide implementation. The report warns, however, that "if misapplied an insurance program could aggravate rather than ameliorate the flood program." The report estimates that subsidies for existing high-risk properties will be required for approximately 25 years.

8/1966

Executive Order No. 11296, Evaluation of Flood Hazard in Locating Federally Owned or Financed Buildings, Roads, and Other Facilities, and in Disposing of Federal Lands and Properties, is issued. It directs federal agencies to provide leadership in encouraging an effort to prevent unnecessary use of the country's floodplains and to lessen the risk of flood losses; evaluate flood hazards; and develop procedures to ensure that flood-hazard evaluations are conducted before initiating federally financed or supported actions in floodplains.

8/1966

President Lyndon Johnson submits to Congress a feasibility study of a flood insurance program conducted by the Secretary of the Department of Housing and Urban Development and mandated by the Southeast Hurricane Disaster Relief Act (see 11/1965). The study, Insurance and Other Programs for Financial Assistance to Flood Victims, concludes that flood insurance is feasible and will promote the public interest. Flood insurance is viewed both as a means to help individuals bear the risks of flood damage and, equally, as a means to discourage unwise occupancy of floodplains. The report envisions a program of essentially private character but with continued large-scale participation of the federal government. The approach recommended would include subsidies of premiums for existing properties in high-risk areas. To encourage widespread purchase of flood insurance, the report further recommends that all "lending institutions entrusted with savings or deposits and under any form of Federal supervision…shall require in high-risk areas flood insurance at unsubsidized rates on all new mortgages based on new residences…."

1966

New Jersey authorizes a state agency to delineate and mark flood-hazard areas to identify reasonable and proper use of these areas according to their relative flood risk and to develop and disseminate other information on floodplains.

1966

Wisconsin enacts a comprehensive act providing for the adoption of a reasonable and effective zoning ordinance for floodplains by every county, city, and village before January 1, 1968.

5/1967

The Corps of Engineers publishes Guidelines for Reducing Flood Damages.

6/1967

The USGS publishes a 19-volume study of the magnitude and frequency of floods in the United States.

7/1967

Representatives of 26 federal agencies adopt a draft of Proposed Flood Hazard Evaluation Guidelines for Federal Executive Agencies. These guidelines deal with methodologies and standards to be used in developing information about flood hazards, including delineation of the floodplain, elevations that floods of

various magnitudes would reach, flood velocities, and the probability of floods of various magnitudes. Use of the 100-year flood as the base standard is first advocated. After receiving these guidelines, the Bureau of Budget asks the Water Resources Council to conduct a more detailed review, revise where appropriate, and issue the Guidelines (see 9/1969).

12/1967

The Water Resources Council (WRC) publishes Bulletin No. 15, A Uniform Technique for Determining Flood Flow Frequencies, a study prepared by its Hydrology Committee to determine the best methods to analyze the frequency of floods. The WRC adopts the techniques presented in the bulletin for use in all federal planning involving water and related land resources and recommends their use by state and local governments and private organizations.

8/1968

The Corps of Engineers, which has been mapping and identifying flood-prone areas since 1962, estimates that there are about 5,000 flood-prone communities in the United States.

8/1968

The National Flood Insurance Act of 1968 (Title XII of the Housing and Urban Development Act of 1968 [PL 90-448]) creates the National Flood Insurance Program (NFIP) and the Federal Insurance Administration (FIA) within the Department of Housing and Urban Development to provide flood insurance in communities that voluntarily adopt and enforce floodplain management ordinances by June 30, 1970, that meet minimum NFIP requirements.

Residents will be eligible for flood insurance after the NFIP identifies local flood-hazard areas and establishes actuarial rates. Occupants of structures in floodplains will have their premiums subsidized. Structures built in floodplains after the Act’s passage will pay actuarially based premiums.

Section 1360 of the 1968 Act authorizes the Secretary of the Department of Housing and Urban Development to consult with, receive information from, and enter into any agreements or other arrangements with heads of other federal departments or enter into contracts with any persons or private firms in order that he may identify and publish information with respect to all floodplain areas, including coastal areas located in the United States that have special flood hazards, within five years following the date of the Act’s approval.

Section 1361 authorizes the NFIP to develop criteria that states and communities can apply to deter development in flood-prone areas.

The Act also requires that flood-risk zones be established in all flood-prone areas and that rates of probable flood-caused losses be estimated for the various flood-risk zones for each of these areas within 15 years (i.e., by August 1,1983) following enactment.

Section 1302 (c) requires that “the objectives of a flood insurance program should be integrally related to a unified national program for floodplain management,” and directs that “… the President should transmit to Congress for its consideration any further proposals for such a unified program.” The Bureau of the Budget assigns responsibility to prepare such a proposal to the Water Resources Council.

Section 1314 denies disaster relief to persons who could have purchased flood insurance for a year or more and did not do so.

The Act creates the National Flood Insurance Fund in the Department of the Treasury. Premiums from the sales of flood insurance will be deposited into the fund, and losses, operating costs, and administrative expenses are paid out of the fund, which will operate without fiscal-year limitations. The NFIP is

authorized to borrow up to $1 billion from the Department of the Treasury to cover losses that exceeds the program's revenues. Presidential approval is required for loans exceeding $500 million.

8/1968

PL 90-448, the Urban Property Protection and Reinsurance Act of 1968 (part of the Housing and Urban Development Act of 1968), establishes the position of Federal Insurance Administrator within the Department of Housing and Urban Development.

12/1968

The Secretary of the Department of Housing and Urban Development delegates authority for administering the NFIP to FIA.

12/1968

The industry's flood insurance pool, the National Flood Insurers Association (NFIA), authorized in accordance with sections 1331 and 1332 of the National Flood Insurance Act, is created. Administered by the Insurance Services Office, membership in the NFIA is open to all qualified companies licensed to write property insurance under the laws of any state. The companies will sell and service policies written as part of the NFIP.

1968

The USGS begins to outline approximate floodplain boundaries on topographic maps. The USGS agrees to assist FIA in its mapping efforts by preparing detailed flood insurance studies, restudies, and limited detailed studies (completed when comprehensive studies cannot be justified).

1968

The Corps of Engineers creates a Floodplain Management Services Branch in the Planning Division of the Office of Chief of Engineers.

1/1969

The National Flood Insurance Program begins its operations.

2/1969

HUD's Federal Insurance Administration (FIA) publishes a proposed rule containing the first floodplain management criteria for the NFIP. The proposed rule does not mention the 100-year flood standard or any other flood standard.

5/1969

George K. Bernstein becomes the first Federal Insurance Administrator.

6/1969

The Final Rule regarding floodplain management criteria defines special flood hazard areas as the 100-year floodplain for mapping purposes. Communities are required to "take into account the relation between first floor elevations and the anticipated level of the 100-year flood" in developing floodplain management measures.

6/1969

The Department of Housing and Urban Development and the National Flood Insurers Association (NFIA) sign an agreement for the marketing of flood insurance policies and the adjustment of claims. Under the agreement, the NFIA will appoint a servicing company, generally on a statewide basis, to dissemi-

nate information on the insurance aspects of the program both to the public and to insurance agents, to process all insurance policies, and to handle the adjustment of claims for loss payments.

The first flood insurance policies are sold.

6-8/1969

The first communities joining the NFIP become eligible for participation using data from the USGS and Corps of Engineers. Metairie, Louisiana, and Fairbanks, Alaska, enter the NFIP on June 25. Alexandria, Virginia, enters on August 22 with Flood Insurance Rate Maps (FIRMs) based on Corps of Engineers' Floodplain Information Reports. Biloxi, Mississippi, and other communities along the Mississippi River become eligible for program participation at the end of 1969 with studies using data from the USGS. A FIRM is an official map of a community on which both the special hazard areas and the risk premium zones applicable to the community are delineated.

8/1969

Hurricane Camille strikes the Gulf Coast. In parts of Mississippi, water is 24 feet above the normal high tide. More than 250 people die because of the storm, which one retrospective analysis suggests may be "the most significant economic weather event in the world's history." No communities that suffer from flooding are covered by the NFIP.

8/1969

Congress approves the National Environmental Policy Act (NEPA) (PL 91-190), which declares environmental quality as a national goal and establishes a procedure to assess the environmental impacts of proposed federal projects and programs that could significantly affect the environment. NEPA lays the legislative and administrative foundation for evaluating environmental resources associated with river corridors and coastal zones.

9/1969

The Water Resources Council publishes a revised version of Flood Hazard Evaluation Guidelines for Federal Executive Agencies for federal agencies, states, and consultants to review through experimental use. The revised guidelines define the floodway as that portion of the floodplain needed to accommodate passage of the 1-percent annual chance flood without increasing the level of the flood by more than one foot.

12/1969

Section 408 of the Housing and Urban Development Act of 1969 (PL 91-152) provides for an "emergency program" (in contrast to the original or "regular" program) whereby limited amounts of subsidized insurance can be made available in participating communities before completion of detailed flood insurance studies and FIRMs (see 6-8/1969).

FIA will provide communities in the emergency program with Flood Hazard Boundary Maps (FHBMs). Such maps, which are based on available information, outline the areas estimated to be within the 100-year floodplain. FHBMs are less detailed than FIRMs, which are based on comprehensive flood insurance studies. A community will be eligible for the regular program when a FIRM is completed for that community.

The emergency program does not affect the requirement that such communities must adopt adequate floodplain management regulations. The law also postpones until December 31, 1971, the deadline for communities to enact measures for floodplain management that are necessary for continued participation in the NFIP and revises the definition of a flood to include inundation from mudslides. The deadline is subsequently extended several times.

12/1969

In an interpretation of congressional intent, FIA decides to use data provided by a local community to identify and map flood-prone areas so the community can participate in the emergency program. Thus, it becomes an accepted practice for FIA to issue a map delineating flood-hazard areas of a community if sufficient flood data exist. If sufficient flood data do not exist and there is adequate information to indicate a potential for destructive floods in a community, a map is issued that shows the entire community to be flood prone.

12/1969

Only four communities have joined the NFIP, and only 16 policies have been sold.

1/1970

Four communities are in the “regular program,” 16 flood insurance policies have been sold, and $392,000 of coverage is in force.

3/1970

NFIP regulations are published in the Federal Register. The regulations contain the first criteria for floodplain management. These criteria are general in nature and do not contain specific standards, as do current criteria. To maintain eligibility, participating communities must adopt measures for floodplain management compliant with these regulations no later than December 31, 1971.

12/1971

Almost 920 communities are eligible for coverage under the NFIP. More than 87,000 flood insurance policies are in effect with coverage totaling $1.4 billion.

1971

The Water Resources Council publishes the first volume of Regulation of Flood Hazard Areas to Reduce Flood Losses, which reports on a study that used regulations to guide adjustment of individual land uses to meet flood threats and avoid flood damages. The Council concludes that “the precise manner in which Federal flood insurance and land use controls will be integrated is unclear” and further notes that flood insurance “will not be an adequate substitute for guiding new development or regulating existing development in flood hazard areas.” The report includes draft statutes and local ordinances for regulation of land uses in riverine and coastal flood hazard areas.

5/1972

The Water Resources Council, after receiving comments on their use (see 7/1967), further revises and publishes Flood Hazard Evaluation Guidelines for Federal Executive Agencies.

6/1972

The Corps of Engineers publishes Flood-Proofing Regulations. State and local officials have subsequently requested more than 100,000 copies of this document.

6/1972

When Tropical Storm Agnes strikes the East coast, fewer than 1,200 communities participate in the NFIP, with only 95,000 policies and $1.5 billion of coverage in force. Consequently, less than 1 percent of insurable damages are covered. Agnes causes $400 million in structural damage, but only $5 million is

paid in flood insurance claims.

7/1972

The NFIP's subsidized rates for flood insurance are lowered by 37.5 percent to encourage increased participation in the program.

10/1972

Congress approves the Water Pollution Control Act Amendments of 1972 (PL 92-500). Section 404 provides protection for wetlands and supplements the Corps of Engineers' existing permitting program for activities in navigable waters, pursuant to Section 10 of the Rivers and Harbors Act of 1899. That Act required permits for the discharge of dredged or fill materials into all "waters of the United States." Later court decisions interpret this provision to include most of the nation's wetlands.

10/1972

Congress passes the Coastal Zone Management Act (PL 92-583), one of several acts that emphasize protection and enhancement of environmental quality.

1972

The Water Resources Council publishes the second volume of Regulation of Flood Hazard Areas to Reduce Flood Losses. The volume explores in more detail techniques to regulate subdivision of lands in flood-hazard areas. Like the initial volume, the second volume contains draft regulations dealing with subdivision regulations and regulations of coastal flood hazard areas.

1972

The NFIP develops new insurance rate tables based on nationwide risk zones, which replace the former community risk zones.

4/1973

Comprehensive revisions to NFIP regulations become effective on April 1. The revisions include detailed criteria for floodplain management for communities and specific performance standards requiring the elevation or flood proofing of structures to the elevation of the 100-year flood.

5/1973

The Federal Insurance Administrator estimates that there are approximately 10,000 flood-prone communities in the United States, or about twice as many as had been estimated in 1968 (see 8/1968).

6/1973

In Water Policies for the Future, the National Water Commission raises concerns about the NFIP's high degree of subsidization as well as the practicality of withholding emergency relief from people who could have covered their losses by insurance but chose not to do so. The Commission further declares that the "role that flood insurance should play in a unified national program for reducing flood losses is not yet clear and there is a need for an independent study of present flood insurance legislation and activities." The report recommends increased funding for the Corps' Floodplain Management Services Program. Subsequently, the Office of Management and Budget approves more than $10 million for FY 1974 and comparable sums in the following years to fund the Corps' work on floodplain management.

6/1973

FIA initially relied on its small in-house staff to utilize base maps provided by

communities desiring to participate in the NFIP, augmented by flood data generated by the Corps of Engineers, the USGS, and others to map flood hazards. As more communities are identified as being prone to floods, and as the number of participating communities increases, the scope of the mapping task exceeds FIA's internal capabilities. Therefore, FIA hires three engineering firms to identify communities for which flood data exist and to prepare Flood Hazard Boundary Maps (FHBMs). These firms are asked to identify communities for which flood data do not exist so that these communities can be referred to another federal agency for study and the generation of the flood data.

Before 1973, flood-prone areas shown on early FHBMs are shaded, delineated in a rectilinear or "blocked out" method (i.e., straight lines following easily identifiable land features such as streets and railroads). This practice makes the maps easy for lenders, insurance agents, and other laypersons to interpret but results in an artificial representation of the true flood boundaries, which are curvilinear and reflect the topography of the land. The use of blocked out flood boundaries is standard for all NFIP mapping until the passage of the Flood Disaster Protection Act (PL 93-234) in December 1973, which makes artificial rectilinear flood boundaries unacceptable, especially for large, undeveloped tracts of land.

7/1973

In Actions Needed to Provide Greater Insurance Protection to Flood-Prone Communities, the General Accounting Office (GAO) reports that FIA has no monitoring system to determine whether communities are effectively enforcing the floodplain management regulations they have adopted.

12/1973

The NFIP estimates that there are approximately 13,600 flood-prone communities in the United States (see 8/1968 and 5/1973).

12/1973

The Flood Disaster Protection Act of 1973 (PL 93-234) amends the National Flood Insurance Act of 1968. The new Act, effective in March 1974:

.. Increases the amounts of flood insurance available to property owners.

.. Requires property owners in participating communities to purchase flood insurance as a condition of receipt of federal or federally related financial assistance on or after March 2, 1974, for acquisition, construction, or improvement of structures in special flood hazard areas (SFHAs). In addition, purchase of flood insurance is required before property owners will be eligible to obtain federal disaster assistance for construction or reconstruction purposes.

12/1973

continued

.. Requires the NFIP to identify, by June 30, 1974, all communities that contain areas at risk for serious flood hazard and to notify these communities that they can apply for participation in the NFIP or they will be ineligible for certain types of federal assistance in their floodplains.

.. As a condition of future federal financial assistance, requires states and communities "to participate in the flood insurance program and to adopt adequate floodplain ordinances with effective enforcement provisions consistent with federal standards to reduce or avoid future flood losses." Participation must begin by July 1, 1975, or one year after notification that a community has flood-prone areas.

.. Requires FIA to consult with local officials to implement its flood-prone notification and identification procedures; to establish explicit procedures whereby communities can appeal their flood-prone identification; and to accelerate the insurance ratemaking studies.

.. Allows the Department of Housing and Urban Development to implement the NFIP on an emergency basis until December 31, 1975, while it completes determinations of flood-prone areas (see 12/1969).

.. Provides for grandfathering, for purposes of determining insurance rates, for structures built in flood-hazard areas before the areas are identified as such. These pre-FIRM structures are not required to comply with existing construction requirements.

.. Mandates that federally regulated lending institutions cannot make, increase, extend, or renew any loan on a property located in a SFHA in a participating community without requiring flood insurance.

.. Expands the definition of “flood” to include “flood-related erosion.”

.. Repeals Section 1314 (denying disaster relief to persons who could have purchased flood insurance for a year or more and did not do so) because it is a disincentive to community participation.

In approving PL 93-234, Congress reaffirms the use of the 100-year flood as the standard for identifying SFHAs and establishing land-use requirements. SFHA have a 1-percent chance of being flooded in any given year (100-year floodplain).

12/1973

Over 2,850 communities are participating in the NFIP.

1973

The Nixon Administration issues New Approaches to Federal Disaster Preparedness and Assistance. The report concludes that federal assistance typically replaces rather than supplements nonfederal efforts. In addition, the report notes that federal assistance for disasters is often perceived to be sufficiently generous that “individuals, business, and communities had little incentives to take initiatives to reduce personal and local hazards” (House Document 93-100, 93rd Congress, First Session).

1973

The USGS expands aerial coverage of flood-prone area maps and pamphlets to include areas subject to future development. To guide this phase, the USGS publishes a National Program for Managing Flood Losses: Guidelines for Preparation, Transmittal, and Distribution of Flood-Prone Area Maps and Pamphlets to assist the Water Resources Division to prepare the maps.

1/1974

Effective January 1, 1974, rates for flood insurance are lowered to encourage wide acceptance of the new mandatory purchase requirement and to encourage increased sales of the insurance. This is the second such decrease (see 7/1972).

More than 2,850 communities (including 2,264 in the emergency program) are participating in the NFIP. About 312,000 policyholders have about $5.5 billion of coverage.

3/1974

The Water Resources Development Act (PL 93-251) authorizes federal projects containing major "nonstructural" features. Section 73 directs all federal agencies to consider nonstructural alternatives when reviewing any project involving flood protection and to pay at least 80 percent of the cost of nonstructural flood control measures.

5/1974

The Disaster Relief Act Amendments of 1974 (PL 93-288) authorize the president to make contributions to state and local governments to help repair, restore, reconstruct, or replace public facilities damaged or destroyed by a major disaster. Section 314 requires that applicants for such assistance must comply with regulations (to be developed) to assure that "such types and extent of insurance will be obtained and maintained as may be reasonably available, adequate, and necessary to protect against future loss to such property." The law prohibits the federal government from requiring "greater types and extent of insurance than are certified…as reasonable by the appropriate State insurance commissioner…."

States and communities receiving federal disaster assistance will be required to "agree that the natural hazards in the area in which the proceeds of the grants or loans are to be used shall be evaluated and appropriate action shall be taken to mitigate such hazards…."

The amendments represent the first congressional mandate for hazard mitigation as a precondition for federal disaster assistance.

6/1974

The Flood Disaster Protection Act of 1973 (see 12/1973) required that the Department of Housing and Urban Development identify all flood-prone communities and notify them of their special flood hazard areas by June 30. Of the 13,600 such communities so identified by December 1973, FIA had provided FIRMs or FHBMs to less than two-thirds. By June 1974, an additional 2,700 communities are identified as flood-prone. Once a community is informed that it is prone to floods, it has one year to qualify for the emergency program (see 12/1969) or six months to appeal its designation as a flood-prone community.

7/1974

FIA further reduces rates for flood insurance and introduces the direct bill system for renewal of flood insurance policies.

7/1974

The U.S. District Court for the Middle District of Pennsylvania grants a motion to dismiss a civil action filed by the Commonwealth of Pennsylvania, et al., against the United States, the Secretary of the Department of Housing and Urban Development, and the National Flood Insurers Association, alleging that the defendants negligently failed to make known the availability of flood insurance to Pennsylvanians who, as a result, suffered uninsured losses as a consequence of the June 1972 and 1973 floods in Pennsylvania. The aggregate damages suffered were alleged to be $1 billion. The U.S. Court of Appeals affirms the decision in June 1975.

8/1974

The Housing and Community Development Act of 1974 (PL 93-383) amends the National Flood Insurance Act of 1968 by adding Section 1364 (commonly known as the Jones' amendment), which requires federally regulated lenders to notify prospective borrowers of a property's location in a SFHA, and subsection (e) to Section 1307 (commonly known as the Brooks' amendment). In communities where adequate progress has been made on the construction of a federal flood-protection system that will afford protection against the 1-percent annual chance flood, the Brooks' amendment provides for the availability of

flood insurance at risk premium rates that will not exceed those that would apply if such a flood-protection system had been completed.

10/1974

Due to the requirements of the Flood Disaster Protection Act of 1973 (see bullet 4 at 12/1973), the first Letter of Map Amendment (LOMA), which excludes a property from inadvertent inclusion in a SFHA, is issued. A LOMA amends an effective FIRM. The role of the three mapping contractors is expanded to process these map amendments.

The first community determined not to require a detailed study (i.e., minimal conversion) is converted to the regular program. Similarly, the first community determined not to be subject to inundation by the 100-year flood (i.e., non-flood-prone conversion) joins the regular program in 1974.

11/1974

FIA hires a contractor to develop and maintain a computerized management information system.

1974

Due to the accuracy required by the mandatory purchase requirement of the Flood Disaster Protection Act of 1973 (see 12/1973), 10,000 FHBMs must be revised to change the rectilinear boundaries of flood-prone areas to curvilinear boundaries.

1974

The first private company begins providing flood-zone determination services to lending institutions to assist them in complying with the mandatory purchase requirements contained in the 1973 Act.

2/1975

Given the large number of flood insurance studies in progress and FIA’s limited staff, two engineering firms, referred to as technical evaluation contractors (TECs), are contracted to review the study products that federal agencies create and to put the NFIP’s maps in standard format.

3/1975

In National Attempts to Reduce Losses from Floods by Planning for and Controlling Uses of Flood-Prone Lands, the GAO reports that federal agencies do not adequately evaluate flood hazards in their programs. Many of the agencies, the report notes, do not have or properly implement their flood-related procedures. In addition, the report observes, Executive Order 11296 (see 8/1966) has had limited effect in reducing flood losses due lack of implementing procedures and, among agencies that do have procedures, limited compliance.

3/1975

Proposed revisions to NFIP regulations are published in the Federal Register. The proposed revisions will allow minimum requirements for floodplain management to differ depending on the amount of technical data available to communities. Other proposed revisions will: allow the use, in establishing regulations, of data from other federal or state agencies or consulting services in communities where a FHBM has not yet been completed; require building permits for construction in SFHA when FHBM have been issued; require that all new construction must have the lowest floor above the 100-year flood level in communities with FHBMs and in which 100-year flood-surface elevations have been issued; and require new construction in coastal high hazard areas to keep the space below the lowest floor free from obstructions or use “breakaway walls” when 100-year flood levels have been identified.

6/1975

Of the 21,411 communities that FIA has designated as flood-prone, 9,977 participate in the NFIP, but only 549 have FIRMs and are in the regular program.

Summer 1975

The National Flood Insurers Association hires its own staff and relocates its headquarters to suburban Washington, DC. The association assumes the functions that the Insurance Services Office previously handled and retains the servicing carrier concept.

7/1975

Flood insurance studies are produced under interagency agreement with other federal agencies through June, when FIA enters into contracts with engineering firms to produce data for flood insurance studies.

8/1975

Over 350 communities have appealed their designation as flood-prone. Based on the appeals, 136 were found not to be flood-prone. An additional 2,445 appeals have been received but not yet processed. Further appeals are possible because not all communities have been notified of their flood-prone status.

9/1975

The GAO reports in Tulsa, Oklahoma’s Participation in the National Flood Insurance Program, that FIA “does not formally monitor the flood insurance program to insure that communities enforce approved flood plain management regulations” or those of FIA (see 7/1973). The report also notes that the GAO does “not question the validity of the 100-year flood level as the acceptable standard for flood plain management” (see 12/1973).

1975

Gilbert White founds the Natural Hazards Center at the University of Colorado, Boulder. The Center’s primary goal is to strengthen communication among the researchers, individuals, organizations, and agencies that are concerned with individual and public actions to reduce damages from disasters.

1975

The Interagency Task Force on Floodplain Management is created (see Water Resources Council reorganizes, 1976).

3/1976

The Water Resources Council publishes Guidelines for Determining Flood Flow Frequency (Bulletin No. 17), an updated and revised Bulletin No. 15, A Uniform Technique for Determining Flood Flow Frequencies.

4/1976

The GAO, in Formidable Administrative Problems Challenge Achieving National Flood Insurance Objectives, concludes that FIA has made considerable progress in identifying flood-prone communities and in providing them with FHBMs (see 12/1969). In contrast, FIA has made limited progress in completing the necessary studies to move communities into the regular program. Delays have occurred, according to the GAO, because of: a) ineffective planning and scheduling of studies; b) delays in reviewing completed studies; and, c) ineffective coordination and use of federal resources. FIA faces a deadline of August 1, 1983, to complete its studies on all flood-prone communities (see 8/1968). To meet this deadline, FIA will have to increase its completion rate

from about 91 studies per year to about 2,600 per year.

The report also notes that FIA still has "not established an effective system for monitoring community efforts to adopt and enforce required flood plain management regulations." Consequently, in the words of the GAO, the federal government, "though heavily subsidizing the flood insurance program…had no assurance that the communities' flood-prone lands were being developed wisely to prevent or minimize future flood losses" (see 7/1973 and 9/1975).

6/1976

The federal government shifts its fiscal year (FY), so that it will now end on September 30 instead of June 30, as had previously been the case. Thus, FY 1976 was 15 months long. Flood studies and surveys receive their greatest single-year appropriations, about $94 million. As a result, 2,300 flood insurance studies are initiated. This amount equaled the total number initiated in the previous five years.

7/1976

The Water Resources Council publishes A Unified National Program for Floodplain Management, which updates and revises House Document 465 (see 8/1966) in response to Section 1302 (c) of the National Flood Insurance Act of 1968. The report establishes the conceptual framework for floodplain management and recommends actions for improving such management and recommends "appropriate floodplain management programs and regulations or control measures as a prerequisite to federal expenditures for the modification of flooding on the impact of flooding."

The report states that: "Delay in completion of flood insurance studies and the resultant delay of community participation in the Regular program may permit continued development and building at flood-prone locations and the subsequent grandfathering of these high risk developments under subsidized insurance rates."

10/1976

HUD's Federal Insurance Administration issues a Final Rule that introduces the terms "base flood" and "base flood elevation" and begins to phase out the use of the term "100-year flood."

12/1976

Comprehensive revisions to the NFIP's requirements for floodplain management become effective on December 31. These revisions remain the basis of the NFIP's current requirements for floodplain management.

1976

The Water Resources Council reorganizes, abolishing all of its technical committees. The Federal Interagency Floodplain Management Task Force succeeds the Floodplain Management Technical Committee. The task force consists of representatives from the TVA; the Departments of Agriculture, Army, Commerce, Energy, Housing and Urban Development, Interior, and Transportation; the Environmental Protection Agency; and, eventually, the Federal Emergency Management Agency (FEMA), which was created in 1979 (see 6/1978 and 4/1979). State representatives, through the Association of State Floodplain Managers, attend the meetings as observers. The task force provides continuity of communication between member agencies on issues related to floodplain management.

1976

The NFIP adopts regulations that treat states as communities and accordingly makes flood insurance available for state-owned properties in SFHAs only if

the state has adopted adequate regulations for the management of its floodplains. The state may also elect to self-insure its properties if suitable regulations are in place.

1976

Robert J. Hunter is appointed Federal Insurance Administrator.

5/1977

Executive Order 11988, Floodplain Management, revokes and supersedes Executive Order 11296 (see 8/1966), which had limited success in reducing flood losses. The new executive order directs federal agencies to assert a leadership role in reducing flood losses and losses to environmental values that floodplains serve. Federal agencies are to avoid actions in or affecting floodplains unless there are no practicable alternatives and to use the 100-year flood as the base flood standard for the NFIP. The executive order is intended, in part, to ensure that federal agencies do not undermine communities' implementation of regulations adopted to participate in the NFIP. The order directly references NFIP's criteria for floodplain management.

5/1977

Executive Order 11990, Protection of Wetlands, directs all Federal agencies to avoid, if possible, adverse impacts to wetlands and to preserve and enhance the natural and beneficial values of wetlands. Each agency is directed to avoid undertaking or assisting in wetland construction projects unless the head of the agency determines that there is no practicable alternative to such construction and that the proposed action includes measures to minimize harm.

8/1977

Concerned with delays in issuing flood insurance studies, FIA decides to circumvent the state review and approval process. The states in Region V object. FIA subsequently revises the study policy. The states' success in altering the policy change solidifies their cause and pushes them to form an association that eventually becomes the Association of State Floodplain Managers.

8/1977

The National Flood Insurers Association issues a termination notice to the arrangement with the Department of Housing and Urban Development in an attempt to bring to its attention, and that of Congress, the serious nature of the disagreements between the insurance pool and the government on issues of authority, financial control, and other operating matters.

10/1977

FIA hires two additional engineering firms to perform technical evaluation services because of the growing backlog of flood insurance studies in progress.

10/1977

Title VII of the Housing and Community Development Act of 1977 (PL 95-128) further amends the National Flood Insurance Act of 1968 through the "Eagleton Amendment." This amendment permits federally regulated or insured lenders to make conventional loans in flood-prone areas of nonparticipating communities and to require that notification be given as to whether federal disaster assistance would be available in the event of a flood disaster.

10/1977

continued

PL 95-128 also removes the prohibition against all forms of disaster assistance

within the SFHA of “sanctioned” communities and imposes the ban only on federal disaster assistance related to a declared flood disaster; increases the additional limits of insurance coverage available at risk premium rates; provides additional criteria under which flood-damaged property can be eligible for purchase; and provides authority for low-interest loans for elevating structures located in floodways.

12/1977

Approximately 1.2 million flood insurance policies are in force, an increase of almost 900,000 over the number in December 1973. Community participation increases to approximately 15,000 in 1977 from approximately 3,000 in 1973.

12/1977

The Secretary of the Department of Housing and Urban Development and the National Flood Insurers Association sign an Assumption Agreement terminating the involvement of the National Flood Insurers Association in the NFIP, effective December 31, 1977.

1977

Following record floods in southwest Virginia, the TVA provides technical and financial assistance to four communities in floodplain evacuation and relocation. Local officials acquire several hundred properties, often as linear parks next to streams.

1977

Gloria Jimenez is appointed Federal Insurance Administrator.

1/1978

The federal government assumes the direct insurance writing and claims handling operation of the NFIP using an NFIP Servicing Agent to handle the sales and servicing responsibilities. Prospective policyholders continue to go through local agents and brokers to obtain their policies (see 6/1969 and 8/1977).

2/1978

The Water Resources Council publishes Guidelines for Implementing Executive Order 11988 – Floodplain Management. The report is designed to assist federal agencies in preparing regulations and procedures for implementing the order (see 5/1977). The document describes ways government agencies are to avoid supporting development in floodplains when a practicable alternative exists. As the Guidelines note, however, they “do not intend to prohibit floodplain development in all cases, but rather to create a consistent government policy against such development under most circumstances.”

5/1978

In Texas Landowners Rights Association v. Harris, 453 F.Supp. 1025 (D.D.C. 1978), the State of Missouri, 40 political subdivisions in 12 states, and 30 individual landowners within federally designated flood zones bring suit against federal officials administering the NFIP. The plaintiffs contend that requiring local governments to adopt regulations for building in floodplains under their police powers, on pain of losing federal financial assistance for acquisition or construction purposes within nonparticipating communities, violates the Constitution’s Tenth Amendment. This sanction includes denial of FHA and VA home mortgages in affected communities. The plaintiffs further argue that the severity of the sanctions is such that the “choice” represents no choice at all, but only coercion.

The court rejects the plaintiffs’ contention, holding that coercion is to be found

only where the federal government gives the states no choice, but mandates compliance. In addition, the court rules that the NFIP's implementation is not a constitutionally prohibited taking of property without payment of just compensation.

The U.S. Circuit Court for the District of Columbia (598 F.2d 311, 1979) and the U.S. Supreme Court (cert. denied, 444 U.S. 927, 100 S.Ct. 267, 1979) subsequently upholds the lower court's judgment.

6/1978

President Carter forwards Reorganization Plan No. 3 of 1978 (House Document 95-356, 95th Cong., 2nd Sess.) to Congress. The plan calls for FEMA's establishment as an independent agency within the executive branch. The new agency will coordinate federal disaster response-and-recovery efforts and consolidate the programs of five related agencies (FIA, the Federal Disaster Assistance Administration, the Defense Civil Preparedness Agency, the Federal Preparedness Agency, and the National Fire Prevention and Control Administration). The new agency will begin to operate on April 1, 1979.

6/1978

The initial identification of flood-prone communities is essentially completed. More than 19,000 FHBMs have been produced.

6/1978

President Jimmy Carter's Water Policy Initiatives include proposals to fund the National Flood Insurance Act's Section 1362. The section allows FEMA to purchase certain insured properties that have either been substantially or repeatedly damaged and then to transfer the properties to a public agency to improve floodplain management.

10/1978

Only 2,818 of 16,116 participating communities are in the regular program; the rest remain in the emergency program (see 12/1969).

12/1978

The Corps of Engineers has completed 1,800 Floodplain Information Reports covering 3,500 communities.

3/1979

The GAO reports to the secretary of the Department of Housing and Urban Development that use of the 100-year flood "as the single national standard of regional flooding conditions has caused considerable controversy over the years." Noting that there were 127 floods between 1968 and 1978 that equaled or exceeded the 100-year flood level in 62 counties, the GAO recommends an evaluation of the 100-year flood as a national standard. This recommendation contradicts GAO's earlier conclusion (see 9/1975) that the 100-year flood standard is suitable.

The same report notes continuing deficiencies in FIA's monitoring of communities' compliance with the NFIP's requirements (see 7/1973, 9/1975, and 4/1976). The GAO observed that FIA makes relatively few visits to communities and "major differences in the approach, scope, and duration of the visits conducted by personnel from two different [FIA] regional offices."

4/1979

On April 1, FIA and the NFIP are transferred from the Department of Housing and Urban Development to the newly created FEMA.

8/1979

FEMA publishes a proposed rule in the Federal Register that will allow flood-proofed residential basements in all communities. This rule is in response to demand for basements in some areas of the nation. The proposed rule is withdrawn in March 1981 after it is determined that flood-proofed basements can pose an unacceptable threat to public safety under some flooding conditions.

8/1979

John Macy is appointed FEMA Director.

9/1979

An initiative to decentralize the production of maps to individual contractors is implemented. It is subsequently determined that this is not a cost-effective approach. The previous system of having the technical evaluation contractors produce the maps through printing by the Government Printing Office is reinstituted.

The acquisition program for flood-damaged properties provided for in Section 1362 of the National Flood Insurance Act of 1968 is funded for the first time (see 6/1978). Just over 100 properties are acquired in FY 1980. Over the next 14 years, approximately 1,400 properties are purchased at a cost of nearly $52 million. In addition to funding for Section 1362, Congress also provides funds for the State Assistance Program to develop floodplain management capabilities.

9/1979

Hurricane Frederic strikes Gulf Shores, Alabama, and nearby coastal communities causing severe damage to structures. This results in considerable controversy about the adequacy of the NFIP's V-zone construction standards; criteria used to designate V-zones and V-zone flood insurance rates; and whether wave heights should be added to coastal base flood elevations.

9/1979 continued

Note: V-zones or coastal high hazard areas are the most hazardous coastal flood zones because they are subject to high velocity wave action. V-zone designation is applied only to those areas along the coast where water depth and other conditions support at least a three-foot wave height.

9/1979

A revised version of A Unified National Floodplain Management Program is published and concludes that the NFIP "provides persuasive strength and beneficial emphasis to floodplain management."

9/1979

By the end of Fiscal Year 1979, nearly 16,600 communities are participating in the NFIP, with 3,381 in the program's "regular phase." There are more than 1.6 million policies in force, covering about $60 billion in property. Throughout the program's life, total claims have exceeded 146,000, and total payments to victims have exceeded $572 million.

12/1979

Approximately 1.85 million flood insurance policies are in effect, representing $74.5 billion in coverage. More claims (86,360) are filed in 1979 than in any subsequent year through 1999.

3/1980

A proposed rule is published in the Federal Register that would prohibit the use of solid breakaway walls to enclose areas below the base flood elevation in V-zones. In 1981, after a change in presidential administrations, the proposed rule is withdrawn after the Office of Management and Budget raises concerns that the rule revision is an unnecessary intrusion into the management of local affairs.

4/1980

Damages from Hurricane Frederic result in a decision to incorporate wave heights into base flood elevations in coastal areas. The impact of wave heights on coastal flood levels is first added to FIRM for seven communities in Alabama.

5/1980

FEMA adopts a policy that requires state and local governments to agree to pay 25 percent of the eligible costs of public assistance programs (other than individual and family grants). Prior to this time, the required nonfederal contribution was subject to negotiation between FEMA and the affected state and local governments.

6/1980

The Office of Management and Budget's memorandum, "Nonstructural Flood Protection Measures and Flood Disaster Recovery," directs that "all Federal programs that provide construction funds and long-term recovery assistance must use common flood disaster planning and post-flood recovery procedures." In response, 12 federal agencies approve an interagency agreement to provide technical assistance to states and communities for nonstructural measures to reduce flood damage in flood-recovery efforts. The agencies form an Interagency Flood Hazard Mitigation Task Force with responsibility for implementing agreement.

In subsequent disasters interagency teams are sent to investigate opportunities to employ nonstructural mitigation measures and to issue recommendations before recovery and reconstruction advance to the point where such measures could not be considered.

6/1980

FIA's management explores ways in which the private insurance industry's state windpools can be used to assure prompt claims service in a major post-flood hurricane disaster. The Single Adjuster Program is established. In this voluntary program, individual windpools, or coastal plans, and the NFIP agree in advance on the use of single adjusters to adjust both the wind and water damage from hurricanes and to recommend the claim payments by each insurer for risks that both a coastal plan and the NFIP insure.

9/1980

FEMA's regulations implementing Executive Order 11988, Floodplain Management, and Executive Order 11990, Protection of Wetlands, are effective on September 9. Although the primary focus of these regulations is on disaster assistance, provisions are included to limit flood insurance coverage for certain structures in floodways and for new structures in V-zones where wave heights are not included in base flood elevations. On November 28, FEMA publishes a notice of intent not to enforce these provisions. Instead, an interim rating system is developed that includes a calculation of wave height on a case-by-case basis.

10/1980

The Engineering Scientific Data Package (ESDP) system is established to archive and retrieve selected documentation necessary to recreate the elevation

information presented in a flood insurance study.

12/1980

FIA promulgates a methodology for assessing the flood hazards unique to alluvial fans in the arid West.

1980

Regulation of Flood Hazard Areas to Reduce Flood Losses is revised to emphasize the lessons drawn from experiences with floodplain management in the 1970s. The Regulation focuses on state and local programs, including innovations that can exemplify effective reductions in flood losses in the future.

1980

FIA pilots a centralized map information facility, which uses state-of-the-art technology to develop a centralized database of the flood zone for individual structures that could be accessed by calling a toll free number. The pilot was discontinued in 1981 because available technology was inadequate, the system was not cost-effective, and the private sector was beginning to provide this service.

1/1981

In Requests for Federal Disaster Assistance Need Better Evaluation, the GAO recommends that FEMA “reevaluate and improve its assessment criteria” for disaster and emergency declarations. The GAO had found a “lack of consistency in the quality and methods” of assessing requests from governors for declarations.

1/1981

Rates for flood insurance are increased by 19 percent for pre-FIRM structures (i.e., structures for which construction or substantial improvement started on or before December 31, 1974, or before the effective date of a community’s initial FIRM, whichever is later). The rate increase is the first in the NFIP’s history.

The initial legislation creating the NFIP allowed these rates to be substantially lower than actuarial rates in an effort to promote communities participation in the program. The rate increase in 1981, the first since the NFIP’s creation, begins an effort to increase rates gradually to reduce, but not eliminate, the amount of subsidy and to make the NFIP self-supporting for the average historical loss year by 1988.

5/1981

Louis O. Giuffrida is appointed FEMA Director.

6/1981

An interim policy for accreditation of levees as providing 100-year protection on NFIP maps is promulgated. This policy is finalized in 1986 with its publication in the Code of Federal Regulation, Title 44, Chapter 1, Section 65.10 (see 10/1986).

8/1981

Section 341 of the Omnibus Budget Reconciliation Act of 1981 (PL 97-35) terminates, effective October 1, 1983, flood insurance coverage for new construction and substantial improvements of structures on undeveloped coastal barriers designated by the Secretary of the Department of Interior. FEMA participates in the Coastal Barriers Task Force the Secretary establishes to designate the undeveloped coastal barriers. The Coastal Barrier Resources Act of

1982 (PL 97-348) later overtakes and supersedes this process (see 10/1982).

8/1981

Section 1345 of the 1968 Act, governing services by the insurance industry, is amended to include subsection (c), which holds harmless insurance agents or brokers for the errors and omissions of FEMA.

8/1981

In Till v. Unifirst Federal Savings and Loan Association (653 F.2d 152), the U.S. Court of Appeals for the Fifth Circuit concludes that the National Flood Insurance Act does not provide an express or implied federal statutory cause of action against a federally regulated lending institution for failing to require flood insurance or to notify a prospective borrower that a dwelling is in a floodplain. In subsequent years, U.S. Courts of Appeals for the Fourth Circuit (Arvai v. First Federal Savings and Loan Association, 698 F.2d 683, 1983), the Seventh Circuit (Mid-America National Bank of Chicago v. First Savings and Loan Association of South Holland, 737 F.2d 638, 1984), and the Eighth Circuit (Hofbauer v. Northwestern National Bank of Rochester, 700 F.2d 1197, 1983) reach similar conclusions.

9/1981

The NFIP establishes a methodology to assess the contribution of wave run-up to flood elevations for communities along the open coast. This methodology is applied in several communities in Maine that had initiated flood insurance studies during FY 1981.

9/1981

FIA establishes a goal for the NFIP to achieve self-supporting status for an average historical loss year by 1988. Achieving this goal would mean the elimination of subsidies for pre-FIRM properties.

9/1981

FIA opens discussions with representatives of the insurance industry concerning re-involvement in the NFIP that ultimately develops into the Write Your Own (WYO) Program (see 10/1983).

10/1981

FEMA begins to use information on floods developed for purposes other than the NFIP (e.g., flood-flow estimates developed to size road crossings and bridges by state highway departments) as a cost-savings measure.

A new rating system for post-FIRM V-zone buildings is implemented to reflect the additional risk of surge and wave height and to offer an individual risk-rating option. Post-FIRM properties are those for which construction or substantial improvement started on or after the effective date of a community's initial FIRM or after December 31, 1974, whichever is later.

1981

The Water Resources Council updates Bulletin No. 17, Guidelines for Determining Flood Flow Frequency (Bulletin 17B of the Hydrology Committee, U.S. Water Resources Council). This document, first published in 1967 (Bulletin No. 15), is the guide most government agencies use when conducting flood-frequency studies.

1981

The NFIP's premium rates are increased by 45 percent for pre-FIRM structures, as part of FEMA's effort to reduce subsidies and to make the NFIP self-

supporting for an average historical loss year. Over the next seven years rates will increase by 120 percent.

1981

Jeffrey S. Bragg is appointed Federal Insurance Administrator.

4/1982

Approximately 62 percent of premiums paid for flood insurance are subsidized.

8/1982

As part of President Ronald Reagan's Task Force on Regulatory Relief, created in January 1981, the Office of Management and Budget directs FEMA to investigate whether federal agencies are complying with the requirements of Executive Order 11988, issued in May 1977. In addition, FEMA is to: a) determine what impact, if any, the executive order is having on the level of federal support in designated flood-hazard areas and b) review the base, or "100-year" flood standard used in implementing the executive order.

8/1982

The GAO, in National Flood Insurance: Marginal Impact on Flood Plain Development, Administrative Improvements Needed, concludes that FEMA needs a better monitoring program to assure that local communities are enforcing floodplain regulations. According to the report, many premiums for flood insurance are based on erroneously designated (misrated) flood zones. In addition, the report concludes that this insurance creates a "marginal added incentive for development in coastal and barrier island communities."

9/1982

Funding for the Water Resources Council ceases, although the Council is never officially dissolved.

10/1982

The Coastal Barrier Resources Act (PL 97-348) creates the Coastal Barrier Resources System (CBRS). The Act prohibits new federal expenditures (including the issuance of new federal flood insurance and most disaster assistance for new construction and substantial improvements) in designated units of the CBRS on the Atlantic and Gulf Coasts on and after October 1, 1983. Existing flood insurance policies can remain in force.

1982

The third volume of Regulation of Flood Hazard Areas to Reduce Flood Losses, started at the time of the Water Resource Center's demise, is subsequently completed and published by the TVA. The three volumes advance the understanding and application of land-use regulations in flood- hazard areas as a principal tool in reducing vulnerability to flood risk.

1/1983

Due to what the GAO labels as data and methodological weaknesses in the determination of rate structures, the GAO finds that the NFIP has not collected sufficient premiums to cover the cost of providing insurance to almost two million policyholders. As a result, National Flood Insurance Program: Major Changes Needed if it is to Operate without a Federal Subsidy points out that FIA had to borrow $854 million from the Department of the Treasury between 1970 and 1980.

2/1983

A system to maintain an inventory of levees, by community name, accredited as providing 100-year protection on NFIP maps begins.

2/1983

In The Effect of Premium Increases on Achieving the National Flood Insurance Program's Objectives, the GAO finds that FEMA's decision in January 1981 to raise rates for flood insurance policies has led to a decline in the total number of policies, from 2.01 million policies in the month before the rate increase to 1.86 million in November 1982. The GAO identifies several additional factors, such as a decline in the housing market and a smaller number of recent floods that might explain the decrease in the number of policyholders.

4/1983

Responsibility for flood insurance studies and for the issuance of single-lot, single-structure, Letters of Map Amendment and Letters of Map Revision is decentralized to FEMA's regional offices.

4/1983

In Approaches for Converting National Flood Insurance Program Communities from the Emergency Phase to the Regular Phase, the GAO concludes that FEMA will not meet the August 1983 deadline contained in the National Flood Insurance Act of 1968 for providing FIRMs for all flood-prone communities. The GAO explains that the missed deadline is due both to the complexity of the task and that FEMA has not used less costly and time-consuming techniques to produce the maps. The GAO also notes FEMA's estimate that approximately $153 million will be required to complete the mapping effort.

The GAO further observes that the imminent expiration of the emergency program in May 1983 (see 12/1969) will mean that over 290,000 policyholders will lose coverage unless Congress acts to extend the program.

9/1983

FEMA completes The 100-year Base Flood Standard and the Floodplain Management Executive Order, which the Office of Management and Budget had requested in August 1982 (see 8/1982). The President's Task Force on Regulatory Relief had selected Executive Order 11988 on Floodplain Management and the 100-year standard for review. The report concludes that both the 100-year standard and the executive order should be retained. For example, the report concludes that the 100-year base flood "is strongly supported and being applied successfully by all levels of government…and no alternatives have been identified that are superior to it…." In addition, however, the report concludes that some federal agencies have not adopted procedures to implement the executive order. Other agencies have adopted procedures, but they are not consistent with the executive order.

10/1983

In recognition of the 1968 Act's purpose that FIA arrange for appropriate participation in the NFIP by private-sector property insurers, flood insurance becomes available from insurance companies that had entered into an arrangement with the Federal Insurance Administrator to sell and service flood insurance under the Write Your Own (WYO) Program. At the time, there were 1,897,176 policies and slightly over $111 billion of coverage in force. During the first year, 48 companies agreed to become WYO participants in FY 1984. The first WYO policies are sold in November 1983.

10/1983

The map revision and technical evaluation contractor services are consolidated and the number of technical evaluation contractors is reduced from seven to

three as the requirements for the flood insurance study program are changed.

10/1983

Effective October 1, the NFIP revises the rate schedules for flood insurance premiums and makes significant amendments to flood policies. To simplify insurance ratings, the NFIP groups Zones A1 to A30 under a single set of schedules and makes a similar reduction for Zones V1 to V30. Optional, higher deductibles become available so policyholders concerned with catastrophic protection can reduce their flood insurance premiums. In addition, flood insurance policies no longer cover:

.. Finished walls, floors, ceilings, and other similar improvements to basement areas;

.. Enclosures and building components located below the lowest elevated floor of an elevated building except for the required utility connections and the footing, foundation, anchorage system, etc. required to support the elevated building; and

.. Contents building machinery and equipment located in a basement area or below the lowest elevated floor of an elevated building, except stairways not separated from the building. For buildings where construction started before this date, coverage continues for sump pumps, water tanks, oil tanks, furnaces, hot water heaters, washers, dryers, freezers, air conditioners, heat pumps, and electrical boxes.

10/1983

FIA limits flood insurance coverage for basements to reduce future flood-claim payments. This action is based on FIA's findings that, between 1978 and 1982, the claim-loss frequency of buildings with basements was almost four times higher than the claim-loss frequency for buildings without basements. As a result of the change, the NFIP will no longer provide unlimited coverage of the contents of basements or finished walls, floors, ceilings. Coverage will continue for such items as oil tanks, furnaces, hot water heaters, heat pumps, and air conditioners.

10/1983

Continued

The controversial nature of the change in coverage leads to several lawsuits, which are decided in favor of FIA, as well as a report by the GAO (see Federal Emergency Agency's Basement Coverage Limitations, completed in 1/1986).

11/1983

The Housing and Urban-Rural Recovery Act of 1983 (PL 98-181) extends until September 30, 1985, the deadline for the establishment of flood-risk zones in floodplain areas and requires FEMA to submit to Congress a plan for bringing all communities containing flood-risk zones into full program status by September 30, 1987. The Act also prohibits any increase in premiums charged for flood insurance before September 30, 1984, and directs FEMA to submit a report to Congress explaining the rate structure and any rate increase anticipated before October 1, 1985.

FEMA subsequently notifies Congress that all remaining flood studies can be completed by 1991.

1983

The TVA publishes Floodplain Management: The TVA Experience to provide information about the authority's approach to working with state and local officials in floodplain management.

1983

The TVA joins with the Natural Hazards Research and Applications Information Center at the University of Colorado to evaluate the effectiveness of efforts to prevent flood damage. The Center forms an advisory group of national experts in floodplain management, develops the initial evaluation procedures, and conducts a pilot test in several area communities. The results are published in Determining the Effectiveness of Efforts to Reduce Flood Losses: The TVA Experience.

1/1984

In response to FEMA's review of the 100-year base flood standard (see 9/1983) the Office of Management and Budget (OMB) agrees that "the 100-year base flood standard appears to be working well and, given its widespread use, it does not appear to be in the public interest to adopt another methodology."

5/1984

The first countywide FIRM, for Marion County, Indiana, becomes effective. The FIRM shows the flood risks for all incorporated communities within the county as well as its unincorporated portions.

6/1984

A demographic survey of communities participating in the NFIP's Emergency Program identifies those communities where expected development in the floodplain would justify incurring the costs of a detailed study.

9/1984

A Risk Studies Completion and Full Program Status Plan is submitted to Congress by FEMA (see 11/1983). The plan identifies how cost-containment measures will be implemented to achieve the most economical conversion of about 7,000 communities to the Regular Program on or before September 30, 1991. A benefit-cost strategy is promulgated to standardize decision-making as to which communities will be converted by other means.

9/1984 continued

Largely because of the results of the demographic survey completed in June and the application of benefit-cost considerations, emphasis is given to converting low-growth communities to the Regular Program through the minimal conversion process. As a result, 1,871 conversions to the Regular Program occur in FY 1984. This is the largest number of conversions in any year of the NFIP's history.

1/1985

The Map Initiatives Project is completed after more than two years of review and discussion by a task force comprised of representatives from the major user groups. Consequently, a new format is specified for NFIP maps to make them more "user-friendly." Changes include a reduction in the number of risk zones from 68 to 9; the elimination of flood-hazard identification dates; and the consolidation of essential information on flood insurance and floodplain management on one map, thus eliminating the need for separate FIRM and FHBM.

9/1985

FIA publishes Appeals, Revisions and Amendments to Flood Insurance Maps – A Guide for Community Officials, a document written in lay language to explain the mechanisms for revising or amending NFIP maps. More than 12,000

copies of this manual are distributed before it is revised in January 1990.

10/1985

The first of more than 500 Limited Detail Studies (LDS) is initiated as a cost-containment measure to provide flood-risk zones and base flood-elevation information to communities that would experience low-to-moderate development pressure in their SFHA during the 15-year period beginning in 1985.

10/1985

The Community Assistance Program (CAP) is established to provide assistance on floodplain management to communities by drawing on resources in addition to FEMA's regional offices. The State Support Services Element, which replaces the State Assistance Program, uses states to provide this assistance. Similarly, the Federal Support Services Element makes use of federal agencies such as the TVA, USGS, the Corps of Engineers, and the Soil Conservation Service.

10/1985

The NFIP's Community Compliance Program (CCP) is established to provide a credible means to ensure that communities adequately enforce regulations on floodplain management adopted as a condition of participation in the NFIP. The program provides procedures for the probation and suspension of communities and the denial of flood insurance for individual structures under Section 1316 of the National Flood Insurance Act and builds on the mutually supportive relationship between flood insurance ratings and floodplain management.

10/1985

The Corps of Engineers' National Flood Proofing Committee is formed to advance the application of flood-proofing techniques.

11/1985

Julius W. Becton, Jr. is appointed FEMA Director.

1985

The TVA publishes A Guide to Evaluate a Community's Floodplain Management Program to document how others could use the TVA's evaluation procedures to judge community floodplain management programs.

1985

The first Annual Report of the Association of State Floodplain Managers summarizes activities of state initiatives and resources independent of the NFIP. The annual report represents slightly more than half the states and is not compiled through a formal survey.

1/1986

The NFIP's regulations are revised on January 1 to provide a probation procedure for participating communities that fail to adequately enforce floodplain-management measures adopted to meet NFIP criteria. As part of probation procedures, a $25 surcharge applies for any flood insurance policy newly issued or renewed on and after October 1, 1986, for any property that is located within a community that is on probation. This is intended to be an interim process, short of community suspension, to increase public awareness of the situation and to encourage community officials to take the actions necessary to comply with the NFIP's requirements for floodplain management. Revisions are also made to V-zone construction requirements and other criteria for floodplain management.

1/1986

FIA publishes A Standardized System for Flood Insurance Restudy Identification and Prioritization to systemize decision making about communities that are candidates for restudy and to assure that only cost-effective restudies are initiated.

1/1986

FIA implements a fee-charge system for certain categories of conditional letters of map correction to recover the cost of providing engineering services to review and comment on proposed developments in participating communities' floodplains.

3/1986

A revised Unified National Program for Floodplain Management notes that the previous report has again become dated by the relative success and changes in federal programs and by the strengthening of floodplain management at the state and local levels. The report, building on earlier reports and subsequent legislation, directives, and activities, establishes two broad goals for floodplain management: to reduce loss of life and property from flooding and to reduce loss of natural and beneficial resources from unwise land use.

The report urges that development in high hazard areas be avoided, except in instances of public interest or in the absence of a suitable alternative.

4/1986

FEMA proposes to change the process of declaring disasters; the criteria for eligibility for federal assistance; and the nonfederal responsibility for major disasters. The proposed regulations would also decrease the federal share of disaster costs to 50 percent from 75 percent. Furthermore, states would be required to meet certain economic criteria before they would be eligible to receive federal assistance and to increase their cost-sharing responsibilities, along with that of local governments, for disaster assistance.

Due to strong opposition in Congress, FEMA subsequently withdraws the proposed rules.

9/1986

Harold T. Duryee is appointed Federal Insurance Administrator. He remains in this position until August 1990.

9/1986

FIA produces the first digital FIRM, for Tulsa, Oklahoma. A five-year, $20 million program to digitize 25,000 FIRM panels for about 340 counties that account for about 75 percent of all property-at-risk begins.

10/1986

The NFIP's regulations on floodplain management are revised. Major changes affect placement of manufactured homes, mechanical and utility equipment, openings for enclosures, use of available flood data, and functionally dependent uses. The revisions also formally terminate the State Assistance Program and establish procedures for denial of insurance under Section 1316, obtaining basement exceptions, revision of flood maps, and the recognition of levees. The revisions result in the first required update of all NFIP community ordinances since the 1976 rule revisions.

10/1986

On October 1, the NFIP makes the following amendments to the standard

flood insurance policy:

.. Buildings in the course of construction that are not walled or roofed are eligible for coverage. The standard deductible for these buildings is double the post-construction amount and buildings in selected zones with the lowest floor below the base flood elevation are not eligible.

.. When an insured building has been inundated by rising lake waters continuously for 90 or more days, and it appears reasonably certain that a continuation of this flooding will result in damage reimbursable under the flood policy, the insurer can pay the insured without waiting for further damage to occur. To receive payment, the insured must sign a release agreeing not to make further claims under the policy, not to renew the policy, and not to apply for NFIP insurance for a new property at the same location.

.. For mobile homes in mobile home parks or subdivisions, the date of construction to determine pre- or post-FIRM status is the date a mobile home is placed on its foundation.

1/1987

Effective January 1, the standard policy covers reasonable expenses incurred for the temporary removal and storage of insured property because of the imminent danger of flooding up to the amount of the minimum building deductible. The policy no longer provides coverage for the cost of repairs to protect insured property damaged by flood from further damage.

1/1987

President Ronald Reagan’s proposed budget for the next fiscal year recommends that all subsidies for flood insurance be eliminated and that rates be increased in order to recover “the clearly allocable costs of flood insurance from beneficiaries.” The Reagan Administration also states that flood insurance can be provided at affordable rates for homeowners by the private sector.

Spring 1987

A task force is created to investigate the feasibility of using the insurance industry’s services and facilities and, if feasible, to develop procedures for implementing a Community Rating System (CRS). CRS would recognize a community’s efforts to undertake floodplain management activities beyond those required for participation in the NFIP; increase the public’s awareness of flood insurance; and assist property owners, insurance agents, and lenders seeking individual property flood-risk information.

7/1987

FIA inaugurates a Limited Map Maintenance Program (LMMP) as a cost-containment measure to process, in an expedient manner, revisions to NFIP maps that are limited in scope. Authority to task federal agencies to perform LMMP projects under interagency agreements is decentralized to FEMA’s regional offices.

7/1987

The Supplemental Appropriations Act of 1987 (PL 100-71) suspends through September 30, 1988, those portions of the rule revision (of October 1, 1986) applicable to existing manufactured home parks and subdivisions. The Act also requires FEMA to prepare a report on the impact of the regulations. The report is submitted to Congress in September 1988.

10/1987

For the first time, the NFIP becomes self-supporting for the historical average loss year. For the NFIP, the intent is to generate premiums at least sufficient to cover expenses and losses relative to what is called the historical average loss year, which differs from the traditional insurance definition of solvency. During FY 1986, no taxpayer funds are required to meet the NFIP's flood insurance expenses. In addition, at the beginning of the fiscal year, the NFIP is required for the first time to pay all program and administrative expenses with funds derived from insurance premiums. Prior to this time, program costs for administrative expenses, surveys, and studies, are financed through congressional appropriations.

12/1987

Approximately 2.1 million flood insurance policies are in force, representing $165 billion in coverage. The program's net operating deficit is about $652 million.

1987

Minnesota establishes a Flood Hazard Mitigation Grant Assistance Program, which will provide a 50-percent state/50-percent local, cost-share grant program for activities to reduce damages from floods.

1987

The Unified National Program for Floodplain Management recommends the evaluation of "floodplain management activities with periodic reporting to the public and to Congress on progress toward implementation of a unified national program for floodplain management." To implement this recommendation, the Federal Interagency Floodplain Management Task Force initiates an assessment of the nation's program for floodplain management. The national assessment provides a comparative basis for justifying program budgets and evaluating, over time, the effectiveness of various tools, policies, and planning efforts for floodplain management.

4/1988

FIA inaugurates a fee-charge system to require certain requestors of NFIP maps to reimburse the National Flood Insurance Fund for the costs of map-ordering services. Entities required to use the NFIP maps as part of the program's implementation are exempt from these fees (i.e., local, state, and federal agencies, insurance agents, and lenders).

A pilot marketing analysis is conducted to determine if map users are interested in purchasing microfilm copies of NFIP maps as opposed to purchasing these maps in hard-copy paper format. The results of this analysis identify a small market and limited interest in microfilm.

4/1988

In Statistics on the National Flood Insurance Program, the GAO summarizes data on the program's operations through the end of FY 1987.

5/1988

To reduce the NFIP's subsidy levels without using a rate increase, NFIP regulations are amended to increase the standard building and contents deductible for pre-FIRM properties to $1,000 from $750. Policyholders who wish to have lower deductibles are given the option to "buy back" a $500 deductible separately for building and contents coverage.

5/1988

Due to record high-water levels in the Great Lakes, the Housing and Community Development Act of 1987 (PL 100-242) amends the National Flood Insur-

ance Act of 1968 (through what is called the “Upton-Jones Amendment”) to provide insurance benefits to structures in imminent danger of collapse due to coastal erosion or undermining caused by waves or water levels exceeding cyclical levels. Following a local government’s condemnation of a structure, the payment from flood insurance would be 40 percent of the structure’s value prior to collapse and, following demolition, 60 percent of the structure’s value. The approach represents the first federal use of erosion setbacks as a tool for preventive management as part of an insurance program.

The Act also authorizes the president to contribute to states and local communities up to 50 percent of the cost of measures to mitigate hazards that substantially reduce the risk of future damage or loss in any area affected by a major disaster. Contributions cannot exceed 10 percent of the Public Assistance grants made with respect to the disaster or $1 million, whichever is greater.

6/1988

The Claims Coordinating Office (CCO) is developed to facilitate the entrance of multiple WYO companies into the Single Adjuster Program. When major storm events occur, a CCO will be established within Integrated Flood Insurance Claim Offices (IFICO) to provide a central clearinghouse for loss adjuster assignments and data sharing, for the use of WYO companies, coastal plans, and certain other property insurers willing to participate in coordinating a claims-oriented response to the catastrophe. Subsequent experience indicates that IFICO handle losses efficiently while coordinating activities with private sector windpool associations, WYO companies, and FEMA’s Disaster Field Office and Disaster Assistance Centers.

10/1988

FIA restructures commissions to encourage the sale of flood insurance. The commission provisions for the WYO Program are also restructured under a program to be re-evaluated in 1990. The provisions allow for commissions equal to 14 percent of premiums with the opportunity to earn an additional commission of one-tenth of 1 percent for each 1-percent increase in a company’s total policies in force up to a total commission of 17 percent of premium.

10/1988

The coverage limitation for enclosures (and contents) below an elevated structure is revised effective October 1 to apply only to elevated post-FIRM buildings (i.e., buildings for which the start of construction or substantial improvement occurred on or after the effective date of the FIRM or after December 31, 1974, whichever is later).

11/1988

The Robert T. Stafford Disaster Relief and Emergency Assistance Act (PL 100-707) emphasizes hazard mitigation including funds to acquire or “buyout” destroyed or damaged properties and to not rebuild in SFHAs; to rebuild in nonhazardous areas; and to reduce exposure to flood risk in reconstruction.

The Act authorizes the allocation of up to 10 percent of FEMA’s Public Assistance grants for hazard-mitigation projects, that are cost effective and that substantially reduce the risk of future damage, hardship, loss, or suffering. Benefit-cost analysis is the recommended approach for determining cost-effectiveness. Buyouts are also approved. When buyouts are authorized, they are available to all affected residents of a flood-damaged area.

Section 404 establishes a Hazard Mitigation Grant Program. Grants are available to state and local governments and certain nonprofit organizations to implement long-term hazard mitigation measures following a presidential declaration of disaster. These measures can include projects to reduce the risk of future damage, hardship, or loss or suffering from damages. Buyouts are one

type of eligible mitigation measure. Potential recipients of the grants, which can cover up to 50 percent of the costs of these activities, must maintain insurance as a condition of receipt.

1988

South Carolina acts to restrict new development along erosion-prone beachfronts.

1988

The Casualty Actuarial Society releases a Statement of Principles Regarding Property and Casualty Insurance Ratemaking. The statement identifies and describes principles applicable to the determination and review of rates for property and casualty insurance. The principles provide the foundation for the development of actuarial procedures and standards that seek to protect the insurance system's financial soundness and to promote equity and availability for insurance consumers.

1988

The Department of the Interior estimates that not developing 39,000 acres of developable coastal barrier land proposed to be added to the Coastal Barrier Resources System (see 10/1982) will save the federal government approximately $3 billion, which includes subsidies for flood insurance.

1/1989

Two new products, the Condominium Master Policy (CMP) and the Preferred Risk Policy (PRP), become available for the first time. The CMP provides insurance coverage at a significantly reduced cost under a single policy for residential condominiums with five or more units and three or more stories located in Regular Program communities. The PRP is available to the owners of one- to four-family residential buildings located in Regular Program communities provided the buildings are located outside of SFHA and have favorable flood-loss histories. The PRP has a new, simplified application form tailored to several fixed, limited-coverage combinations.

2/1989

FIA completes its assessment of future resource requirements, including both staffing and funding levels, needed to maintain the currency and accuracy of published NFIP maps. These resource requirements, identified in A Cost Effective Plan for Flood Studies Maintenance, describe how FIA will move from an "initial studies" phase to a "maintenance" phase for flood studies and surveys.

5/1989

Through the use of an interim rule, FEMA decides that federal disaster assistance to restore insurable structures in SFHAs will be reduced by the maximum amount of insurance proceeds that would have been received had a building and its contents been fully covered by a flood insurance policy. The interim rule is revoked in December 1991.

5/1989

Under the auspices of the Domestic Policy Council's Working Group on the Environment, Energy, and Natural Resources, the White House establishes an Inter-Agency Task Force on Wetlands. One of the group's primary objectives is to recommend revisions to existing presidential executive orders on wetlands protection and floodplain management (see 5/1977).

6/1989

The Enhanced Actuarial Information System is completed and used for the

first time in conducting the annual review of NFIP rates.

9/1989

Hurricane Hugo strikes, wreaking havoc in the Carolinas, Puerto Rico, and the Virgin Islands. Buildings that had been built to meet the NFIP's requirements for floodplain management performed well, demonstrating the effectiveness of the requirements in reducing flood damages.

9/1989

The first major test of the Claims Coordinating Office (CCO) system occurs when a CCO is established to coordinate the assignment of a single adjuster to handle the wind and flood claims in North and South Carolina. The system works well and proves that cooperation between windpool and WYO companies through the CCO benefits insured individuals by simplifying the claims process with the use of a single adjuster.

10/1989

FIA implements a fee-charge system for certain categories of requestors of the archival backup for flood insurance studies and restudies. The fee-charge system is needed to limit the increasing costs associated with the servicing of these requests.

10/1989

Effective October 1, new rules revise the definition of substantial improvement and, for the first time, define substantial damage. "Substantial improvement" represents any reconstruction, rehabilitation, addition, or other improvement of a building, the cost of which equals or exceeds 50 percent of the market value of the building before the "start of construction" of the improvement. Substantial improvement includes buildings that have incurred "substantial damage," regardless of the actual repair work performed. Substantial damage reflects damage of any origin sustained by a building whereby the cost of restoring the building to its before-damaged condition would equal or exceed 50 percent of the market value of the building before the damage occurred.

11/1989

Effective November 1, new rules, which supersede those first implemented in October 1986, address provisions on the placement of manufactured homes in existing parks and subdivisions for manufactured homes. The revised rule is developed after consideration of recommendations by a task force including representatives of the manufactured home community and of state and local governments.

11/1989

The National Academy of Sciences completes Managing Coastal Erosion through the National Flood Insurance Program, a study requested by FIA, to provide advice on strategies for erosion management, supporting data needs, and applicable methodologies to administer these strategies through the NFIP. The study is necessary to determine whether the federal government should be involved in erosion insurance and, if so, how such a program should be administered. The question is triggered by the Upton-Jones Amendment (Section 544 of PL 100-242) to the National Flood Insurance Act of 1968 (see 5/1988).

11/1989

The Defense Production Act Amendment of 1989 (PL 101-137), which reauthorizes the NFIP, extends the Upton-Jones Amendment (see 5/1988) from September 30, 1989, through September 30, 1991, and requires FEMA to conduct a study to determine the impact of relative sea-level rise on FIRMs. The study will also project the economic losses associated with estimates of sea-

level rise.

12/1989

FIA produces its first community Flood Risk Insurance Directory (FRID) as a prototype in conjunction with its program to digitize FIRMs. The FRID was never adopted because the information is available in the private sector.

Before 1989, FIA had maintained an archive of all effective and all previously effective NFIP maps in hard-copy paper format. To improve on the archival system, to reduce the storage required, and to make copies of the archived maps available to requestors, FIA begins microfilming all NFIP maps.

1989

The Association of State Floodplain Managers' first formal survey of state and local programs is completed. Using a standardized reporting form makes it possible to summarize state floodplain management activities at the end of the 1980s.

3/1990

FIA initiates the first two pilot erosion studies to develop the applicable methodologies and study processes to determine rates of erosion.

FIA institutes a map panel subscription service. This system allows subscribers to obtain current information on the status of NFIP maps, on a map panel-by-panel basis.

4/1990

The National Wildlife Federation sues FEMA, claiming that the NFIP facilitates development that may result in destruction or adverse modification of habitat of the key deer, an endangered species found only in the Florida Keys. The Endangered Species Act requires that all federal agencies ensure that the actions they authorize, fund, or implement do not jeopardize the continued existence of endangered species. To ensure compliance with this requirement, federal agencies must consult with the Secretary of the Interior about how such actions might affect endangered and threatened species or their critical habitats.

6/1990

C. M. "Bud" Schauerte is nominated to be Federal Insurance Administrator.

8/1990

The GAO reports on compliance with the mandatory flood insurance provision of the Flood Disaster Protection Act of 1973 (see 12/1973) in Information on the Mandatory Purchase Requirement. The GAO notes FEMA's belief that the level of compliance with the provision is low. In contrast, according to the GAO, several agencies with responsibility for enforcing the requirement state that noncompliance is not a major problem. GAO's own assessment identifies high levels of noncompliance in parts of the two states it examined, Maine (22 percent) and Texas (79 percent).

8/1990

Wallace E. Stickney is appointed FEMA Director.

9/1990

As of September 30, there are 2.3 million policies and more than $202 billion of coverage in force.

10/1990

The first financial statement audit of the NFIP that includes the WYO Program (covering 1986-89) results in an unqualified opinion.

10/1990

The Community Rating System (CRS) begins. Under CRS, discounts on flood insurance premiums are available in communities that voluntarily initiate activities that reduce flood losses or that increase the number of flood insurance policies.

10/1990 continued

CRS is the product of three years of development by the Community Rating Task Force, which had representatives from FIA, the insurance industry, and state and local floodplain managers. Extensive field testing, critiques, and reviews with communities, public interest organizations, and the Association of State Floodplain Management's technical advisors were conducted by the Insurance Services Office's Commercial Risk Services Organization under the technical directions of the Community Rating Task Force. Four hundred professional floodplain managers, 50 public interest organizations, and representatives of over 100 communities reviewed the proposal. CRS is also the subject of a congressional hearing.

10/1990

Effective October 1, the NFIP introduces new elevation and floodproofing for nonresidential structures certificates forms. In addition, the NFIP broadens the definition of a small business so that more businesses can qualify as small businesses under the program.

11/1990

The Omnibus Budget Reconciliation Act of 1990 (PL 101-508) requires FEMA to establish a policy fee to cover the administrative expenses, including salaries, and mapping expenses incurred in implementing the flood insurance and floodplain management program. The $25 fee (later increased to $30) applies to all new and renewal flood insurance policies sold after May 31, 1991. From 1987 to 1991, Congress required all program and administrative costs to be paid from the National Flood Insurance Fund (see 8/1968) without a commensurate increase in rates. FIA estimates that, as of September 2000, program assets were reduced by about $485 million because costs were not collected during these years.

11/1990

The Coastal Barrier Improvement Act of 1990 (PL 101-591) expands the Coastal Barrier Resources System (established by the Coastal Barrier Resources Act of 1982, see 10/1982) to include units along the Great Lakes, Puerto Rico, the Florida Keys, the Virgin Islands, and secondary barriers within large embayments. After a one-year grace period, federal flood insurance will be prohibited in these units as well as in "otherwise protected lands." Such public or private lands are held for conservation purposes.

After the law's passage, the Coastal Barrier Resources System includes approximately 1,200 miles of coastline and approximately 1,272,000 acres of undeveloped coastal barriers and associated aquatic habitats.

The Act directs the Secretary of the Interior to establish a Coastal Barriers Task Force, which would include a representative from FEMA. The task force is supposed to complete a report by November 1992 that, among other topics, identifies the number of structures for which flood insurance has not been available because of the Act. The report is never completed.

12/1990

Over 18,000 communities now participate in the NFIP. The Engineering Scientific Data Package System has archived almost 10,000 flood insurance studies. Since 1981, nearly 1,300 existing data studies or existing data restudies were produced using flooding information generated for other purposes. Since 1983, FIA has accredited more than 12,000 linear miles of levees that protect against 100-year floods.

1990

FEMA identifies seven states (Colorado, Illinois, Kansas, Missouri, North Dakota, Ohio, and Oklahoma) that had zoning exemptions in enabling legislation for agricultural buildings. Due to these exemptions communities could not enact ordinances in compliance with the NFIP. FIA worked with these states to pass legislation or obtain legal opinions that the communities had the authority to enact ordinances on floodplain management.

1/1991

The Mortgage Portfolio Protection Program (MPPP) begins. This voluntary program allows lenders to bring their portfolios into compliance with the requirements for the purchase of flood insurance. Any insurance purchased through this program would occur only if the mortgagor property owner does not respond to all the notices the program requires. Lenders participating in the MPPP can purchase policies (or “force place” required insurance coverage) at special high rates, reflecting the uncertainty as to the degree of risk due to the limited underwriting data required. Policies under the MPPP can be purchased only from WYO companies participating in the MPPP. Further, these policies can be purchased only as a last resort for properties that are part of a lending institution’s mortgage portfolio. The property must be located within a SFHA of a community participating in the NFIP and not be covered by a policy even after required notices have been given to the mortgagor property owner by the lending institution of the requirement for obtaining and maintaining such coverage.

3/1992

The Corps of Engineers publishes a revised Flood-Proofing Regulations.

7/1992

In Coastal Barriers: Development Occurring Despite Prohibitions against Federal Assistance, the GAO concludes that development continues on previously undeveloped barrier islands despite restrictions in the Coastal Barrier Resources Act (PL 97-348) on the issuance of flood insurance for structures on such islands. Equally important, the study finds that nearly 10 percent of residences in these areas have flood insurance coverage even though coverage is not supposed to be provided in these areas.

9/1992

In reviewing FEMA’s adherence to its policies for updating flood maps, the agency’s Office of Inspector General finds that FEMA does not consistently adhere to policies to ensure that restudies yielding the most benefits are performed first or use a standard set of criteria to choose maps to digitize. In addition, the Inspector General notes that FEMA provides information on communities to map users in five ways, with the result that the information from the different sources may conflict and lead to incorrect or unneeded flood insurance policies. FEMA generally agrees to implement the recommendations associated with the audit’s findings.

10/1992

Section 928 of the Housing and Community Development Act of 1992 (PL

102-550) legislates a flood-control restoration zone (AR) as a result of the de-certification of the levee systems of Los Angeles and Sacramento, California. The Act makes certain insurance and development benefits available in areas where a federal flood-control system will be restored.

1992

A survey of state NFIP coordinators by the Association of State Floodplain Managers identifies an increase in state activities and state participants. The survey notes that many states participate in activities to restore and preserve the natural and cultural resources of floodplains and that many identify the environmental benefits of floodplain management as the key to obtaining wide public support. The survey reports that 39 states have more than 175 full-time equivalent personnel.

1992

The Federal Interagency Floodplain Management Task Force publishes its two-volume Floodplain Management in the United States: An Assessment Report. Key topics include individual risk awareness; migration to water; floodplain losses; short-term economic returns; enhanced knowledge and technology; national standards for flood protection; limited governmental capabilities; the need for interdisciplinary approaches; application of mitigation measures; the effectiveness of mitigation measures; the role of disaster relief; and national goals and resources. The report concludes that it is difficult to assess the effectiveness of floodplain management, observing that “there are few clearly stated, measurable goals,” and that “there is not enough consistent reliable data about program activities and their impacts to tell how much progress is being made in a given direction.”

2/1993

In Coping with Catastrophe: Building an Emergency Management System to Meet People’s Needs in Natural and Manmade Disasters, the National Academy of Public Administration concludes that, in light of the devastation caused by Hurricane Andrew in south Florida in 1992, FEMA has not successfully integrated its many missions. In the report’s words, “FEMA has been ill-served by congressional and White House neglect, a fragmented statutory charter, irregular funding, and the uneven quality of its political executives appointed by past presidents.”

4/1993

A U.S. District Court in Key West, Florida, hears the National Wildlife Federation’s complaint (see 4/1990) that the NFIP facilitates development in the Florida Keys that may jeopardize the continued existence of the key deer, an endangered species. In response, FEMA states that implementation of the NFIP is not an action subject to the consultation requirements of the Endangered Species Act.

6/1993

The Great Midwest Flood of the upper Mississippi and lower Missouri River basins from mid-June through early August provide evidence that the nation has not yet reached an accommodation between nature’s periodic need to occupy her floodplains and the present human occupancy and use. The floods generated the highest flood crests ever recorded at 95 measuring stations. President Clinton declares 505 counties in nine states to be federal disaster areas. Estimates of the total damage are as high as $16 billion. Only about one in ten of affected structures have flood insurance.

Various sources attempt to assign recurrence intervals (e.g., a “500-year” flood) to the flood, but they are subject to considerable error due to the flood’s complex and widespread nature, the short historic data record on which to base an analysis, changing observation methods, and the difficulty in assigning flow

rates and elevations to past historic events. Stanley Changnon edits a comprehensive evaluation of this flood, The Great Flood of 1993: Causes, Impacts and Responses, which is published in 1996.

Four broad issues are examined as a result of this flood: a) whether to repair or reconstruct the hundreds of damaged flood-control levees (or other structural/protective measures in future floods) and who would pay for permitted repairs; b) whether to permit repair or rebuilding of thousands of substantially damaged structures so they could again be inhibited; c) whether to commit community planning and financial assistance to develop alternative mitigation strategies to the typical repair/rebuild scenario; and, d) whether to use the experience of risk insurance as a mitigation tool.

8/1993

To study the “levee issue” resulting from damage caused by the 1993 floods and to facilitate the search for appropriate alternatives, the Office of Management and Budget issues guidance to assess strategies for levee reconstruction. Representatives from five federal agencies, state and local governments, and other interested organizations consider alternatives to levee repair that would provide the benefits of flood control and protect natural resources. The committee affects decisions not to rebuild a few levees, but its overall impact is not felt until other post-flood recovery situations such as in California in 1995.

9/1993

The National Performance Review finds that the provision of federal disaster assistance is too generous and too frequent, with the possible result that the federal government may be perceived as the states’ “first-line resource in every emergency.” Echoing past recommendations (see 1/1981, for example), the Review urges the development of objective criteria to replace “political factors” in decisions about disaster declarations.

11/1993

In response to the criticisms contained in Coping with Catastrophe, FEMA reorganizes its 2,500 employees into five directorates, two administrations (the Federal Insurance Administration and the U.S. Fire Administration), and 10 regional offices.

12/1993

Due to extensive flooding during the previous fiscal year, the NFIP experiences losses that are more than twice its historic loss level and must borrow $100 million from the Department of Treasury to meets its needs for cash. This is the first time such borrowing has been necessary since 1984. The borrowed funds are repaid in FY 1994.

12/1993

The “Volkmer Amendment” in the Hazard Mitigation and Relocation Assistance Act of 1993 (PL 103-181) amends the 1988 Stafford Act (see 11/1988) to increase federal support for relocating flood-prone properties and to increase the amount of hazard-mitigation funds available after a disaster to 15 percent of all of FEMA’s appropriated federal disaster funds, up from 10 percent of a portion of FEMA’s funds dedicated to community assistance disaster funding for relocation or hazard-mitigation activities. The Act also increases to 75 percent from 50 percent, effective June 10, 1993, the share of the costs of mitigation activities the federal government will cover; clarifies acceptable conditions for the purchase of damaged homes and businesses; requires the complete removal of such structures; and dictates that the purchased land be dedicated “in perpetuity for a use that is compatible with open space, recreational, or wetlands management practices.”

1/1994

The Executive Office of the President, through the Administration Floodplain Management Task Force, assigns a broad mandate to the Federal Interagency Floodplain Management Review Committee to delineate the causes and consequences of the 1993 Midwest flooding and evaluate the performance of existing programs for floodplain and related watershed management.

The committee observes that “in the Midwest, the NFIP tends to discourage floodplain development through the increased costs in meeting floodplain management requirements and the cost of an annual flood insurance premium, although this may not be the case elsewhere in the nation.”

1/1994 continued

The committee’s report provides an opportunity for “a blueprint for change” in the nation’s programs and policies affecting its coastal and riverine floodplains. The committee makes several recommendations including changes in federal policies, programs, and activities that will most effectively achieve risk reduction, economic efficiency, and governmental enhancement in the floodplain and related watersheds. In all, there are 93 recommendations to be used as “a blueprint for the future.”

3/1994

The GAO issues Flood Insurance: Financial Resources May Not Be Sufficient to Meet Future Expected Losses. The report notes that income from insurance premiums is not sufficient to build reserves to meet expected flood losses. Consequently, the GAO concludes that losses from claims and the program’s expenses will exceed the funds available to the program in some years.

4/1994

FEMA issues a proposed rule in response to the Housing and Community Development Act of 1992, which created a flood-control restoration zone (AR) designed to meet communities’ concerns. The AR designation recognizes that a system for flood protection is being restored to provide protection during the base flood event and during the restoration period and reduces the costs of flood insurance and elevation requirements while still providing some level of protection for properties that will be exposed to the increased risks of flooding during the restoration period.

6/1994

The Interagency Floodplain Management Review Committee, given the responsibility for conducting a comprehensive review of floodplain management after the Midwest floods of the previous year, publishes Sharing the Challenge: Floodplain Management Into the 21st Century (sometimes referred to as the “Galloway Report,” after the committee’s chair, Gerald E. Galloway, Jr.). The report recommends a sharing of responsibility for floodplain management among federal, state, and local officials and for restrictions on development in floodplains.

With respect to flood insurance, the Committee criticized the limited penetration of the program in communities affected by the Great Midwest Flood of 1993 (see 6/1993). Repeating the warning of the National Performance Review (see 9/1993), the Galloway report notes that overly generous federal disaster assistance has the potential to reduce individuals’ responsibility to protect themselves against disasters.

6/1994 continued

In addition, the report notes that the five-day waiting period between the time of purchase of a flood insurance policy and when coverage is effective allowed many people to purchase insurance with the knowledge that they would be flooded in the summer of 1993. If the waiting period had been 30 days, nearly

4,000 fewer insurance claims would have qualified, and payments would have been $82 million less. The committee thus recommended that the waiting period be increased to 15 days.

9/1994

The Community Development and Regulatory Improvement Act (PL 103-325), the National Flood Insurance Reform Act of 1994, includes the most comprehensive changes to the NFIP since the Flood Disaster Protection Act's approval in 1973.

Subtitle B provisions include a nonwaiver of the requirement that flood insurance be purchased by recipients of federal disaster assistance; expand requirements for lenders when making loans and requiring that coverage be maintained over the life of the loan; require escrow of flood insurance payments if escrows are already required; require placement of flood insurance by lenders if a borrower fails to obtain the necessary coverage; impose penalties for failure to require flood insurance or notify borrowers; impose fees for determining the applicability of flood insurance purchase requirement; establish notice requirements for properties located in a SFHA and a change in loan servicer; and require standard hazard determination forms.

Subtitle C codifies the Community Rating System and directs that credits may be given to communities that implement measures to protect natural and beneficial floodplain functions and manage erosion.

Subtitle D includes provisions to repeal the flood-property purchase and loan program (Section 1362); terminate the erosion-threatened structures program (Upton-Jones Amendment; see 5/1988 and 11/1989); establishes a Mitigation Assistance Program, which replaces the Upton-Jones acquisition/demolition program, to provide grants to states and communities based on a 75/25-percent cost share for mitigation plans and projects; creates the National Mitigation Fund; and provides additional coverage for compliance with land-use and control measures.

Subtitle E establishes the Flood Insurance Interagency Task Force (Section 561(a)) and the Task Force on Natural and Beneficial Functions of the Floodplain. The Flood Insurance Interagency Task Force is directed to conduct a number of studies addressing the programs and procedures of Federal agencies and corporations for compliance with NFIP regulations, and to submit a report of findings and conclusions to Congress.

9/1994 continued

Subtitle F increases the maximum coverage amounts available and includes a requirement to review and assess the need to update and revise FIRMs every five years; establishes a Technical Mapping Advisory Council; requires a study of the economic impacts of erosion-hazard areas; requires an economic impact study of the effect of charging actuarial rates for pre-FIRM properties; increases the waiting period for flood insurance policies to 30 days (see 6/1994); adds provisions regarding agricultural structures; and prohibits disaster assistance to individuals in a SFHA who received disaster assistance and did not maintain flood insurance.

9/1994

In an Audit of FEMA's Mitigation Programs, FEMA's Inspector General concludes that a lengthy application process, due primarily to the significant delays in the process for determining project eligibility, hampers the agency's implementation of the Hazard Mitigation Grant Program (see 11/1988). In the audit's words, "The criteria for determining environmental impact, cost effectiveness and whether projects represent a long-term solution are especially confusing." In addition, the audit concludes that "there are no mechanisms to measure the effectiveness of mitigation in any of FEMA's programs, and managers have neither the qualitative tools nor resources."

10/1994

FIA issues a newly revised Agent Flood Insurance Manual.

11/1994

Given the gravity of the 1993 Midwest flood and because less than 15 percent of the nonfederal levees that were damaged qualified for repair consideration under the Corps of Engineer's emergency flood-control repair program, Congress provides supplemental funding for repair of levees. Under the authority of PL 84-99, the Corps of Engineers rehabilitate the 115 levees already eligible under its program and another 241 nonfederal levees using supplemental funding. In total, repairs cost $230 million.

12/1994

The number of flood insurance policies in force exceeds three million for the first time.

12/1994

A report issued by the U.S. House of Representatives Bipartisan Natural Disasters Task Force concludes that the federal government's generosity with disaster assistance diminishes the incentives for state and local governments "to spend scare state and local resources on disaster preparedness, mitigation, response, and recovery. This not only raises the costs of disasters to federal taxpayers, but also to our society…as people are encouraged to take risks they think they will not have to pay for."

The Task Force recommends the creation of a "private, naturally based all-hazard insurance program, in consultation with the insurance industry…for residential and commercial property."

1994

A revised Unified National Program for Floodplain Management is published. In the report, the Federal Interagency Floodplain Management Task Force recommends four broad goals for a Unified National Program. These are to: formalize a national goal-setting and monitoring system; reduce by at least half the risks to life and property and the risks to natural resources of the nation's floodplains; develop and implement a process to "encourage positive attitudes toward floodplain management;" and establish a nationwide, in-house capability for floodplain management.

The report, submitted to Congress on March 6, 1995, also identifies objectives necessary to achieve each goal and establishes target dates for completing them.

1994

The Federal Interagency Floodplain Management Task Force, with funding from the Environmental Protection Agency and the Corps of Engineers, publishes a guidebook for community officials and other interested parties to aid in developing local programs to protect and restore important floodplain resources and functions. Protecting Floodplain Resources: A Guide for Communities provides information on methods to mitigate flood hazards to preserve the integrity of natural systems.

1994

The Association of State Floodplain Managers produces National Flood Programs in Review, 1994, the Association's first comprehensive effort to assess national programs and policies related to floodplain management.

1994

Elaine A. McReynolds is appointed Federal Insurance Administrator.

1994

In Florida Key Deer v. Stickney, 864 F. Supp. 1222 (S.D. Fla. 1994), a U.S. District Court rules that FEMA must comply with the requirements of the Endangered Species Act and consult with the Department of the Interior regarding the possible impacts of development by flood insurance on the key deer, and endangered species (see 4/1990 and 4/1993).

1/1995

As a result of an Audit of the Accuracy of Flood Zone Ratings, FEMA's Inspector General finds that zone misreadings occurred in more than one-quarter of all flood insurance policies and that premiums were incorrect for 10 percent of the policies sampled. The audit also notes that FEMA's flood maps are difficult to read, that the rules for writing policies are more complex than for most other forms of insurance, and that FEMA does not have a program for quality control to verify that insurance agents use the correct rating factors (such as flood zone, elevation, or pre- or post-FIRM status) to calculate premiums.

FEMA accepts the findings, but does not act to implement the report's recommendations, at least through the end of 1999.

2/1995

Retroactive to September 23, 1994, (the date President Clinton signed PL 103-325, the National Flood Insurance Reform Act), all applicants for Individual and Family Grants (IFG) who receive federal disaster assistance are required to purchase and maintain flood insurance on the flooded property until they move to another address. Failure to maintain the insurance will preclude receipt of any subsequent disaster assistance through the IFG program.

2/1995

FEMA publishes in the Federal Register the first compendium that lists all revisions and amendments made to flood maps between October 1, 1994, and December 31, 1994. Subsequent compendia are published in the Federal Register every six months.

3/1995

Federal Disaster Assistance, Report of the Senate Bipartisan Task Force on Funding Disaster Relief (U.S. Senate Doc. No 104-4) concludes that Congress should improve financial preparedness for catastrophic events. The report notes that between FY 1977 and 1993, the federal government spent $64 billion in direct disaster relief and $55 billion indirectly through low-cost loans.

Congress does not act on the recommendations. The Task Force recommends: a) clarification of criteria for declarations of disasters; b) improved incentives for mitigation; and c) greater dependence on insurance. The Senate Task Force does not support the recommendations of the House Bipartisan Natural Disasters Task Force (see 12/1994) regarding all-hazard insurance.

3/1995

FIA proposes the creation of Group Flood Insurance Policies (GFIP). Such policies, intended for low-income recipients of flood-related disaster assistance through the NFIP's Individual and Family Grant Program (see 2/1995), will provide three years of flood insurance, with the federal (75 percent) and state governments (25 percent) sharing the cost of the premiums. At the end of the three-year period, each GFIP recipient will be required to purchase and maintain a standard flood insurance policy. Coverage on that property must be con-

tinued as long as the property exists.

3/1995

In response to the National Flood Insurance Reform Act of 1994, FEMA increases the waiting period to 30 days from 5 days before flood insurance coverage becomes effective. Two exceptions are possible: when the initial purchase of flood insurance is in connection with the making, increasing, extension, or renewal of a loan and when the initial purchase of flood insurance occurs during the one-year period following notice of the issuance of a revised FIRM for a community.

7/1995

Effective July 1, the NFIP introduces provisional ratings for policies that require an elevation certificate when it is not yet available. The NFIP begins accepting credit cards as a means of paying insurance premiums.

7/1995

The Corps of Engineers publishes Floodplain Management Assessment of the Upper Mississippi River and Lower Missouri Rivers and Tributaries. Among its findings, the Corps determines that structural flood protection prevents significant damage, that restoration of floodplain wetlands would have had little impact on floods the size of those in 1993, and increased reliance on flood insurance better ensures appropriate responsibility for flood damage.

7/1995

FEMA’s Inspector General issues an Audit of the Enforcement of Flood Insurance Purchase Requirements for Disaster Aid Recipients. The audit finds that individual recipients of flood-related disaster assistance, who are required to purchase and maintain flood insurance if their flood-damaged property is insurable and within a SFHA, often do not do so (see 9/1994). Low levels of compliance are found even though grants through the Individual and Family Grant Program include funds for the first year’s premium.

Similarly, the audit notes “very low” levels of compliance with the mandatory-purchase requirement among recipients of grants from FEMA’s Public Assistance Program. Such grants provide funds for the repair of state and local governments’ facilities. Recipients of Public Assistance funds must purchase flood insurance if their flood-damaged property is insurable and if their grant is over $5,000, regardless of whether the property is in a SFHA if insurance is reasonably available, adequate, and necessary.

9/1995

Due to extensive flooding during the previous 12 months, the NFIP experiences losses that are much higher than the historic loss level and must borrow $265 million from the Department of Treasury to meets its needs for cash.

10/1995

The NFIP’s “Cover America” campaign begins. The campaign represents a nationwide effort to increase public awareness of the perils of flooding and the desirability of purchasing flood insurance.

12/1995

FEMA issues The National Mitigation Strategy: Partnerships for Building Safer Communities. The document emphasizes two key goals, increasing public awareness of the risks associated with natural hazards and significantly reducing the loss of life, injuries, economic costs, and disruption of families and communities due to natural hazards.

1995

A survey of states by the Association of State Floodplain Managers describes trends since 1992 that have reversed some of the continuous advances made since the late 1960s. According to the survey, state programs face challenges in budget, organization, and authority that threaten their ability to be full, active partners with the federal government and local communities in reducing flood losses. The report concludes that states' capabilities have eroded because of legislative dilution, budgetary restrictions, and organizational dissection.

1/1996

Federally regulated lenders, federal agency lenders, and government-sponsored enterprises are henceforth required to use the Standard Flood Hazard Determination Form. This form is used to determine whether real property offered as collateral for a loan is located in a SFHA.

2/1996

President Clinton promotes FEMA's director to cabinet status.

4/1996

Effective April 30, the NFIP revises the standard flood insurance application and endorsement forms and makes them available through ACORD, a non-profit association that develops and maintains communication standards for the insurance industry.

5/1996

FEMA initiates the use of Group Flood Insurance Policies (see 3/1995). Such policies help disaster victims located in a SFHA who do not qualify for loans from the Small Business Administration comply with flood insurance purchase requirements. The first such policies are issued in August 1996.

8/1996

Federal regulators of financial institutions issue a joint rule on August 29 to implement the provisions of the National Flood Insurance Reform Act of 1994. The rule is intended to achieve uniformity among these regulators on the substantive and procedural requirements of the act. These regulations become effective on October 1, 1996.

9/1996

FEMA exempts several categories of projects funded through the Stafford Act's Hazard Mitigation Grant Program (see 11/1988) from the use of a benefit-cost analysis due to the difficulty in quantifying known project costs and the time involved in gathering data. Exempted activities include those in which the cost of restoring damaged structures equals or exceeds 50 percent of the structures' market value and the structures are located in a 100-year floodplain.

9/1996

In response to Section 541 of the National Flood Insurance Reform Act of 1994, FEMA submits The Community Rating System of the National Flood Insurance Program to Congress. The section requires FEMA to submit a report on the rating system to Congress every two years. Such reports are required to analyze the program's cost effectiveness, accomplishments, or shortcomings, and to provide recommendations for legislation.

9/1996

Due to extensive flooding during the past 12 months, the NFIP experiences losses that are much higher than its historic loss levels and must borrow funds

from the Department of Treasury to meets its needs for cash. The total amount borrowed reaches $626 million. The NFIP borrows an additional $192 million over the next six months.

10/1996

Congress approves a supplemental request (reflected in PL 104-208) to increase the NFIP's borrowing authority (see 9/1996) for FY 1997 to $1.5 billion from $1 billion.

10/1996

Federally regulated lending institutions and government-sponsored enterprises (GSE) that purchase mortgages are required, effective October 1, to escrow premiums for flood insurance for properties located in floodplains. If a federally regulated lender or GSE determines that a property in a SFHA does not need flood insurance, such insurance can be "force placed" at the borrower's expense.

10/1996

The Federal Financial Institutions Examination Council (FFIEC) implements revised examination procedures for flood insurance in response to the new mandatory purchase requirements of the National Flood Insurance Reform Act of 1994 (see 9/1994).

12/1996

FEMA issues interim guidance for determining the cost-effectiveness of hazard-mitigation projects entitled How to Determine Cost-Effectiveness of Hazard Mitigation Projects: A New Process for Expediting Application Reviews. The new guidelines declare that benefit-cost analysis should be used for all cost-effectiveness determinations.

12/1996

Through its Innovations in American Government program, Harvard University's School of Government recognizes FEMA for its Consequent Assessment Tool Set (CATS), which enables the agency to predict the likely consequences of an impending disaster and then to rapidly mobilize an appropriate response.

12/1996

FEMA creates an Insurance Task Force to develop recommendations for the reform of its Public Assistance program (see 11/1988 and 7/1995). The Flood Disaster Protection Act of 1973 required the NFIP to identify, by June 30, 1974, all communities that contain areas at risk for serious flood hazard and to notify these communities that they can apply for participation in the NFIP or forego their eligibility for certain types of federal assistance in their floodplains (see 12/1973).

1996

The Association of State Floodplain Managers establishes an executive office in Madison, Wisconsin. The Association has catalogued more than 700 publications, which are housed at the National Floodplain Management Resource Center at the University of Colorado.

1996

Gerald Galloway declares "the flood [the 1993 upper Mississippi and lower Missouri River basins flood] is over. No one now cares," in his remarks to the Association of State Floodplain Managers Annual Conference and printed in National Flood Policy: Progress Since the 1993 Floods.

1/1997

FEMA's Insurance Task Force issues Insurance Regulations, Review, Analysis, and Recommendations. The report focuses attention on FEMA's Public Assistance program and recommends that: a) insurance deductibles not be eligible for FEMA funding; b) FEMA establish a policy requiring actual proof of insurance rather than an insurance commitment, before funding is provided; c) FEMA should develop clear regulations to minimize opportunities for misinterpretation of these regulations among FEMA's regional offices; and d) the authority of state insurance commissioners to waive insurance requirements for public facilities be revoked. In lieu of these commissioners being allowed to grant waivers, the report encourages input from them as to the availability, adequacy, and necessity of insurance. Under no circumstances, however, should the requirement be waived because of affordability, at least according to the report.

3/1997

FEMA issues a Report on Costs and Benefits of Natural Hazard Mitigation, which reviews the benefits of mitigation measures. Among the report's 16 case studies are three related to floods: a) the acquisition and relocation of floodplain structures in Missouri; b) land-use and building regulations along Florida's coasts; and c) land-use and building requirements in floodplains.

3/1997

The Flood Insurance Interagency Task Force submits an interim report to Congress providing details on surveys, studies, and research underway to complete the tasks directed by Title V of the National Flood Insurance Reform Act of 1994 (see 9/1994).

5/1997

To consider and implement the recommendations in the 1994 report, A Unified National Program for Floodplain Management, FEMA convenes a group of about 40 experts at the annual conference of the Association of State Floodplain Managers in Little Rock, Arkansas and prepares a report on the forum.

6/1997

Mandated by the National Flood Insurance Reform Act of 1994, Increased Cost of Compliance (ICC) coverage is included in all new and renewed flood insurance policies effective on or after June 1, 1997. This coverage helps to cover the costs of bringing flood-damaged homes and businesses into compliance with community floodplain ordinances. The coverage limit of $15,000 helps to pay for elevating, flood proofing, demolishing, or relocating a structure that has been substantially or repetitively damaged by flooding. ICC coverage is available only in communities that adopt and enforce substantial-damage or repetitive-loss provisions in their floodplain management ordinances and require action by property owners.

9/1997

In accordance with the Government Performance and Results Act (PL 103-62), FEMA issues its first strategic plan, Partnership for a Safer Future. The plan delineates FEMA's mission statement, which is to reduce future loss of life and property through timely delivery of assistance intended to help communities restore damaged services and rebuild facilities. According to the plan, FEMA seeks to reduce, by FY 2007, the risk of loss of life and injury from natural hazards by 10 percent and the risk of property loss and economic disruption from such hazards by 15 percent.

9/1997

Due to continuing flood-related losses that exceed historical averages, the

value of the Department of the Treasury's loans to the NFIP reach $917 million (see 9/1995 and 9/1996).

10/1997

FEMA publishes a final rule on AR Zones. The rule establishes an AR zone or area of special flood hazard that results from the decertification of a previously accredited flood protection system that is determined to be in process of being restored to provide base flood protection.

10/1997

FEMA begins "Project Impact," an effort to protect against the impact of natural disasters before they happen. The project seeks to build disaster-resistant communities through public-private partnerships and includes a national public-awareness campaign; the designation of pilot communities; and an outreach effort to community and business leaders. FEMA will encourage communities to assess the risks they face, to identify their vulnerabilities, and to take steps to prevent disasters.

The first three pilot communities include Deerfield Beach, Florida; Pascagoula, Mississippi; and Wilmington, North Carolina. Others are in California, Maryland, Washington, and West Virginia. FEMA's goal is to have at least one Project Impact community in every state by September 30, 1998.

Congress appropriates $30 million for Project Impact for FY 1998 and $25 million for the following fiscal year.

10/1997

FEMA announces that benefit-cost analyses will not be required for hazard mitigation planning projects associated with disasters that occurred before June 10, 1993.

11/1997

In Modernizing FEMA's Flood Hazard Mapping Program, FEMA describes its plans to modernize its flood-hazard maps, of which there are about 100,000 map panels. The program's purpose is to increase public awareness and the maps' accuracy, utility, and production. Approximately 45 percent of the current maps are at least 10 years old, and 70 percent are five years or older. Consequently, many of the maps are inaccurate and portray analyses that are outdated.

11/1997 continued

FEMA estimates the cost of implementing its new program at $901 million (in addition to the $46 million spent in 1997) over seven years. FEMA believes that the plan will avoid approximately $26 billion in flood damages to new buildings over a 50-year period.

12/1997

In response to Section 577 of the National Flood Insurance Reform Act of 1994, FEMA completes a process of mapping erosion hazards in 27 coastal counties in 18 states.

1997

The Association of State Floodplain Managers establishes a foundation to "attract funds that support, through education, training and public awareness, projects and programs that will lead to the wise management of our nation's floodplains."

1997

The Presidential Long Term Recovery Task Forces (for the 1997 Red River floods) are established. These task forces operate at a higher administrative level and are more visible than FEMA's mitigation process. Recovery and mitigation become increasingly integrated.

1997

FEMA awards a contract to evaluate the NFIP's underwriting and loss adjustment process. This subsequent report provides recommendations to improve the operation of the NFIP by identifying practical changes to the underwriting/rating and claims processes. The NFIP's requirements and controls (and compliance with them) are found to be adequate to ensure effective management of the program. The report also notes areas for improvement.

1997

FEMA awards a contract to investigate alternative financing arrangements for the NFIP. A stochastic model is developed to estimate the NFIP's financing costs over a ten-year period using eight alternative financing scenarios. Four commercial and four governmental financing scenarios are simulated, and the total cost of each is projected.

1/1998

FEMA initiates the Repetitive Loss Task Force to develop a strategy to address the NFIP's repetitive loss problem.

3/1998

The American Society of Civil Engineers releases its 1998 Report Card for America's Infrastructure and declares that "an alarming number of dams across the country are showing signs of age and lack of proper maintenance….Dam safety officials estimate that thousands of dams are at risk of failing or are disasters waiting to happen."

3/1998

FEMA's Office of Inspector General issues Review of FEMA's Implementation of Insurance Requirements in the Public Assistance Program. The report recommends that FEMA clarify its regulations governing the conditions under which state insurance commissioners issue waivers of insurance requirements for recipients of Public Assistance grants.

As a condition of receiving a Public Assistance grant, FEMA requires that applicants purchase and maintain insurance on property damaged in a disaster (see 11/1988, 1/1997, and 7/1995). The amount of insurance applicants must purchase is equal to the cost of repairs to the property. In addition, insurable structures located in a SFHA must be insured if they have been damaged in previous disasters. These requirements are designed to reduce the need for future disaster assistance. In lieu of a commitment to purchase insurance, an applicant can obtain a waiver from a state insurance commissioner. The commissioner can waive the requirement if it is determined that the required insurance is not reasonably available, adequate, and necessary.

The Inspector General's report notes that FEMA has not provided an interpretation of what is reasonable, with the consequence that many waivers are granted because insurance commissioners decide that suitable coverage is not affordable. In such instances, FEMA has a substantial uninsured investment since it is the primary insurer.

3/1998

In a separate report, Improvements Are Needed in the Hazard Mitigation Buyout Program, the Office of Inspector General questions FEMA's decision to

exempt certain categories of activities from the requirement that mitigation activities be cost-effective, as determined through the use of cost-benefit analysis. The report also notes that FEMA lacks an analytical basis for exempting such projects.

5/1998

On May 1, the NFIP increases the standard deductibles for building and contents coverages for subsidized policies to reduce the subsidy levels through means other than rate increases. Other program changes include: new eligibility requirements for Preferred Risk Policies based on the flood history of the property regardless of ownership, implementation of new AR zones, and detailed procedures for detailed procedures for determining eligibility for NFIP insurance in areas of the Coastal Barrier Resources Systems.

6/1998

The National Flood Determination Association (NFDA) incorporates itself. The NFDA, a national non-profit organization, promotes the interest and success of companies involved in making, distributing, and reselling flood zone determinations.

9/1998

FEMA initiates a nationwide Call for Issues. Through this activity FEMA requests comments on all facets of the NFIP from its partners and customers in an effort to improve the program's effectiveness.

9/1998

The Flood Insurance Interagency Task Force submits its final report to Congress on Enforcement and Compliance Procedures Necessary to Carry Out the Provisions of the National Flood Insurance Reform Act. The Task Force reports on its development of a compliance model checklist, a catalog of compliance assistance materials, and a list of "best practices" for federal agencies and Government Sponsored Enterprises (GSEs). The report finds that a reasonable degree of standardization of enforcement exists within the federal agencies and GSEs.

9/1998

Five cities in southern California file a lawsuit in U.S. District Court in which they claim that FEMA's delineation of a flood control restoration zone (Zone AR) violates the National Environmental Policy Act and Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." The cities allege that the zone's designation and the requirements it imposes will have a substantial negative impact of their residents' ability to use their land, on the environment, and on minority and low-income populations.

10/1998

The Partnership for Response and Recovery, under a FEMA contract, issues Analysis of Public Assistance Proposed Insurance Regulation Changes, which estimates the potential cost reductions of proposed changes in insurance regulations and the Stafford Act's Public Assistance grants (see 11/1988, 7/1995, 1/1997, and 3/1998).

10/1998

In response to Section 541 of the National Flood Insurance Reform Act of 1994, FEMA completes and submits to Congress An Evaluation of the National Flood Insurance Program's Community Rating System. The report notes that 894 communities, representing 66 percent of all policyholders, participate in CRS (see 10/1990 and 9/1994). Tulsa, Oklahoma, and Sanibel Island, Flor-

ida, are the two-best rated CRS communities.

11/1998

FEMA's director, James Lee Witt, announces a series of proposals to reduce disaster losses by half in three years and to save nearly $1 billion over 10 years. If adopted, the first proposal would prohibit the purchase of flood insurance by homeowners who have filed two or more claims that total more than the value of their home and who refuse to elevate their home or to accept a buyout. At present, there is no limit to the number of claims made by property owners who suffer repetitive damage from floods.

11/1998 continued

The second proposal would require that public buildings be insured to 80 percent of their replacement value within two years. Although the 1988 Stafford Act requires states and local communities to insure public buildings, FEMA's regulations require only that the amount of insurance to be purchased must be at least up to the amount of eligible damage under the Public Assistance program (see 11/1988, 7/1995, 1/1997, and 3/1998). If the eligible damage is less than the building's replacement value, and if the corresponding minimal levels of insurance can be purchased, this can result in vastly underinsured buildings.

Existing regulations do not indicate whether the insurance must provide coverage for a building's actual cash value or its replacement cost and do not address deductibles. Consequently, the current regulations do not include any incentive to encourage insurance on public buildings that have benefited from disaster assistance.

1998

FIA estimates that approximately 1.7 million homeowners (or 38 percent) with a mortgage in a SFHA do not have flood insurance.

1998

The National Wildlife Federation publishes Higher Ground: A Report on Voluntary Property Buyouts in the Nation's Floodplains describing efforts to restore floodplains through voluntary buyouts of property in high-risk areas. The report analyzes repetitively flooded properties and discusses the history of buyout programs in the United States and the 1993 Midwest flood. Most important, the report concludes that the NFIP is not actuarially sound and that its premiums are insufficient to generate the funds needed to cover flood insurance payments.

1998

JoAnn Howard is appointed Federal Insurance Administrator.

1/1999

The Association of State Floodplain Managers supports the creation of state floodplain management associations and encourages their chapter membership. As of 1999, 12 states enjoyed chapter membership. Several other states formed associations, with many working toward chapter status.

1/1999

FIA uses findings from an evaluation of the "Cover America" campaign to develop the "Cover America II" campaign.

1/1999

FEMA, working with the Public Risk Management Association, conducts a series of regional meetings of public risk managers to discuss and hear reac-

tions to FEMA's first draft of its insurance proposal relative to Public Assistance grants under the Stafford Act (see 11/1988, 7/1995, 1/1997, 3/1998, and 11/1998). FEMA's goal is to limit funding under the Act's Public Assistance program to the state and local agencies that maintain specified minimum levels of insurance coverage. FEMA believes that existing rules create a disincentive to both carry insurance and to manage the risk of disasters and are inequitable in that they penalize state and local governments that purchase appropriate insurance coverage.

1/1999

National Flood Insurance Program: Issues Assessment, A Report to the Federal Insurance Administration is published. This report, funded by FEMA, is based on a literature review to answer questions about the program's effectiveness by assessing two central concerns: the relation between floodplain development and insurance availability and enforcement of floodplain management requirements at the local level. The report notes that "none of the studies offered irrefutable evidence that the availability of flood insurance is a primary factor in floodplain development today. Neither does the empirical evidence lend itself to the opposite conclusion." Noting that "it is there, in the day-to-day decisions by location officials, that the [NFIP] either succeeds or fails to accomplish its statutory mandate" and that "a number of tools and oversight systems have been devised to monitor, support and evaluate the quality of community enforcement." The report offers no conclusions regarding the second concern.

1/1999

FEMA requests that Congress authorize a transaction fee of $15 for each federally insured mortgage issued. The money collected will be used to fund FEMA's modernization of its maps. Congress eventually declines the request but does provide $5 million to begin updating the maps.

The U.S. Senate Committee on Appropriations instructs FEMA to evaluate alternative funding options. FEMA's response is contained in Flood Map Modernization Plan: Funding Options Report. Four options are identified: a map-use fee; an increase in the fee charged for each flood insurance policy; supplemental appropriations; and use of the NFIP's borrowing authority.

2/1999

The U.S. House of Representatives' Committee on Financial Services indicates that its oversight plan for the 106th Congress includes attention to repetitive losses and the implementation of the Community Development and Regulatory Improvement Act of 1994 (see 9/1994).

3/1999

To recognize the inherently greater flood risk of pre-FIRM, V-zone properties, FIA announces increases in the amount of premiums that flood insurance policyholders must pay for flood insurance coverage for pre-FIRM buildings in coastal areas subject to high velocity waters, such as storm surges and wind-driven waves.

4/1999

FIA hires an advertising agency to plan, implement, and evaluate the five-year "Cover America II" campaign. A new logo is developed for the campaign.

5/1999

On May 1, the NFIP eliminates the three-year policy.

5/1999

At FEMA's request, a Study of the Economic Effects of Charging Actuarially Based Premium Rates for pre-FIRM Structures is completed. The study examines: the number and types of properties that would be affected by an increase in premium rates; the number of policyholders that might cancel their policies if rates are increased; and the effects of increased premiums on property taxes and the value of land. The report estimates that there are about seven million structures in a SFHA. The study concludes that an immediate elimination of subsidized flood insurance would lead to a significant drop in the number of people retaining insurance. In the report's words, "…if [the] subsidy was eliminated…average premiums for residential properties subject to substantial flood risk would likely increase from $585 to about $2,000 annually."

5/1999

The Association of State Floodplain Managers initiates a Certified Floodplain Manager (CFM) Program. The program is intended to advance the knowledge of floodplain managers, enhance the profession of floodplain management, and provide a common basis for understanding floods and flood losses.

5/1999

A. U.S. District judge in the Central District of California rules that FEMA did not violate the National Environmental Policy Act by requiring flood insurance of property owners in five southern California cities without first preparing an environmental impact statement (see 9/1998).

6/1999

The Board of Governors of the Federal Reserve System imposes the first penalty on a federally regulated lending institution, in Puerto Rico, for a pattern of noncompliance with the mandatory-purchase requirement of the Flood Disaster Protection Act of 1973. The Federal Deposit Insurance Corporation subsequently imposes a fine on a lending institution for the same reason.

7/1999

FEMA submits a draft, revised regulation on Public Assistance grants and insurance requirements to the Office of Management and Budget for review and approval (see 11/1988, 7/1995, 1/1997, 3/1998, 11/1998, and 1/1999). FEMA designates the draft proposed rule as being economically significant under Executive Order 12866, Regulatory Planning and Review, but has not yet completed analyses of the economic impact the proposed regulations would have on small entities.

7/1999

With the imminent expiration of the first Group Flood Insurance Policies (see 5/1996 and 8/1996), FEMA extends the coverage of such policies from 36 to 37 months. As of September 30, 2002, FEMA reinstates the 36-month term for Group Flood Insurance Policies.

8/1999

FEMA proposes to apply full-risk premium rates on new or renewed policies for structures that have suffered multiple flood losses whose owners have declined an offer of funding to elevate, relocate, or flood proof the structure. Labeled as "target repetitive loss buildings," these structures have had two or more flood-related losses, each resulting in a claim of $1,000 or more, within the past 10 years. In addition, such structures have suffered four or more insured flood losses or two insured flood losses cumulatively greater than their value.

FEMA indicates that approximately 8,000 insured structures have suffered four or more losses; another 1,300 insured buildings have had two or three losses that cumulatively exceed their value.

8/1999

The GAO releases Disaster Assistance: Opportunities to Improve Cost-Effectiveness Determinations for Mitigation Grants. The 1988 Stafford Act requires that such grants be cost effective, but the report notes that 15 percent of funds distributed by FEMA's Hazard Grant Mitigation Program have been exempted from benefit-cost analysis or had a benefit-cost ratio of less than 1.0. In addition, 39 percent of projects had a benefit-cost ratio of between 1.0 and 1.5, and were thus "marginally effective," at least according to a subcommittee of the U.S. House of Representatives' Committee on Transportation and Infrastructure.

FEMA states that it will comply with all of the recommendations included in the GAO report.

8/1999

FEMA issues Cost Estimate for the Flood Map Modernization Plan. The report estimates it will cost $750 million to implement the plan over the seven-year period from FY 2001-07. The upgrade of the map inventory will involve updating and producing digital maps for at least 17,500 panels requiring updates, digital conversion and maintenance for 74,500 panels, and development of flood data and digital flood maps for 13,700 panels for flood-prone communities without flood maps.

9/1999

In an Audit of the Effectiveness of the Substantial Damage Rule, FEMA's Inspector General notes that many communities participating in the NFIP fail to enforce the substantial damage rule. As a result, subsidized rates are provided to structures that should be rated on an actuarial basis.

9/1999

FEMA publishes an Economic Evaluation of Substantially Damaged Structures Funded through the Hazard Mitigation Grant Program. The report retrospectively calculates the costs and benefits of approximately 10 percent of acquisition and relocation projects for substantially damaged structures in floodplains.

9/1999

Hurricane Floyd strikes North Carolina and causes the worst flooding in the state's history. Over $100 million in disaster assistance is provided to more than 72,000 residents.

Throughout the state, nearly 150,000 structures are located in SFHAs, but only one-third are covered by flood insurance.

10/1999

FEMA's director hosts a meeting with insurance executives. According to FEMA, the participants agree that FEMA's proposal on Public Assistance grants has strong merit and the amount of insurance coverage appears reasonable (see 11/1988, 7/1995, 1/1997, 3/1998, 11/1998, and 1/1999). FEMA also observes that doubt is expressed about the market's ability to provide earthquake coverage immediately and that several meeting participants suggested separating earthquake insurance from the proposal.

10/1999

FIA begins operating the Special Direct Facility (SDF) to centralize policies with repetitive losses for control purposes and mitigation actions. Two subsets of currently insured repetitive-loss properties are moved to the SDF – those

with two or three paid losses where the cumulative payments for flood insurance claims are equal to or greater than the building value and those with four or more paid losses.

10/1999

FEMA director James Lee Witt informs a congressional committee that 84 percent of the agency's flood-hazard maps are more than five years old, 66 percent are greater than 10 years old, and 33 percent are greater than 15 years old. Some maps, produced in the 1970s, have never been updated.

10/1999

At a hearing before the U.S. House of Representatives' Subcommittee on Housing and Community Development Opportunity of the Committee on Banking and Financial Services, Director Witt notes that FEMA has identified approximately 10,000 properties that have had four or more flood losses or two or three flood losses that cumulatively exceed the value of the building. The NFIP has provided over $800 million in claims for these properties over the past 21 years. The total cost for mitigation or buyout for these structures would be about $450 million.

10/1999

Through October 1999, FEMA has issued 98 Group Flood Insurance Policies (see 3/1995, 5/1996, 8/1996, and 7/1999) covering nearly 29,000 households.

11/1999

The H. John Heinz III Center for Science, Economics and the Environment publishes The Hidden Costs of Coastal Hazards. The result of a two-year study by an expert panel, the report suggests new strategies to identify and reduce weather-related hazards and the costs associated with rapidly increasing coastal development. The report offers the first in-depth estimates of the costs of coastal hazards to natural resources, social institutions, business, and the built environment.

11/1999

"Cover America II" begins to increase awareness of the NFIP and flood insurance.

11/1999

The Consolidated Appropriations Act (PL 106-113) directs FEMA to study the feasibility and justification for reducing buyout assistance to property owners who fail to purchase and maintain flood insurance. The Act also authorizes up to $215 million for the buyout or relocation of owner-occupied principal residences located in a 100-year floodplain that were made uninhabitable by flooding caused by Hurricane Floyd and "surrounding events" in October 1999. Before such funds can be allocated, FEMA will be required to establish procedures for establishing priorities and for benefit-cost analyses.

12/1999

By the end of 1999, there are more than 4.2 million flood insurance policies in effect, with total insurance coverage of more than $534 billion, an increase of more than 250 percent since December 1990.

1999

Approximately 20 years after publication of the first Assessment of Research on Natural Hazards, researchers complete a follow-up study to reassess the state of knowledge of natural hazards in the United States. Begun in 1992, the study involves more than 120 experts and culminates in Disasters by Design:

A Reassessment of the Natural Hazards in the United States. The report concludes that: a) one of the central problems in coping with disasters is the belief that technology can be used to control nature; b) most strategies for coping with hazards fail to consider the complexity and changing nature of hazards; and c) losses from hazards result from shortsighted and narrow concepts of the relation of humans to the natural environment. To redress these shortcomings, the researchers recommend that the United States shift to a policy of "sustainable hazard mitigation." This concept links wise management of natural resources with local economic and social resiliency.

1999

In Disasters and Democracy: The Politics of Extreme Natural Events, Rutherford Platt and his colleagues trace the historical evolution of the federal role in disaster assistance and analyze disaster declarations and federal assistance provided under the Robert T. Stafford Relief and Emergency Assistance Act since 1988.

End 1990s

FEMA has mapped more than 100 million acres of SFHAs and had designated about six million acres of floodways along 40,000 stream and river miles. The total cost for these studies is approximately $1.3 billion.

1/2000

The International Building Code and the International Residential Code are published. For the first time there is a national model building code that includes the construction provisions of the NFIP. The codes are substantially equivalent to the requirements of the National Earthquake Hazard Reduction Program Recommended Provisions (1977) and the state-of-the-art wind-load provisions of the American Society of Civil Engineers (1998), Minimum Design Loads for Buildings and Other Structures. The International Residential Code represents the first time that wind, flood, and seismic loads are comprehensively addressed in a model for one- and two-family dwellings.

2/2000

In Disaster Assistance: Issues Related to the Development of FEMA's Insurance Requirements, the GAO concludes that FEMA had conscientiously sought to obtain and incorporate comments from stakeholders on its proposal to revise the Public Assistance program (see 11/1988, 7/1995, 1/1997, 3/1998, 11/1998, 1/1999, and 10/1999). In contrast, the GAO also finds that FEMA had not completed the analysis required for economically significant regulations.

2/2000

Seeking public comment and advice, FEMA publishes an Advance Notice of Proposed Rulemaking, which indicates FEMA's belief that its regulations covering Public Assistance insurance requirements are inadequate with respect to public buildings (see 11/1988, 7/1995, 1/1997, 3/1998, 11/1998, 1/1999, and 10/1999). The notice identifies three options; FEMA favors the option that would provide funds for the repair of public buildings, through federal disaster assistance, only if they are insured at the time of the disaster. States and local governments would have 36 months after the publication date of the final rule to purchase the required insurance.

4/2000

The Association of State Floodplain Managers publishes The Nation's Response to Flood Disasters: A Historical Account, which summarizes the forces and events that have affected floodplain management in the United States since the 1850s.

5/2000

The NFIP revises its fee schedule for processing certain types of requests for changes to NFIP maps and for processing requests for particular NFIP map and insurance products. The changes in the fee schedules are intended to further reduce the NFIP's expenses by recovering more fully the costs associated with processing conditional and final requests for map changes; retrieving, reproducing, and distributing technical and administrative data related to analyses and mapping; and producing, retrieving, and distributing map and insurance products.

6/2000

In collaboration with the H. John Heinz III Center for Science, Economics and the Environment, FEMA releases Evaluation of Erosion Hazards. The report responds to a congressional mandate included in Section 577 of the National Flood Insurance Reform Act of 1994. Noting that coastal erosion potentially jeopardizes nearly 87,000 homes, the report recommends that Congress should require FEMA to include the anticipated cost of erosion when setting flood insurance rates. The NFIP is not permitted to take into account expected losses from coastal erosion when establishing premiums for flood insurance.

6/2000

FEMA issues Call for Issues: Status Report, which summarizes the NFIP-related comments and suggestions of more than 170 stakeholders (see 9/1998).

6/2000

The NFIP issues rules that establish procedures for inspections to help verify that structures comply with a community's floodplain ordinances and to ensure that property owners pay flood insurance premiums commensurate with their flood risks. The procedures, to be used initially in a pilot study in Monroe County, Florida, will require owners of insured buildings to obtain an inspection from local floodplain officials as a condition of receiving insurance. Results of the pilot study will be evaluated before further implementation of the new procedures.

6/2000

FEMA sponsors a Floodplain Management Forum in Washington, DC, which gathers a group of experts on floodplain management together to discuss the future of floodplain management in the United States.

7/2000

PL 106-246 provides $50 million for the buyout and elevation of structures in states that received presidential disaster declarations in FY 1999 or 2000.

8/2000

At the request of the U.S. Senate's Committee on Banking, Housing, and Urban Affairs, the GAO initiates a study of the compliance of federally regulated lending institutions with the NFIP's mandatory-purchase provisions (see 12/1973, 1/1974, 8/1990, and 6/1999). The Flood Disaster Protection Act of 1973 prohibits such institutions from making, increasing, extending, or renewing any loan on a property without requiring flood insurance if that property is located in a SFHA within a community participating in the NFIP. As a result of the GAO study, FIA delays its own study on the subject.

8/2000

In response to the Consolidated Appropriations Act (PL 106-113) (see 11/1999), FEMA reports to Congress that there is no justification for reducing buyout assistance to property owners who fail to purchase and maintain flood

insurance. In the report's words, "Doing so will not result in any significant increase in the purchase of flood insurance, but will have the unintended consequence of effectively penalizing the low income populations most in need of federal assistance to move out of harm's way…."

8/2000

In Opportunities to Enhance Compliance with Homeowner Flood Insurance Purchase Requirements, FEMA's Inspector General examines compliance with the requirement for mandatory purchase of flood insurance by property owners with mortgages from federally regulated lending institutions. In its sample of structures, the Inspector General finds that 10 percent did not have flood insurance even though they met the requirements for mandatory purchase. The examination also notes that there is "no process to ensure that structures remapped into SFHAs are covered by or will be required to purchase a flood insurance policy."

The report also observes that Group Flood Insurance Policies (see 3/1995 and 8/1996) appear to have lessened the costs of some disasters and appear to be cost-effective. In contrast, once the federal and state subsidies end for such policies, the low-income recipients of these subsidies rarely continue their coverage, although they are required to do so under the terms of their receipt of previously subsidized coverage.

9/2000

In an Audit of FEMA's Cost Estimates for Implementing the Flood Map Modernization Plan, FEMA's Inspector General concludes that the agency's methodology for estimating the plan's costs are generally sound but that FEMA "has not made significant progress in implementing the plan's primary objectives" due to a lack of funds and the accuracy of the estimated costs of implementation should be improved.

9/2000

FEMA initiates the first comprehensive evaluation of the NFIP. A consulting firm is hired to design the evaluation and to assess the feasibility of evaluating questions in six areas of inquiry.

10/2000

FIA issues final regulations in the Federal Register that render the standard flood insurance policy in plain English and restructures its format to resemble a homeowner's policy. In addition, use of FEMA's new elevation certificate becomes mandatory.

10/2000

FEMA summarizes comments in the Federal Register from nearly 300 stakeholders who expressed their opinions about the agency's proposed revisions to the Public Assistance program (see 11/1988, 7/1995, 1/1997, 3/1998, 11/1998, 1/1999, 10/1999, and 2/2000). Opponents claim that states and communities cannot afford to insure public buildings and that coverage would be difficult to obtain. FEMA notes that it will initiate a study on insurance coverage of publicly owned buildings and facilities.

10/2000

FEMA issues its Biennial Report to Congress on the Community Rating System. As of October 1, 926 communities are participating in CRS. Tulsa, Oklahoma continues to be the best rated community (see 10/1998), followed by Juno Beach and Sanibel, Florida; Kemah, Texas; and Pierce and Thurston Counties, Washington.

10/2000

The Disaster Mitigation and Cost Recovery Act (PL 106-390) amends the 1988 Stafford Act and provides authority to establish a program to provide technical and financial assistance to states and local governments to assist in the implementation of predisaster hazard-mitigation measures that are cost-effective and that are designed to reduce injuries, loss of life, and damage and destruction of property, including damage to critical services and facilities under the jurisdiction of the states or local governments.

The law also requires states to prepare a comprehensive state program for emergency and disaster mitigation prior to receiving funds from FEMA and directs the GAO to conduct a study to determine the current and future expected availability of disaster insurance for public infrastructure eligible for assistance under the Stafford Act.

The law further requires that FEMA discontinue its Individual and Family Grant Program as of May 2002 and replace it with a new program entitled "Financial Assistance to Address Other Needs" (see 2/1995).

11/2000

President William J. Clinton signs into law the Coastal Barrier Resources Reauthorization Act of 2000 (PL 106-514), which reauthorizes and amends the Coastal Barrier Resources Act (CBRA) (see 10/1982 and 11/1990). One provision of the Act allows for the voluntary addition of lands to the Coastal Barrier Resources System (CBRS) and could increase the amount of coastal barriers protected by CBRA. The Act also codifies a set of mapping criteria, which will help the public understand the technical basis behind delineating parts of the CBRS. Finally, the Act authorizes a pilot program to digitally map coastal areas and to improve the coordination of mapping efforts at the federal, state, and local levels.

12/2000

More than 200 communities are participating in Project Impact, FEMA's predisaster mitigation program.

2000

FIA's business process improvement initiative results in a "Blueprint for the Future" for the NFIP. Developed with the NFIP's strategic partners, this blueprint will be the foundation for strategic and performance planning. When completed, Phase II will focus on FIA's information technology requirements and capabilities. Strategies for information technology, which lead to optimum future operations, will be developed and assessed.

1/2001

In Compliance with Public Assistance Program's Insurance Purchase Requirements, FEMA's Inspector General notes that neither FEMA nor the states consistently maintain sufficient information to support their decisions on applicants' insurance status (see 11/1988, 7/1995, 1/1997, 3/1998, 11/1998, 1/1999, 10/1999, 2/2000, and 10/2000). As a condition of receiving public assistance, recipients are required to protect insurable facilities by obtaining and maintaining insurance for the hazard that caused the damage. If the applicant does not maintain insurance, FEMA will not provide any assistance to that applicant in future disasters of the same type. In about one-third of cases examined, states, or communities did not maintain required insurance. In other instances, although proof of insurance was provided, some applicants for federal assistance purchased less insurance than required. FEMA generally agreed to implement the recommendations associated with the audit's findings.

1/2001

Several environmental groups, including the Forest Guardians of Santa Fe, file

suit in U.S. District Court in New Mexico alleging that the NFIP promotes inappropriate development in floodplains of the Rio Grande and San Juan Rivers and adversely affects the habitats of several endangered species.

2/2001

President George W. Bush submits to Congress his budget for 2002. This "Blueprint for New Beginnings" includes reforms to the National Flood Insurance Program aimed at saving $12 million dollars. The budget seeks to eliminate the availability of flood insurance coverage to several thousand "repetitive loss" properties and phase out the subsidization of premium rates for vacation homes, rental properties, and other nonprimary residences and businesses. The proposed budget would also eliminate funding for Project Impact (see 10/1997) because it "has not been proven effective."

2/2001

The U.S. House of Representatives' Committee on Financial Services indicates that its oversight plan for the 107th Congress includes attention to the implementation of the Community Development and Regulatory Improvement Act of 1994 (see 9/1994) and recent FEMA reports that address reductions in subsidies and repetitive losses (see also 2/1999).

2/2001

In Buyouts: Hurricane Floyd and Other Issues Related to FEMA's Hazard Mitigation Grant Program, FEMA's Inspector General notes that ambiguity in the legislation authorizing buyouts of properties damaged by Hurricane Floyd "caused significant delays in the commencement of the buyout process, contributed to much confusion and frustration over the funding requirement to execute such projects, and may have caused potential inequities in the type of structures targeted for buyout…" (see 11/1999 and 7/2000).

5/2001

The GAO provides testimony and submits a statement to the U.S. Senate's Committee on Appropriations, Subcommittee on Veterans, Housing, and Independent Agencies, on Emerging Opportunities to Better Measure Certain Results of the National Flood Insurance Program. The GAO finds that FEMA's performance goals do not assess the degree to which residents in flood-prone areas participate in the program. Noting that better data are needed on the number of structures in flood-prone areas, the GAO concludes that "Capturing data on the numbers of uninsured and insured structures in flood-prone areas can provide FEMA with another indication of how effectively the program is penetrating those areas most at risk of flooding, whether the financial consequences of floods in these areas are increasing or decreasing, and where marketing efforts can better be targeted."

6/2001

FEMA combines FIA and the Mitigation Directorate to form the Federal Insurance Administration and Mitigation Administration (FIMA).

6/2001

The NFIP eliminates its outstanding debt to the Department of the Treasury. This debt, which the NFIP had accumulated to pay for flood claims since the 1970s, had reached as much as $922 million in February 1999.

7/2001

In testimony before the U.S. House of Representatives' Committee on Financial Services, Subcommittee on Housing and Community Opportunity, FIMA's acting director notes that pre-FIRM, subsidized policies represent approximately 27 percent of all of its policies. Among all policies, approximately

15 percent of properties have accounted for 38 percent of all of the NFIP's losses.

8/2001

Robert F. Shea is appointed Acting Federal Insurance and Mitigation Administrator.

9/2001

The Office of Federal Housing Enterprise Oversight proposes (and subsequently adopts in December 2001) a regulation to codify the office's authority to oversee and enforce certain statutory requirements affecting the operations of government-sponsored enterprises regarding the NFIP.

10/2001

More than 4.37 million policies are in force, with a total coverage of approximately $594/5 billion. These policies are distributed among 19,713 communities, including 19,071 in the regular program and 642 in the emergency program (see 12/1969); 938 communities (with 66 percent of all policyholders) participate in the Community Rating System (see 10/1990).

12/2001

FEMA proposes to increase the amount of premium that policyholders must pay for flood insurance for pre-FIRM buildings in coastal areas subject to high-velocity waters, such as storm surges and wind-driven waves. If finalized, the increase will represent the fifth such increase in rates for such policyholders (see 3/1999). The purpose of the proposed increase is to reflect the insurance associated with their greater exposure to flood losses.

1/2002

In response to the Disaster Mitigation Act of 2000 (PL 106-390) (see 10/2000), FEMA proposes the consolidation of two disaster-relief programs, "Temporary Housing Assistance" and "Individual and Family Grant Program," into a single program called "Federal Assistance to Individuals and Households." In addition, FEMA proposes the elimination of Group Flood Insurance Policies (see 3/1995, 5/1996, 7/1999, 10/1999, and 8/2000), thus indicating its desire to "restore the responsibility for the flood insurance purchase requirement back to the individual or household receiving federal assistance."

1/2002

FEMA notifies officials in Monroe County, Florida, that its unincorporated areas may be placed on probationary status with the NFIP due to ongoing deficiencies in the local floodplain management program (see 6/2000).

3/2002

The NFIP amends its regulations to require that areas of Monroe County, Florida, that incorporate on or after January 1, 1999, and become eligible for the sale of flood insurance must participate in the inspection program as a condition of joining the NFIP (see 6/2000 and 1/2002).

3/2002

The NFIP initiates a three-year pilot project that will permit governmental risk-sharing pools to sell flood insurance to public entities under the NFIP's WYO effort. The NFIP limits participants in this pilot effort to a maximum of six such insurers that are able to provide flood insurance for their public buildings.

3/2002

Anthony Lowe is appointed Federal Insurance and Mitigation Administrator.

5/2002

FEMA's Inspector General publishes Extent that Mitigation Funds are Used to Address Repetitive Flood Loss and Other Related Issues. This report assesses the extent to which funds from the Hazard Mitigation Grant Program and the Flood Mitigation Assistance Program are used to acquire repetitive-loss properties. The report concludes that such funds could be used more effectively, especially with regard to the targeting of the most egregious repetitive-loss properties (see 11/1988, 9/1994, 9/1996, 9/1999, and 2/2001).

6/2002

The GAO completes Extent of Noncompliance with Purchase Requirements is Unknown. This report notes that flood insurance is required for properties located in flood-prone areas of participating communities for the life of mortgage loans made or held by federally regulated lending institutions or guaranteed by federal agencies. Mortgages purchased by Government Sponsored Enterprises (GSEs) are also included in this requirement as a result of the National Flood Insurance Reform Act of 1994 (see 9/1994). Despite the requirement, the GAO notes that no definitive analysis has been conducted that measures the extent to which property owners who are required to purchase insurance actually do so.

6/2002 continued

On the basis of examinations and compliance reviews, bank regulators and GSE officials believe that rates of noncompliance are low. In contrast, FEMA officials disagree with bank regulators and these officials, contending that rates of noncompliance are still significant. According to the GAO, these contrasting views are due to the fact that the regulators and FEMA use different measures to assess compliance. Nonetheless, the GAO concludes that analysis of the available data suggests that noncompliance could be low at loan origination.

6/2002

In Duplication of Benefits: National Flood Insurance Program and the Disaster Housing Program's Minimal Repair Grants, FEMA's Inspector General concludes that FEMA's internal controls are inadequate to detect and prevent duplication of benefits, which occurs when victims of floods receive benefits or assistance from more than one source for the same damaged property.

6/2002

The Task Force on The Natural and Beneficial Functions of the Floodplain, created by the National Flood Insurance Reform Act of 1994, concludes that the benefits provided by natural floodplains in flood loss reduction have been overlooked and that the protection and restoration of floodplains must be further integrated into government programs.

9/2002

With the issuance of an interim final rule in the Federal Register, FEMA consolidates the Temporary Housing Assistance and Individual and Family Grant Programs into a single program called Federal Assistance to Individuals and Households (IHP) (see 1/2002). FEMA indicates that states will have the option to be active partners in the administration of this new program, which provides a maximum of $25,000. Recipients of assistance from the IHP will be required to maintain flood insurance at least in the amount of the assistance, if they own the affected structure, for as long as the structure exists. The flood insurance requirement is reassigned to all subsequent owners of the flood-damaged address.

9/2002

In conjunction with the creation of the IHP (see previous entry), FEMA reverses its earlier proposal to eliminate Group Flood Insurance Policies (see 1/2002). FEMA increases the coverage to $25,000 from $14,800, reduces the term from 37 to 36 months, and retains a $200 deductible. The cost of the three-year policy increases to $600 from $200. The cost-sharing arrangements remain unchanged, with the states responsible for 25 percent of the cost and the federal government for 75 percent (funded as part of the IHP grant).

9/2002

In Invalid Preferred Risk Policies Based on Loss History, FEMA's Inspector General reviews policies with a repetitive loss history in Florida, Louisiana, Mississippi, Missouri, North Carolina, and Texas to determine which received a preferred risk rating. The audit finds that FEMA failed to invalidate 76 percent of the preferred risk policies (PRPs) included in the sample. To correct such problems, the Inspector General recommends FIMA review monitoring procedures to ensure WYO companies resolve rating errors in a timely manner.

10/2002

The NFIP pays the final $10 million installment on the $650 million it borrowed to pay claims arising from Tropical Storm Allison. The storm resulted in over 30,000 claims and approximately one billion dollars in claim payments.

10/2002

In Community Rating System: Effectiveness and Other Issues, FEMA's Inspector General determines the effectiveness of CRS as a tool to improve local policies and practices related to floodplain management. Overall, the report finds that CRS is a disciplined and well-defined program in terms of its guidelines, requirements, and rating processes and procedures. However, FIMA could enhance the effectiveness of CRS by: (1) performing Community Assistance Visits in all CRS communities, (2) marketing CRS to communities having greater exposure to the NFIP, (3) providing credit for increasing flood insurance coverage in a community, and (4) providing CRS coordinators with access to claims data.

2/2003

FEMA's Inspector General addresses the work done by three Flood Map Production Coordination Contractors (mapping contractors) in Audit of FEMA's Use and Management of Flood Mapping Contractors. The audit reveals that FEMA's management of mapping contracts needs strengthening especially in administration and support. According to the Inspector General, FEMA may have the ability to update more maps if it (1) reduces spending on processing Letters of Map Change, which accounted for 32 percent of contract spending over fiscal years 2000 and 2001, and (2) revises contracting strategies to increase competition and give contractors incentives to control costs.

3/2003

FEMA becomes part of the U.S. Department of Homeland Security and the Emergency Preparedness and Response Directorate.

5/2003

FEMA increases the maximum claim payout for Increased Cost of Compliance (ICC) coverage from $20,000 to $30,000 (see 6/1997).

8/2003

The NFIP has cash reserves of $580 million, which are available to pay future claims.

9/2003

FEMA recognizes Tulsa, Oklahoma, for outstanding achievements in reducing flood risks with a rating of Class 2 in CRS. Beginning in October 2003, property owners in the city will receive a 40 percent discount on their flood insurance premiums. Tulsa represents the first community in the nation to achieve a rating of Class 2.

9/2003

Hurricane Isabel, the only hurricane of the 2003 hurricane season to reach Category 5 status, makes landfall in North Carolina. Isabel results in extensive flooding in Baltimore and in other mid-Atlantic communities.

10/2003

FEMA offers states funds to upgrade their Map Modernization Implementation Plans (MMIP), developed in 2002, and develop the Flood Map Modernization State Business Plan. Using the Fiscal Year 2002 state plans as a starting point, states are asked to identify the projects to be completed each year, the role they play in managing the projects, and the support needed from FEMA. FEMA's Cooperating Technical Partner (CTP) initiative continues to be the funding mechanism for flood hazard mapping projects. A separate, distinct funding mechanism provides for the management activities identified in this plan.

03/2004

FEMA hosts the Mid-Atlantic Flood Insurance Summit to address concerns of Hurricane Isabel victims in settling flood insurance claims. Insurance companies, agents and adjustors, policyholders, insurance commissioners and Congressional staff meet in Falls Church , VA, to discuss solutions. As a result of the summit, FEMA begins to offer Isabel victims three ways to request flood insurance settlement review: by attending NFIP community outreach team visits, by using a toll-free number to initiate flood insurance settlement review, or by sending settlement review request form by mail. In April and May, community outreach teams visit hard-hit North Carolina, Virginia and Maryland communities to offer policyholders face-to-face discussions with claims specialists.

3/2004

The General Accounting Office (GAO) releases Actions to Address Repetitive Loss Properties on recent federal actions to target and reduce the number of repetitive loss properties, defined as properties for which policyholders have made two or more claims of $1,000 or more. About 1 percent of the 4.4 million properties currently insured by the program fit this definition. About 38 percent of all program claim costs have been the result of repetitive loss properties, at a cost of about $4.6 billion since 1978. The report concludes that FEMA’s strategy of targeting repetitive loss properties for mitigation and congressional proposals to raise premiums have the potential to reduce the number and vulnerability of repetitive loss properties.

3/2004

The General Accounting Office (GAO) releases the report Flood Map Modernization: Program Strategy Shows Promise, But Challenges Remain. The report finds several deficiencies in FEMA’s plan to implement updated maps of flood zones. In developing digital flood maps, FEMA plans to incorporate data that are of a level of specificity and accuracy commensurate with communities’ relative flood risk. FEMA has not yet established data standards that describe the appropriate level of detail, accuracy, and analysis required to develop digital maps based on risk level. Without such standards, FEMA cannot ensure that it uses the same level of data collection and analysis for all com-

munities in the same risk category. FEMA has developed partnerships with states and local entities that have begun mapping activities and has a strategy on how to best work with these entities. However, the overall effectiveness of FEMA's future partnering efforts is uncertain because FEMA has not yet developed a clear strategy for partnering with communities with few resources and little or no experience in flood mapping. GAO recommends that FEMA should address differences among the communities for which flood maps are being developed.

3/2004

FEMA revises the Disaster Mitigation Act planning guidance and checklists for state and local hazard mitigation plans. Previously called the Interim Criteria for Mitigation (issued in July 2002), the guidance and checklists are been finalized as the Multi-Hazard Mitigation Planning Guidance. The new guidance includes references to specific language in the rule, descriptions of the relevant requirements, and sample plan text to illustrate distinctions between plan approaches that would and would not meet Disaster Mitigation Act 2000 requirements. In addition, this document provides references to planning tools that FEMA has made available to assist states, tribes, and localities in developing a comprehensive, multi-hazard approach to mitigation planning, and in preparing plans that will meet the DMA 2000 requirements.

4/2004

FEMA updates Increased Cost of Compliance—Guidance for State and Local Officials, a manual that helps officials understand the Increased Cost of Compliance (ICC) coverage provisions. The manual covers how the owners of buildings insured under the NFIP can benefit from ICC coverage, and how the coverage relates to community administration of the local floodplain management regulations and ordinances. The guidance highlights the new, increased maximum benefit level of $30,000 available to eligible policyholders (see 5/2003 and 6/1997).

5/2004

Connecticut's Governor Rowland signs into law House Bill 5045, An Act Concerning Floodplain Management and Hazard Mitigation, based in part on No Adverse Impact legislation. The new legislation requires municipalities to revise their current floodplain zoning regulations or ordinances to include new standards for compensatory storage and equal conveyance of floodwater. The Connecticut Department of Environmental Protection will develop model regulation language. The legislation requires the state to incorporate a natural hazards element into the next revision of its plan of conservation and development and enables municipalities to use local capital improvement funds from the state to conduct floodplain management and hazard mitigation activities.

6/2004

David Maurstad is appointed Acting Director of the Mitigation Division and Federal Insurance Administrator, replacing Anthony Lowe. His areas of oversight include the NFIP, the National Earthquake Hazards Reduction Program, the National Dam Safety Program and the National Hurricane Program. Mr. Maurstad previously served as Regional Director of FEMA's Region VIII since October 2001.

6/2004

President George W. Bush signs into law the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (H.R. 253). The Act includes reforms to address repetitive loss properties and a reauthorization of the NFIP until September 30, 2008. Additional funding mechanisms focus mitigation efforts on "severe" repetitive loss structures that result in a disproportionate amount of claims to the National Flood Insurance Fund. The goals of the Act are to help

people who have experienced serious and repetitive flood damage to solve their problems with financial assistance from the NFIP, communities, and states; to end the abuses by those who misuse the program; and to improve consumer understanding and rights of NFIP policyholders.

7/2004

FEMA issues an interim final rule in the Federal Register to amend the Federal Insurance Administration, Financial Assistance/Subsidy Arrangement and related regulations regarding issues of federal jurisdiction and applicability of federal law for lawsuits involving Write-Your-Own (WYO) Companies and of reimbursement to WYO Companies for the cost of litigation. Additionally, FEMA amends procedures for companies seeking to become, and ceasing to be, WYO Companies.

8/2004 to 9/2004

Florida experiences Tropical Storm Bonnie and Hurricanes Charley, Frances, Ivan and Jeanne. Hurricane and tropical storm related disasters are also declared in Alabama, Delaware, Georgia, Louisiana, Mississippi, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia and West Virginia.

12/2004

NFIP paid losses for 2004 number 52,785, about 45 percent more than the number of 2003 paid losses. FEMA pays out $1.9 billion in claims for 2004, or about 2 ½ times the amount paid out in 2003. FEMA uses $225 million in NFIP borrowing authority to pay 2004 flood loss claims.

4/2005

The President signs H.R. 1134, a measure to overturn a 2004 IRS ruling that made disaster mitigation funds taxable as income.

4/2005

In testimony before the Subcommittee on Housing and Community Opportunity, Committee on Financial Services, US House of Representatives, GAO reports that many private company insurance agents, who are the main points of NFIP contact for policyholders, have varying levels of NFIP knowledge. GAO also reports that FEMA has not met the six-month timeframe given for complying with the mandates of the Flood Insurance Reform Act of 2004, which require FEMA to establish agent training standards, but that FEMA has drafted the policyholder informational materials required by the Act.

7/2005

The Subcommittee on Housing and Community Opportunity, Committee on Financial Services, US House of Representatives, holds hearing on a GAO report, titled Flood Map Modernization: FEMA’s Implementation of a National Strategy. GAO reports it found that the flood map modernization program lacked performance measures that would measure adequately the effectiveness of the map modernization program in meeting FEMA’s goals. GAO notes, however, that FEMA had set target percentages in its Multi-Year Flood Hazard Identification Plan in response to the recommendations.

7/2005

Dennis becomes the first major hurricane to strike the US in the 2005 hurricane season. It reaches Category 4 status earlier in the hurricane season than any Atlantic storm since 1957. It strikes the Florida Panhandle in the same area affected by Hurricane Ivan the previous year, causing an approximate $4 to $6 billion in damage.

9/2005

Complying with Section 207 of the Flood Insurance Reform Act of 2004, FEMA issues a notice in the Federal Register that establishes minimum training and education requirements for all insurance agents who sell Standard Flood Insurance Policies issued through the NFIP.

8/2005 to 9/2005

Hurricane Katrina strikes Louisiana and Mississippi, resulting in flood wall and levee failures that cause up to 80 percent of the city of New Orleans to flood, leaving homes in some city neighborhoods with flood water levels up to the eaves for several weeks. Hurricane Rita strikes the Gulf Coast along the western Louisiana and eastern Texas shores, and New Orleans experiences new levee breaches and additional flooding.

9/2005

Michael Brown, FEMA director since 2003, offers his resignation. R. David Paulison, the director of FEMA's preparedness division, becomes interim FEMA director.

9/2005

After Hurricane Katrina, R. David Paulison, Acting Under Secretary of Homeland Security for Emergency Preparedness and Response, announces FEMA will modify the NFIP claim settlement process to expedite the response to policy-holders in storm-stricken areas.

9/2005

In response to Hurricanes Katrina and Rita, the President signs H.R. 3669, “The National Flood Insurance Enhanced Borrowing Authority Act of 2005” to increase the NFIP’s borrowing authority from $1.5 billion to $3.5 billion. The CBO estimates that FEMA probably will not be able to repay the funds borrowed under H.R. 3669 within the “next 10 years” and that Katrina-related claims will “exceed the total resources that will be available to FEMA under H.R. 3669” and that “repayments of borrowed funds would not occur until after 2015.”

10/2005

FEMA publishes a “Summary of Coverage” and a “Claims Handbook” for flood insurance policyholders, as required by the Flood Insurance Reform Act of 2004. The handbook is made available on the Internet. WYO companies and the NFIP Direct program begin distributing materials to policyholders as required by the 2004 Act.

10/2005

GAO testifies before the Subcommittee on Housing and Community Opportunity, Committee on Financial Services, US House of Representatives on Oversight and Management of the National Flood Insurance Program. GAO reports that FEMA has not yet fully implemented some of the provisions of the Flood Insurance Reform Act of 2004.

10/2005

David Maurstad, Acting Director of the FEMA Mitigation Division and Federal Insurance Administrator, testifies before the US Senate Committee on Banking, Housing and Urban Affairs on “The Future of the National Flood Insurance Program.” Mr. Maurstad reports to the Committee that magnitude and severity of flood losses caused by Hurricanes Katrina and Rita are “unprecedented in the history of the NFIP.” He states that Katrina and Rita-related flood claims would “result in flood insurance claims that significantly

exceed the highest number of claims filed from any single event in the NFIP's history, and well more than triple the total number of claims filed in 2004." He states that Katrina and Rita-related NFIP claims could exceed $22 billion and that the NFIP in its entire history has paid out only $15 billion total.

10/2005

The National Science Foundation, the American Society of Civil Engineers, and the state of Louisiana begin to investigate the New Orleans floodwall breaches that led to massive flooding of the city after Hurricane Katrina. Defense Secretary Donald Rumsfeld announces that the National Academies of Science and Engineering will begin a separate probe into the New Orleans floodwall and levee failures.

10/2005

Eight tropical storm systems have struck southeastern US coasts during the 2005 season: Arlene, Cindy, Dennis, Katrina, Ophelia, Rita, Tammy and Wilma. Four of the eight—Dennis (July), Katrina (August), Rita (September) and Wilma (October)—are very destructive storms, and one—Katrina—becomes perhaps the most costly natural disaster in US history. The 2005 hurricane season becomes the most active on record, surpassing all previous hurricane seasons in number of named storms.

10/2005

The Subcommittee on Water Resources and Environment, Committee on Transportation and Infrastructure, US House of Representatives, holds two hearings inquiring into the causes of the New Orleans levee failures, and about ways in which New Orleans and other US cities at risk can be protected.

11/2005

The 2005 Atlantic hurricane season officially ends with a record 29 storms. Twenty-six were named storms, including 5 storms relying on Greek letters for their names. NOTE: on 12/30/05, the 2005 season continued with a 27th named storm, Zeta.

11/2005

President Bush signs legislation authorizing the NFIP to borrow up to an additional $18.5 billion to settle flood insurance claims for the 2005 claims year. David Maurstad states that further borrowing authority will be needed. Long-term NFIP reforms are also being considered along with the increases in borrowing authority.

11/2005

FEMA begins to release "advisory BFEs" and recovery maps that reflect post-hurricane data on flood risks for Katrina-affected Gulf Coast areas, so rebuilding can proceed based upon current understandings of base flood elevations. Localities are encouraged to adopt the advisory BFEs into their local ordinances. FEMA plans to issued revised FIRMs in the next year or two that are expected to closely resemble today's advisory BFE maps.

11/2005

The causes of the New Orleans flooding and levee breaches are explored in a hearing before the full US Senate Committee on Environment and Public Works. The US Army Corps of Engineers and members of engineering teams that are investigating the levee failures testify.

11/2005

Proposals for flood insurance reform are considered by the US House Finan-

cial services Committee in H.R. 4320. A number of changes to the NFIP are being considered, including increasing flood insurance coverage caps on structures and contents, and increasing fines imposed on lenders who fail to enforce mandatory flood insurance purchase requirements.

12/2005

Although it officially ended on November 30, the 2005 hurricane season continues with another named tropical system, Zeta. Zeta brings the total number of 2005 tropical systems to 30, including 27 named storms.

01/2006

With Zeta still active, the Atlantic hurricane season extends into January for only the second time since records have been kept.

Florida Power & Light Company
Docket No. 20220051-EI
OPC's First Request For Production of Documents
Request No. 1
Page 1 of 1

QUESTION:
Produce all analyses and source documents prepared in support of the Company's application, testimony, and expert reports in this proceeding before or contemporaneous with its filing, including all Excel workbooks in live format with all formulas intact in searchable and unlocked format.

RESPONSE:
Please see the attached responsive documents, including one confidential document:

- "2010 FPL Outages"
- "2010 Gulf Outages"
- "FPL SPP Factor Calculation 2022 Plan Filing - FINAL 2023-2025"
- "FPL v2_Gulf_Consolidated 1989 Winter Scenario"
- "FPL Winter Extreme Evaluation 2021"
- "SPP – Annual Rev Req Calculation 2023-2032"
- "Transmission Study Winterization Impacts 8_2021 (CONFIDENTIAL)"
- "Winterization 2010 evaluation 070121"
- "Winterization_PD_MOPR (REDACTED)"

Please note that non-responsive information has been redacted from one of the documents produced in response to this request for production of documents.

January 2010 Winter Analysis

Executive Summary – 2010 Winter Event Comparison

January 10, 2010 saw the culmination of consistent low temperatures followed by a low temperature excursion causing widespread impact across both FPL and Gulf service territories. Bulk impacts were concentrated in specific areas – (Broward, Boca and West for FPL, and Western Division for Gulf). Analysis was performed including +/- 3 days of 1/10/10 to determine precursor and tail-related affects. Normalized comparison of SAIDI showed performance on the FPL system slightly better than Gulf overall (7.79 vs. 11.6) however the Gulf Power equipment performed better with less outages due to failure etc.

80% of FPL outages (based on event count) on the Distribution system were split between two (2) categories - Equipment Failure (50%) and Overload (30%). These two event causes accounted for 76% of total CMI (Overload – 35%, Equipment Failure – 41%). The overhead system saw diverse impacts due to the failure while the UG system saw a significant impact due to transformer failures. Overall ~1650 Transformers we coded as failed – 350 OH and 1300 UG.

75% of Gulf Power outages (based on event count) on the Distribution system were attributed to the same two (2) categories as FPL – overload (51%) and equipment failure (24%) which constituted 80% of total CMI (overload – 50%). Gulf's overload condition did not drive work – 75% of events were restore/refuse/close only. As a comparison to FPL – 43 total Distribution transformers were replaced – 34 OH, 9 UG in total.

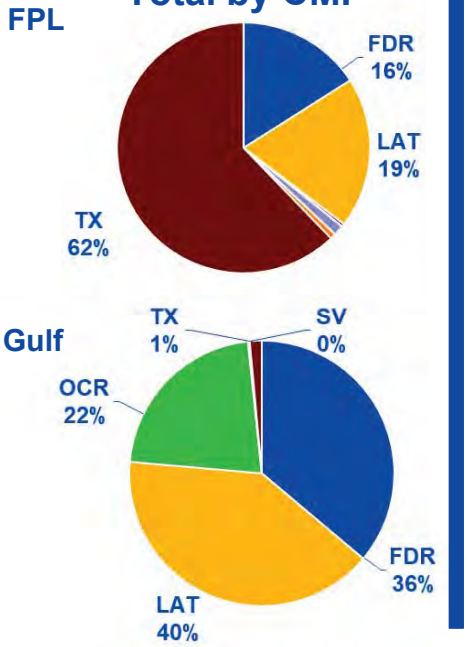
The winterization team will be reviewing the two systems to determine a multi-pronged approach for mitigating extreme weather loads – specifically reviewing what measures should be taken to maintain Gulf system stability and reviewing philosophies at FPL and Gulf to mitigate equipment concerns.

Winter 2010 was an abnormal winter weather pattern with significant impact to both FPL and Gulf systems

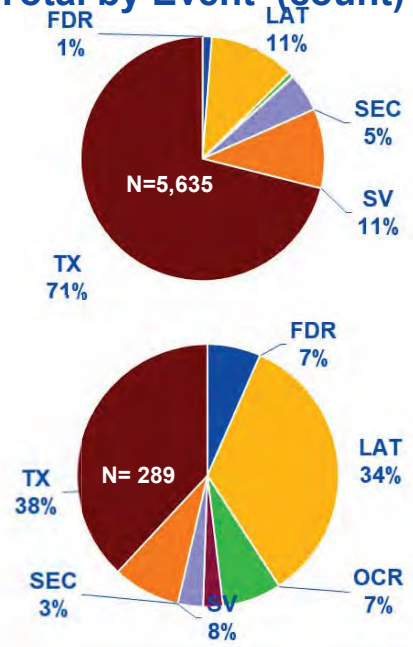
January 2010 Cold Weather Event Overall Impact

- **Review of 1/7/10-1/13/10 (+/- 3 days of major event day)**
  - Capture precursor and following tail impacts
  - FPL
    - -- 35.9M CMI (34.5M – Dsbn, 1.4M – Trans)
    - -- Cust Base – 4,400,000
    - -- ~5,600 events (tickets)
  - Gulf – 5.6M CMI (5.0M – Dsbn, 600k – Trans)
    - -- Cust Base – 430,000
    - -- ~300 events (tickets)
- **Primary Outage Type – Transformer Related (Field)**
  - Gulf – 36% total tickets, 1% total CMI
  - FPL – 71% total tickets, 62% total CMI

Total by CMI



Total by Event (count)



FPL's 2010 Event was a transformer story, while Gulf's impact was primarily on primary/backbone (Feeder/OCR)

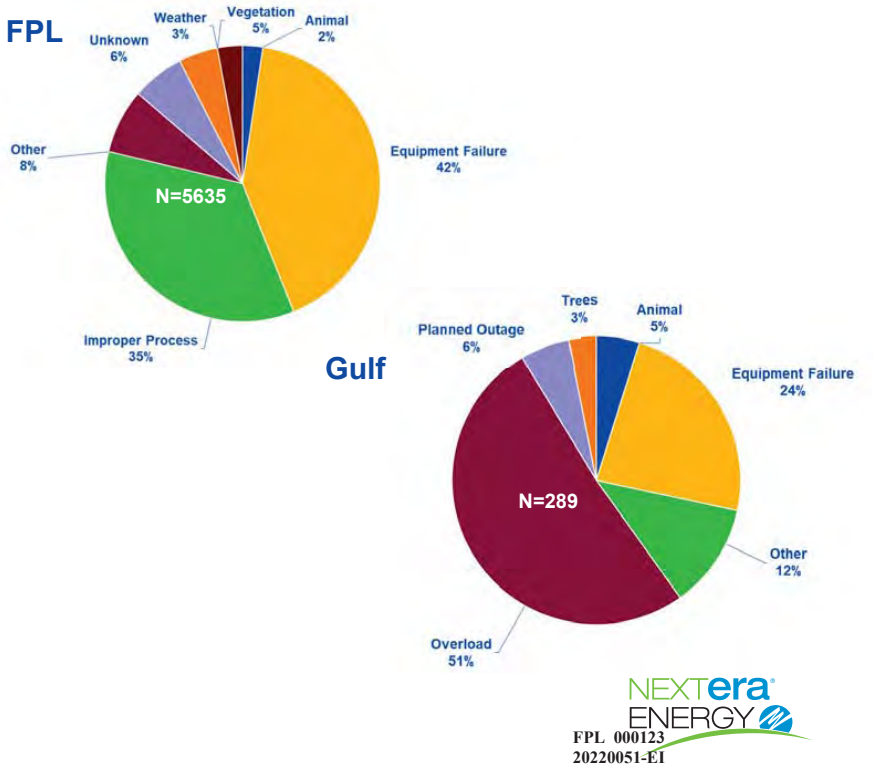
NEXTera ENERGY

FPL 000122
20220051-EI

All outages in both FPL and Gulf Power were driven by two major causes

Total System Cause by Event Count

- **Both systems primary cause factors**
  - Equipment Failure
  - Improper Process/Overload
    - -- A majority of improper process for FPL was classified as overload (89%)
- **Distribution transformer outages/failures had profound impact on FPL system**
  - More than 1600 Units replaced – FPL
  - Less than 100 Units replaced – Gulf
- **Gulf outages primarily required refusing/restoration of equipment rather than repair**
  - ~52% Re-fuse or close actions



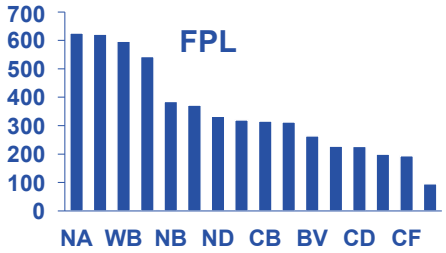
NEXTera ENERGY

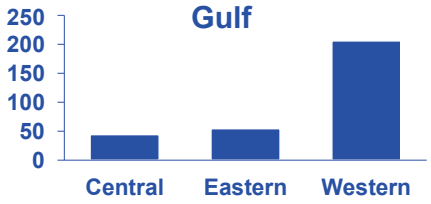
FPL 000123
20220051-EI

Regionality briefly reviewed to determine relevance

Total Events By Area

- **Clear regional distinctions – both Gulf and FPL**
- **FPL had far fewer events in Northern Areas (CF, NF)**
  - 30% of total FPL outages coded Overload
    - -- NF – 16% Tickets
    - -- CF – 13% Tickets
- **Gulf had significantly more events in Western region but saw similar temperatures**
  - West is roughly double the customer base of Eastern and Central
  - 49% of total Gulf outages coded Overload
    - -- No regionalization for overload condition
- **Alternative heating sources could be a contributing factor to lower loads/impact in North/NW**
  - < 20% all natural gas customers south of Lake Okeechobee
  - Gulf customers have utilized ~90% Heat Pump w/ emergency strip heat since 1990*





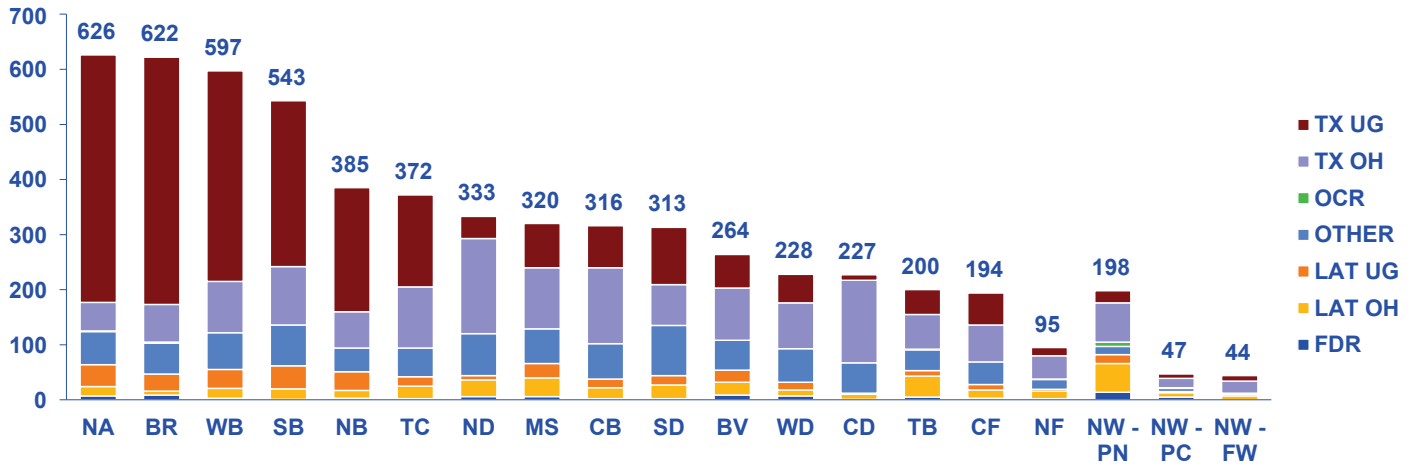
1) *From Gulf marketing analysis

NEXTera ENERGY

FPL 000124
20220051-EI

Regionality reviewed to determine relevance

Total Events By Area



Transformer events were the significant impact to overall event count across all operational areas

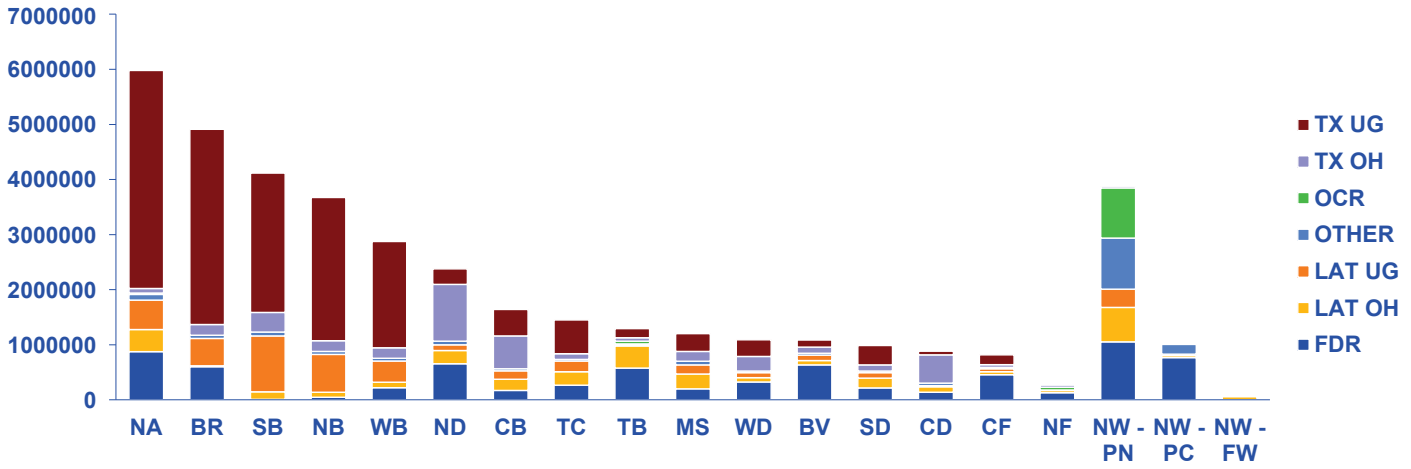
1) Note – does not include SVC or SEC ticket types

NEXTera ENERGY

FPL 000125
20220051-EI

Regionality reviewed to determine relevance

Total CMI By Area



High Transformer CMI trended in those areas that had dis-proportional overall impact while NW (Gulf) had less than 1% of CMI driven by transformers

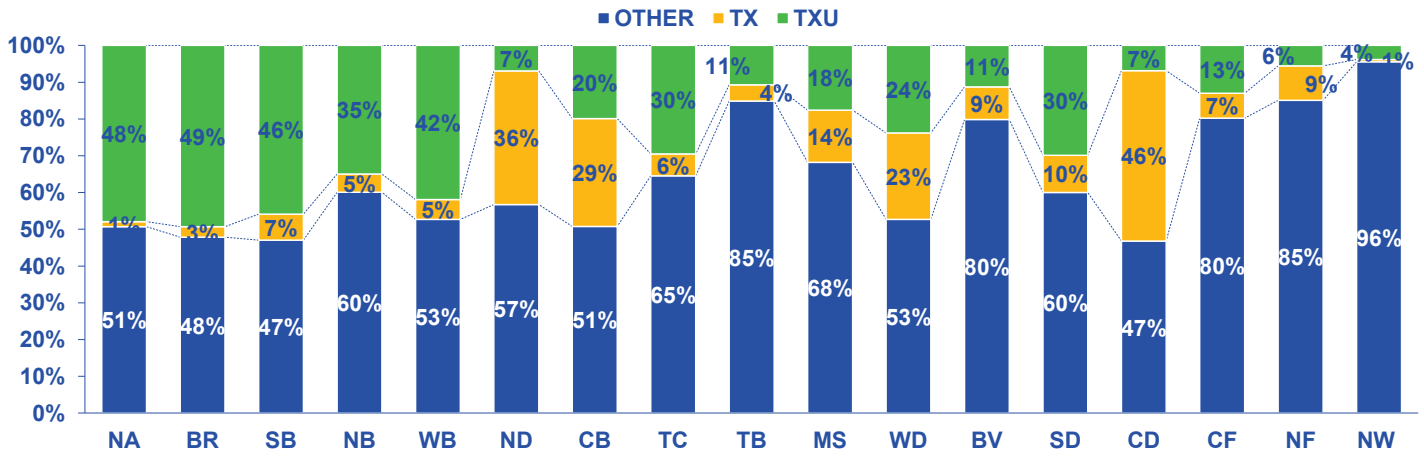
1) Note – does not include SVC or SEC ticket types

NEXTera ENERGY

FPL 000126
20220051-EI

Transformer (OH/UG) CMI as a proportion of total area CMI

Transformer (OH/UG) by Area



High Transformer CMI trended in those areas that had dis-proportional overall impact while NW (Gulf) had less than 5% (1% of UG) of CMI driven by transformers

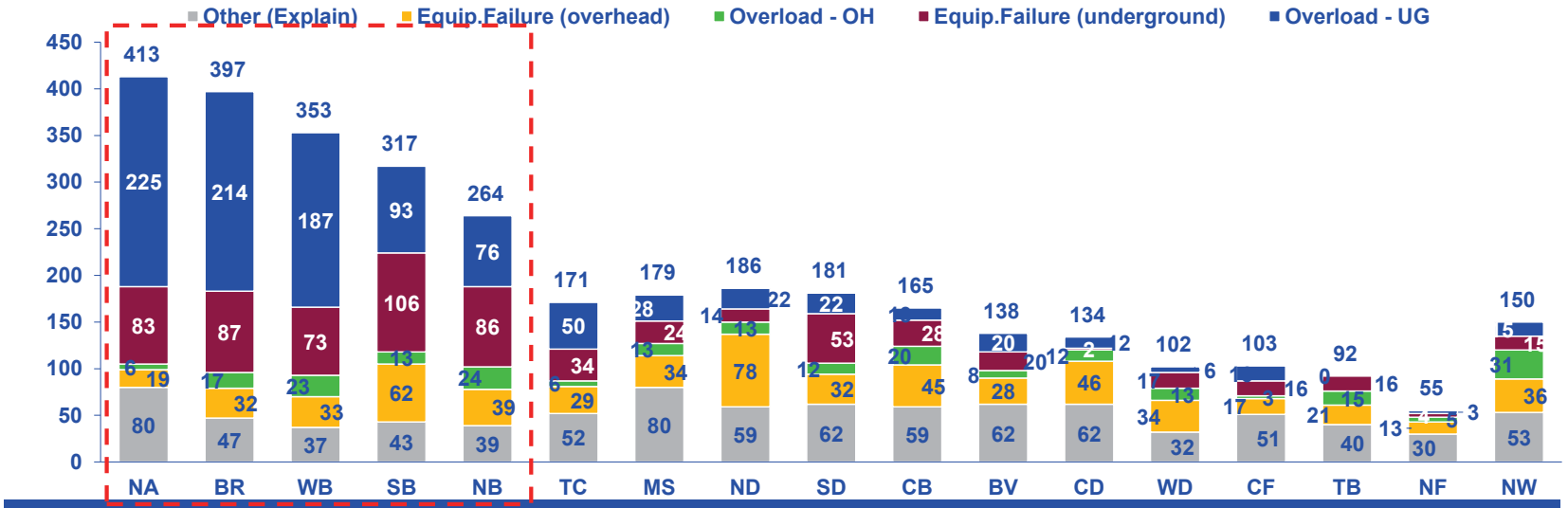
1) Note – does not include SVC or SEC ticket types

NEXTera ENERGY

FPL 000127
20220051-EI

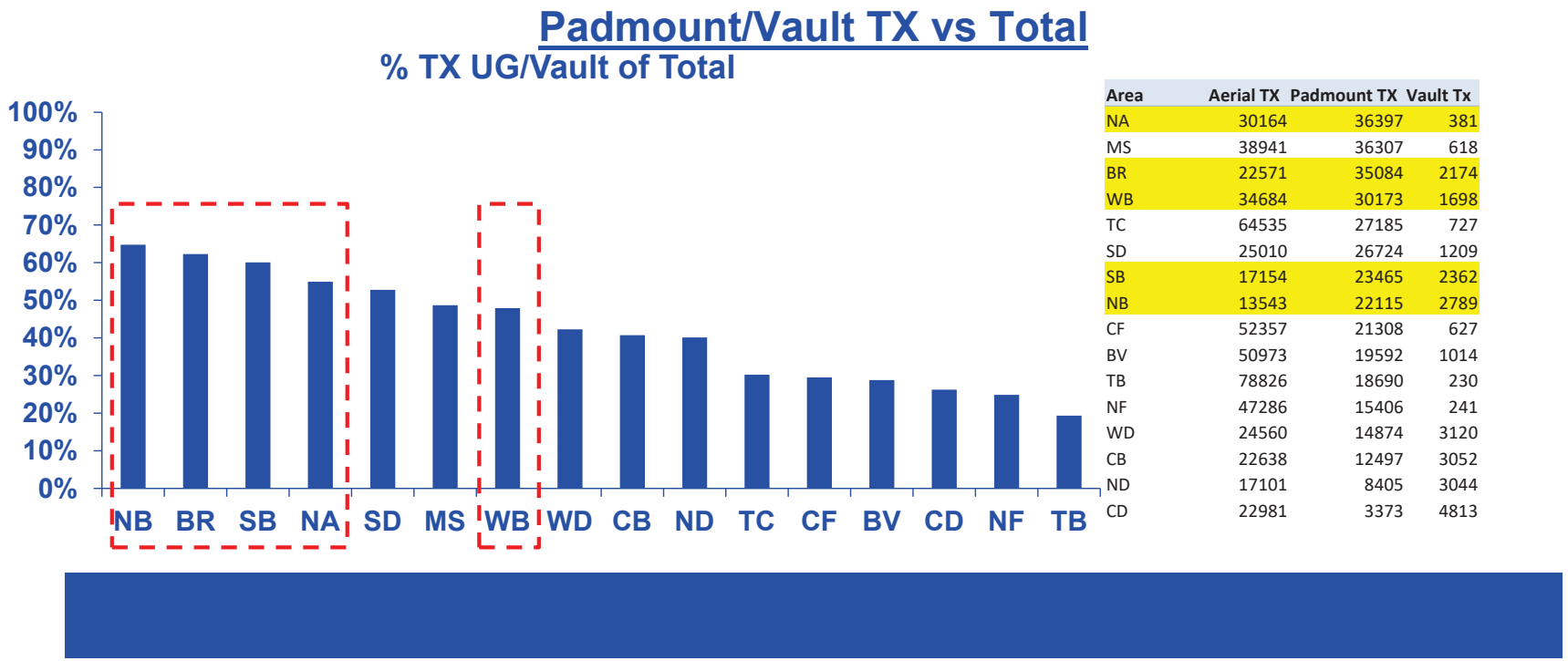
Transformers, being the high bar in High-CMI areas, broken down by cause

Transformer OH/UG Cause



The UG transformer outages drove overall impact, specifically in south and west. Northern regions had relatively little overall transformer impact

Equipment counts reviewed to determine opportunity per area



Area	Aerial TX	Padmount TX	Vault Tx
NA	30164	36397	381
MS	38941	36307	618
BR	22571	35084	2174
WB	34684	30173	1698
TC	64535	27185	727
SD	25010	26724	1209
SB	17154	23465	2362
NB	13543	22115	2789
CF	52357	21308	627
BV	50973	19592	1014
TB	78826	18690	230
NF	47286	15406	241
WD	24560	14874	3120
CB	22638	12497	3052
ND	17101	8405	3044
CD	22981	3373	4813

1) Counts per Jun 2021 Device File

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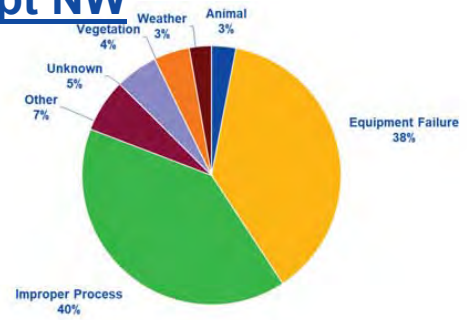
FPL 000129
20220051-EI

Distribution Events – Transformer Review 1/7-1/13/10

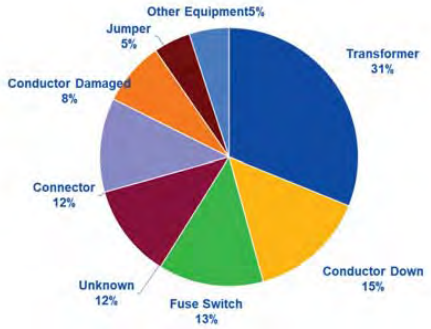
Transformer Outages – All except NW

- **78% of Transformer outages due to two major categories**
  - Improper Process – 40% (1302)
    - -- Referred out of service – 314
  - Equipment Failure – 38% (1225)

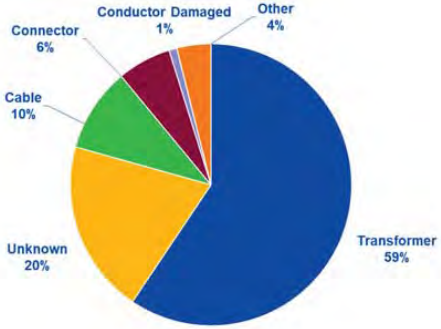
Total TX tickets



OH Equipment Failure N=562



UG Equipment Failure N=663



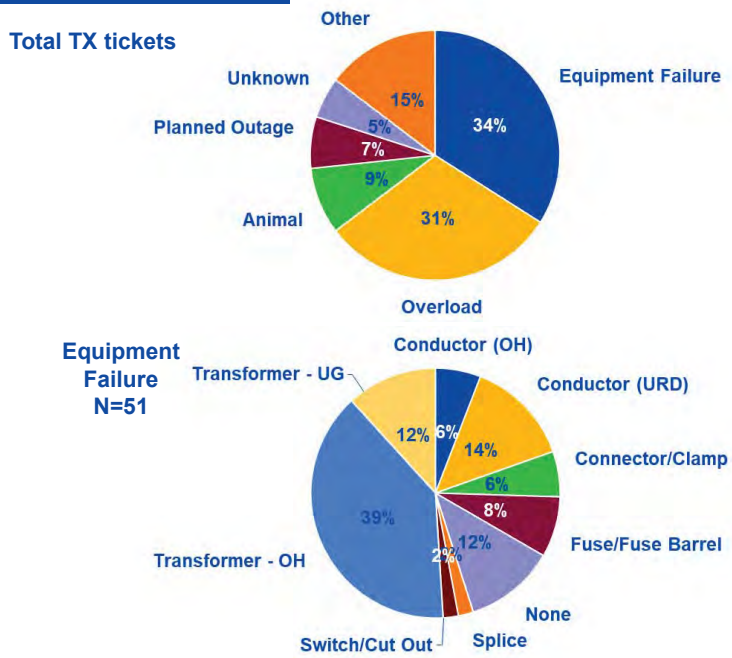
Primary impact of the FPL Transformer outages was driven by UG Transformer Failures* in the southern and western territories

*NOTE: Outcome assumes "Improper Process" units referred out of service were replaced

Distribution Events – Transformer Review 1/7-1/13/10

Transformer Outages – NW

- **65% of Transformer outages due to two major categories**
  - Overload – 31%
  - Equipment Failure – 34%
- **Equipment Failure main contributors**
  - OH Tx Replacements – 20
  - UG Tx Replacements – 6
  - OH Conductor – 3
  - UG Conductor - 7
- **A number of outages were "planned" (10)**
  - Removed from service to repair damaged customer service



Gulf did not see significant impact due to transformers – avg. duration ~2 hrs, total SAIDI 0.2

Extreme temperature modifier evaluated based on 2010 winter peak values

Modifier Evaluation

- Modifier is defined as the difference between summer and winter peak calculations
- All FPL "peak" analysis is based on summer predicted/calculated load
- Summer/Winter peak multiplier for extreme winter scenario based on 2010 cold weather excursion
- Feeder-level telemetry utilized as AMI not fully deployed
- System average 1.35 multiplier over summer peak for "extreme" winter peaks
  - Dade county removed as outlier (low compared to average)

Row Labels	Average of 2010 Winter (@1.3x)
BR	1.336157025
BV	1.314077253
CB	1.288156682
CF	1.342264151
MS	1.357297297
NA	1.480451613
NB	1.279521531
NF	1.331180556
SB	1.281121951
TB	1.426879433
TC	1.377025862
WB	1.356126482
Grand Total	**1.342762677**

1.35 will be utilized as the system multiplier for "extreme" cold load assumptions based on 2010 peak analysis – assumption will apply to NW

Changes to TX Loading Guideline are recommended to mitigate cold weather excursion/loading impact

TX Loading Guideline

- **Current FPL philosophy has identified differences from Gulf**
  - Winter peaks not incorporated into initial load calculations
  - Changeout guidelines (Summer 170%) can allow for ~230% overload during extreme winter loads if not replaced prior – 1.35x multiplier over summer peak
- **Proposed criteria mitigates 1.35x winter extreme temperature load factors**
  - Changeout criteria reduced from 170% to 140% of summer load for UG units
  - Difference in UG/OH strategy due to increased cooling capability for OH units
    - -- Padmount units primary driver of 2010 Cold Weather Event
    - -- OH

Existing Loading Guideline	Summer	Winter
Initial Loading	110%	N/A
Existing Load Addition	160%	190%
Changeout Loading	170%	204%

Proposed Loading Guideline	Summer	Winter
Initial Loading	90%	120%
Existing Load Addition	130%	180%
Changeout Loading	140% (UG), 170% (OH)	Removed

Impacts due to change of philosophy on distribution transformer replacements

Impacts of replacement

- **xx Year plan to be developed for current replacement needs**
  - Yy per year
    - -- OH
    - -- UG
  - $$$$ estimated
    - -- OH
    - -- UG
- **Develop internal mechanism to identify overload conditions systematically via AMI**
  - Base on previous summer peak
  - Identify units to be budgeted on (yearly?) cycle

Threshold (padmount)	# Units System-wide	Estimated Cost
150%	3,681	
140%	8,989	
130%	16,804	

- **Team recommends 140% threshold for Padmount change-out threshold**
  - Utilize summer peak values to identify potential next winter impact (1.35x)
- **Total Units to be replaced based on recommendation**
  - 11k total (9k padmount, 2k aerial)

Service construction has been evaluated to adequately serve customer loads during extreme temperature scenarios

Triplex Evaluation

- **Southern standard (1999) rated conductor at 194°F, ambient 100°F, and 2mph wind**
  - Standard 200A service – 1/0 AAC (rated for continuous 200A service) – TBD 0°C rating
- **FPL standard ( ) rated conductor at xxx, ambient yyy, and zzmph wind**

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Appendix

Transmission Events – Review 1/7 – 1/13/10

Transmission Impact

FPL

- **Total CMI – 1.38M (4% total event)**
- **Primarily Substation equipment related**
  - Regulator (GIR) – 1
  - Breakers (Dsbn)
    - -- FTO – 6
    - -- Dispatcher (failed reclose) – 2
  - Breaker (Trans) failure – 1
  - Settings -2
  - F-Switch failure – 1
  - Work related (RC-off) - 2

Gulf

- **Total CMI – 590k (10% total event)**
- **Major Transmission Line events on 1/11 and 1/12**
- **1/11**
  - Jay Road and Avalon substations out of service for ~32 mins on avg
  - Coded to “Deterioration – System Condition” with no trouble identified
- **1/12**
  - Caryville out for ~100 mins
  - Bonifay, Graceville, and Chipley out for ~3 min
  - Coded to “Thermal Loading” – synonymous with overload

FPL’s Transmission impact was due primarily to equipment failure while Gulf was centered around load increase during the excursion

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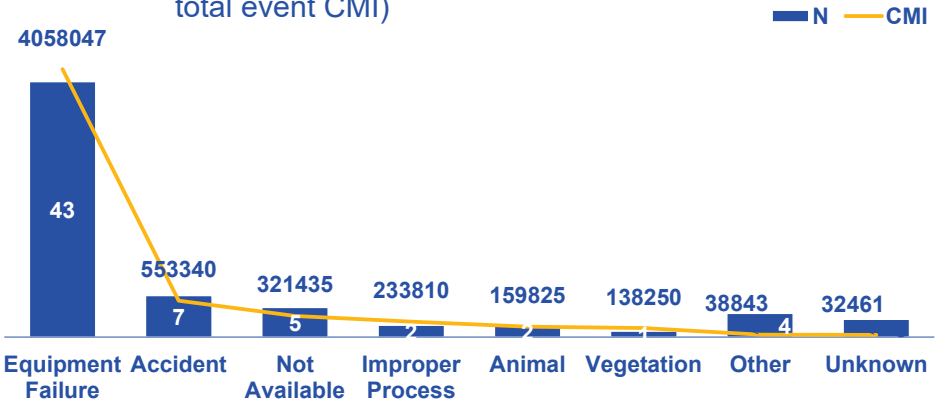
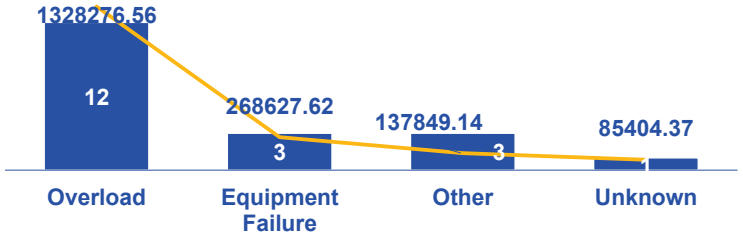
Distribution Events – Feeder Review 1/7-1/13/10

Feeder Outages

- **FPL Feeder outages accounted for 15% of total CMI (5.6M)**
- **FPL's primary cause of outages was due to equipment failure/repair required**
  - 65% of total feeder events (43 of 67)
  - 74% CMI of feeder events (4M CMI – 11% of total event CMI)



- **Gulf Feeder outages accounted for 32% of total CMI (1.8M)**
- **Gulf's primary impact was outage due to overload – no work required**
  - 64% of feeder events (12 of 19)
  - 72% of Feeder CMI (1.3M CMI – 23% of total event CMI)



Gulf's main driver for feeder outage was ability to carry load – no work needed to restore other than close

FPL 000138
20220051-EI

Distribution Events – OCR Review 1/7-1/13/10

OCR Outages

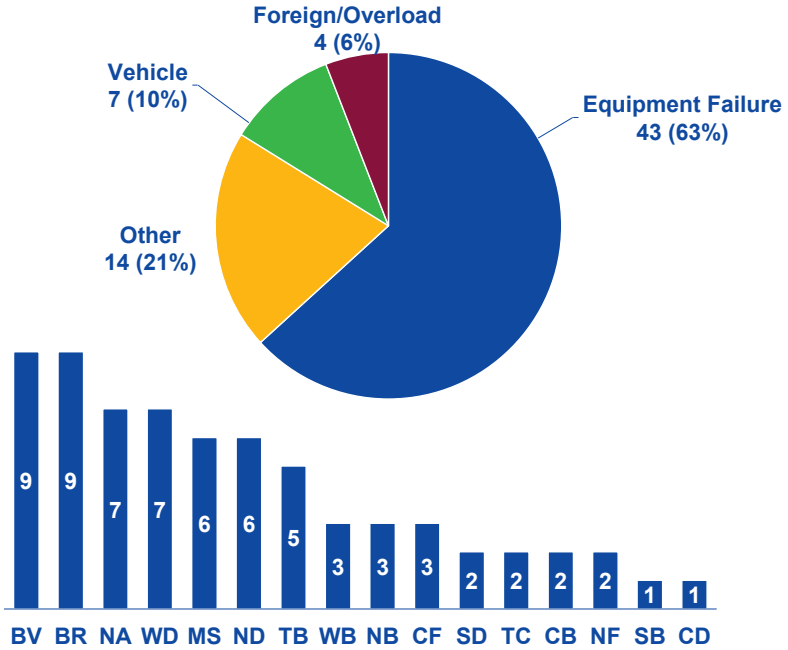
- **OCR Outages in FPL were effectively non-existent in this event**
- **A total of four (4) events system-wide**
  - Conductor Down
  - Splice Failure
  - Cross-Arm Failure
  - Unknown
- **FPL's AFS outages roll-up to FDR tickets and are included within the Feeder analysis**
- **Gulf OCR outages accounted for 20% of total CMI (1.8M)**
- **Gulf Power OCR strategy differs from FPL – multi-stage recloser philosophy for coordination, protection, and isolation**
  - Feeder/Lateral (Viper or Nova)
- **Primary impact was outage due to overload**
  - 18 of 21 events
  - 840k CMI (76% of total OCR CMI)
- **Two (2) Equipment Failure events**
  - 230k CMI
  - Switch/cut out, Transformer failure

Primary cause of outages continues to be due to overload

There were 68 Feeder Outages during the +/- 3 days of the January 10, 2010 Cold Weather Event for FPL

FPL 1/7/10-1/13/10 Feeder Outages

- **Equipment Failure constituted bulk (64%) of outage cause codes[1]**
  - 34 Overhead (50%) Eq. Failure
    - -- 10 Wire Down
    - -- 6 Insulator
    - -- 4 Disconnect Switch
    - -- 3 Jumper
    - -- 9 Other
  - 9 Underground (13%) Eq. Failure
    - -- 5 Cable Related
    - -- 2 Switch
    - -- 1 Transformer
    - -- 1 Fuse



1) Source: TCMS Ticket Data

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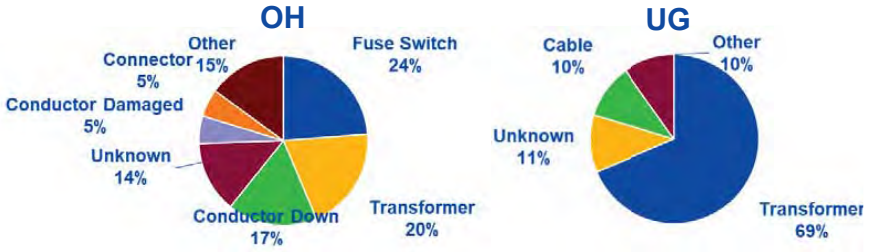
FPL 000140
20220051-EI

Distribution Events – Lateral Review 1/7-1/13/10

Lateral Outages

- **FPL Lateral outages accounted for 37% of total CMI (13.3M)**
- **80% of lateral impact due to two major causes – 31% of total CMI (11.4M)**
  - Improper Process – 37% (496 of 1359)
    - -- OH – 104, UG – 392
    - -- Nearly all Improper process coded to overload (OH – 82%, UG – 92%)
  - Equipment Failure – 43% (582 of 1359)
    - -- OH – 227, UG – 355



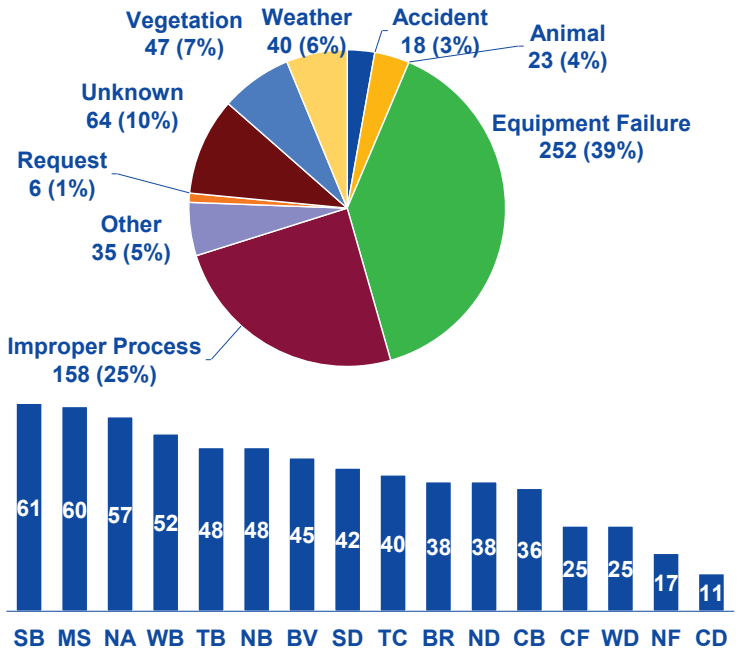
- **Gulf Lateral outages accounted for 36% of total CMI (2M CMI)**
- **Similar to feeders, Gulf's primary impact was outage due to overload – refuse**
  - 75% of lateral events (72 of 96)
  - 90% of lateral CMI (1.8M CMI – 32% of total event CMI)
- **Equipment Failure – 12% of lateral outages**
  - 10% of lateral CMI (200k CMI – 4% of total event CMI)
  - Less than half (5/12) of outages affected UG
    - -- URD Cable – 4
    - -- Transformer -1

Gulf continues to primarily be a load/overload outage story – while FPL had significant impacts due to equipment failure and overload

There were 643 Lateral Outages during the +/- 3 days of the January 10, 2010 Cold Weather Event

1/7/10-1/13/10 Lateral Outages

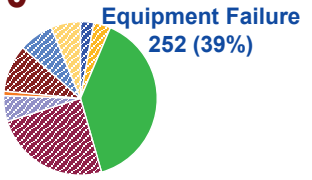
- **Equipment Failure and Improper Process constituted bulk (64%) of outage cause codes[1]**
- **Equipment Failure – 39%**
  - OH – 23% of total (150)
  - UG – 15% of total (102)
- **Improper Process – 25%**
  - Accidental Contact – 3
  - Improper Installation – 3
  - Loose Connection – 2
  - Overload Emergency Condition – 53
  - Overload Normal Condition – 85
  - Wrong Size Fuse – 12



1) Source: TCMS Ticket Data

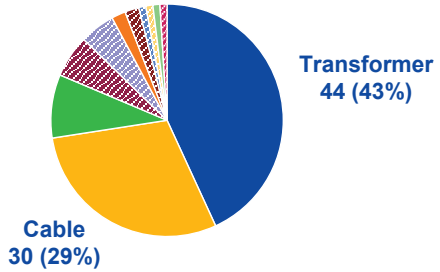
FPL 000142
20220051-EI

Equipment Failure accounted for 39% of total lateral outages 1/7-1/13/10



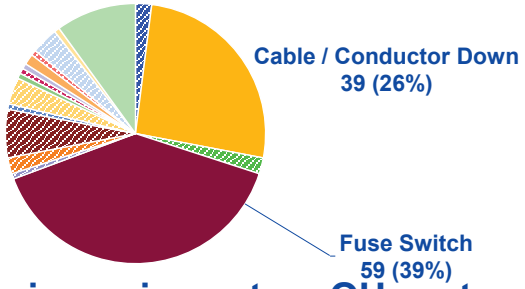
UG and OH Lateral Outages – Equipment Failure

UG Lateral Failure Causes



- **Primary Impact on the UG system came from two components (74 – 73% of total)**
  - Transformer – 44
  - Cable – 30
- **Padmount transformer failure mode previously identified in 2010 report**

OH Lateral Failure Causes



- **Similarly, primary impact on OH system came from two components (98 – 65% of total)**
  - Cable/Conductor Down – 39
  - Fuse Switch – 59
- **Fuse issues had a 50% out of service referral rate (29/60 referred out of service)**
  - Assumed switch failures

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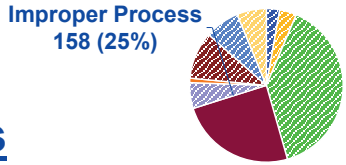
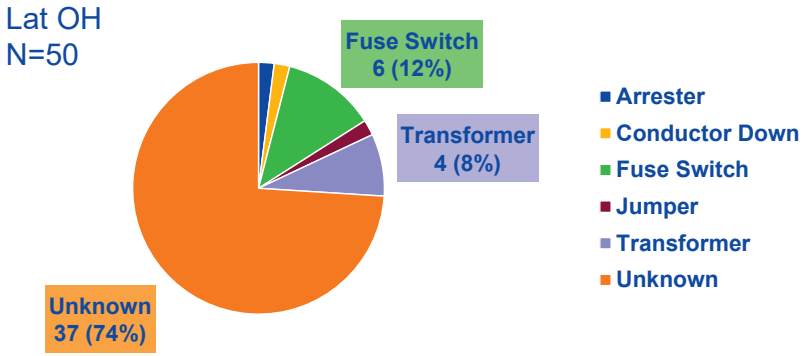
FPL 000143
20220051-EI

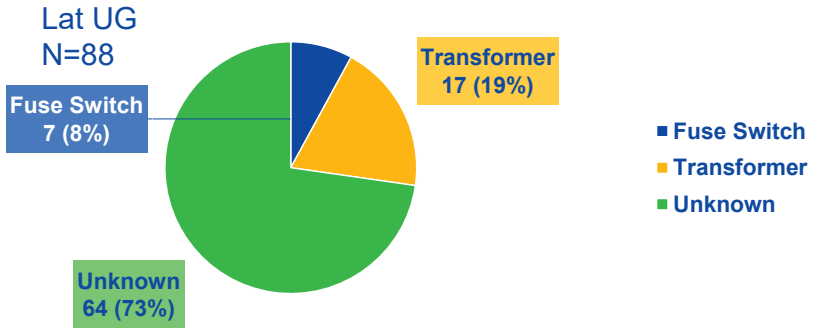
Improper Process accounted for 25% of total lateral outages 1/7-1/13/10



UG and OH Lateral Outages – Improper Process

- **Improper process defined as suspected overload condition**
  - Field Defined "Melted fuse" or other signs of overload stress as determined by investigator
  - ~12% total referred out of service (11% of UG, 20% OH)
  - Limited data on component level based on TCMS data





25% of Lateral outages identified as overload condition based outage according to first responders – mostly identified as "unknown equipment"

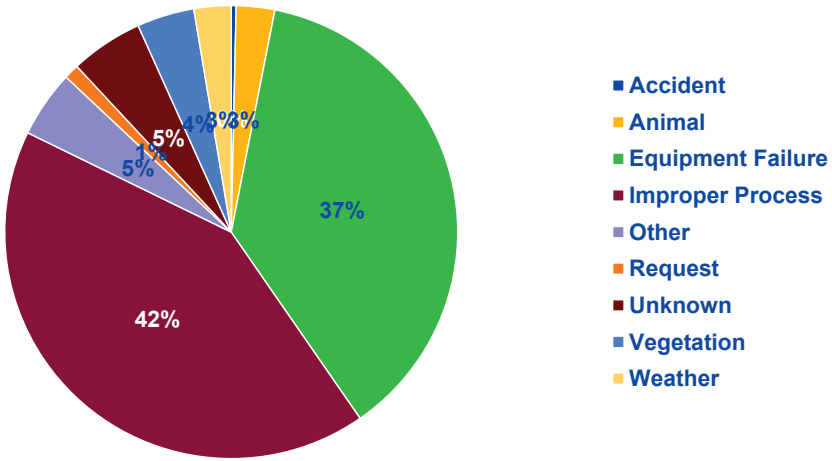
NEXTera ENERGY

FPL 000144
20220051-EI

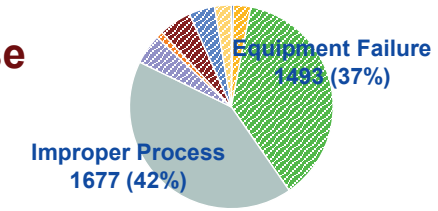
Total Transformer Outages over the seven (7) day period in the FPL system was over 4,000

FPL Transformer outages

- **75% of transformer outages attributed to Equipment Failure and Improper Process**
  - Improper Process – 42% of total – encompasses suspected overload conditions
    - -- OH – 334
    - -- UG – 1,343
  - Equipment Failure
    - -- OH – 595
    - -- UG – 898
- **Remainder of outages combined to "other" category**

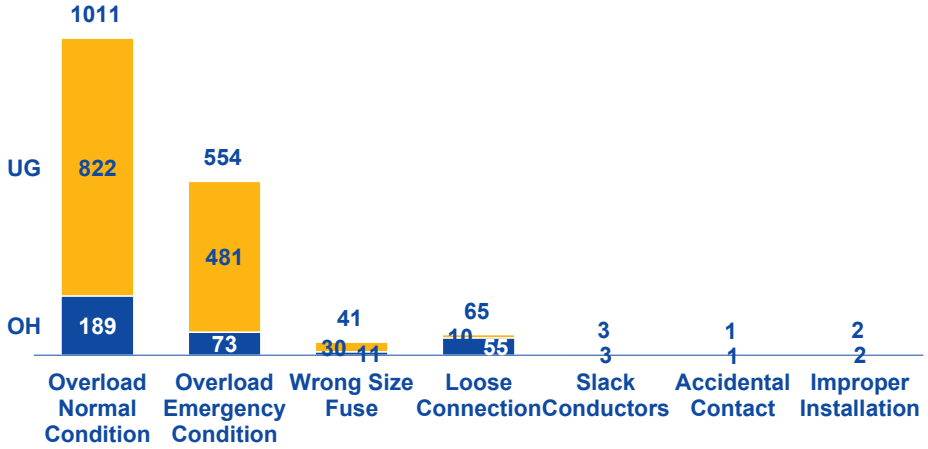


Improper Process designation accounts for 42% of total tx cause



Review of Improper Process

- **Primary impact due to "Overload" condition identified**
- **Overload assumes equipment does not necessarily have to be replaced**
- **% Referred Out of Service**
  - OH – 29% (98 of 334 tickets)
  - UG – 23% (312 of 1,343 tickets)
- **Most transformer tickets (75%) not referred or referred in service (follow-up work only)**

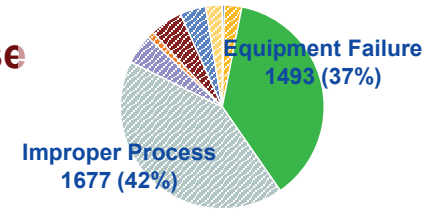


Overload tickets indicate ~300 UG and ~100 OH transformers needed to be replaced

NEXTera ENERGY

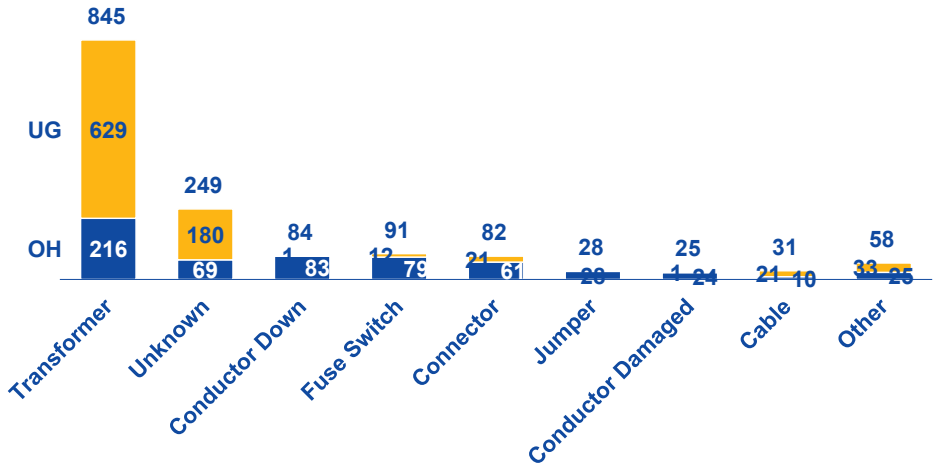
FPL 000146
20220051-EI

Equipment Failure designation accounts for 37% of total tx cause



Review of Equipment Failure

- **Transformer failure coded as primary root cause of events coded to "Equipment Failure" for transformer outages (~56%)**
- **Equipment failure assumes equipment must be replaced**
- **Transformers replaced**
  - OH - ~350[1]
  - UG - ~1300[1]



1) Assumptions: Tickets Designated Equipment Failure required replacement, Tickets designated Improper Process and Referred Out of Service required replacement

NEXTera ENERGY

TX Equip Failure

Equipment Failure	1225	6780988
Equip.Failure (overhead)	**562**	**2272663**
Transformer	175	1100592
Conductor Down	82	287284
Fuse Switch	74	267247
Unknown	66	263289
Connector	66	126139
Conductor Damaged	45	67669
Jumper	26	86918
Other Equipment	9	28055
Splice	7	27377
Cable	4	10345
Arrester	3	2074
Bushing	2	3220
Tx Blade Switch	1	168
Meter Blocks (repairable)	1	564
Hot Line Clamp	1	1722
Equip.Failure (underground)	**663**	**4508325**
Transformer	394	3189052
Unknown	132	989474
Cable	64	104747
Connector	41	101360
Conductor Damaged	6	12481
Bayonet Switch	5	17587
Fuse Switch	5	20014
Tx Fuse Switch	4	25133
Other Equipment	4	7893
Handhole	4	24408
Splice	2	10728
Terminator	1	5370
Down Guy or Anchor	1	78

Power Delivery Winterization Update

Power Delivery has completed detailed analysis of system capacity and philosophy for extreme winter scenarios

Executive Summary

- **Transmission and Distribution detailed system analysis yielded overall reduction in extreme winter mitigation costs from original estimate**
  - Five year execution plan - [redacted]
- [redacted]
- **Distribution system review highlighted opportunities for alignment and upgrades** [redacted]
  - [redacted]
  - Field transformer loading philosophy alignment and upgrades
- **Transmission system review highlighted opportunities for alignment and upgrades - $114MM**
  - Power Transformer emergency ratings alignment
  - Regulator/Reactor upgrades
  - Transmission Line Upgrades

Power Delivery has completed detailed analysis of system capacity and philosophy for extreme winter scenarios

Executive Summary

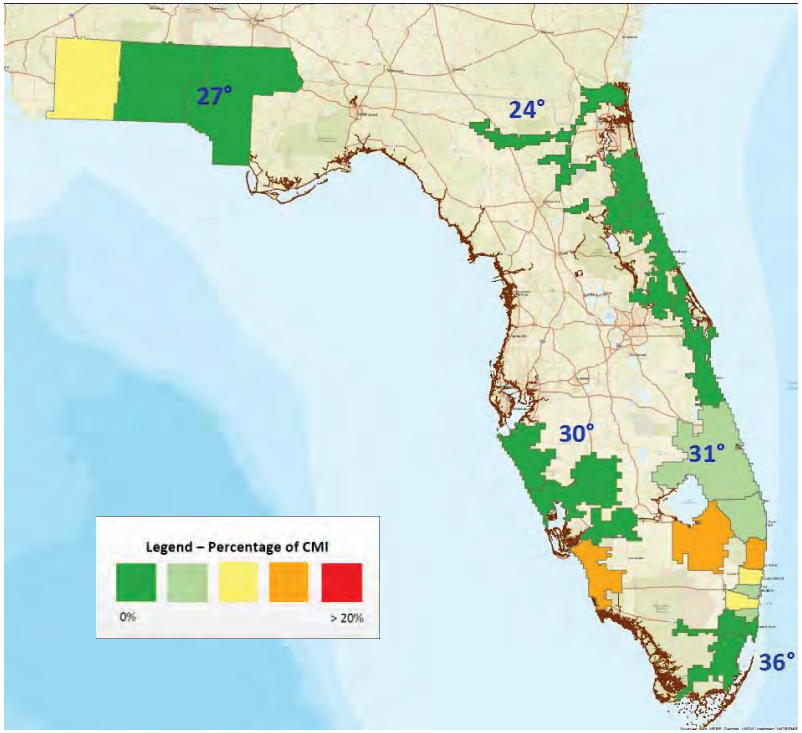
- [redacted]

Power Delivery analyzed impact from January 2010[1] with current design and cold weather operating philosophy

January 2010 Reliability Impact

- **Major reliability impact due to temperatures below average for a prolonged period**
  - Record – 5 days of high temperatures below 60 deg
  - Avg 12-day temp – 49.9°F
- **Largest reliability impacts regionalized for both FPL and Gulf Power**
  - South of Lake Okeechobee (FPL)
  - West (Pensacola – Gulf)
- **System performance, operating, and design philosophies reviewed from the meter to the substation**

CMI by Region



*1/10/10 actual low temperatures

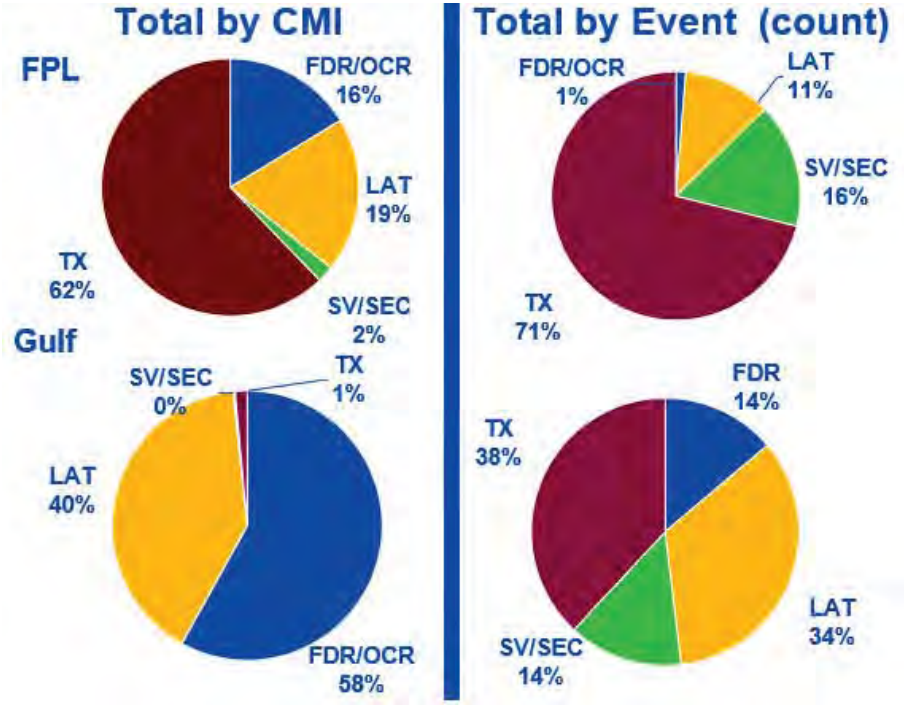
1) 1989 detailed reliability information unavailable, 2010 impacts utilized as baseline for extreme cold-weather impact

FPL 000152
20220051-EI

Gulf and FPL's systems both had significant reliability impact, but responded differently to the event

2010 Review

- **Significant CMI events for both operating companies**
- **Primary reliability drivers differed by company**
  - FPL – Field Transformers (underground)
  - Gulf – OH Feeders
- **Low temperature conditions emphasis for evaluation**
  - Cold load pickup
  - Overload



Both FPL and Gulf saw major outlier events in January 2010

FPL 000153
20220051-EI

The 2010 winter reliability event impacted both FPL and Gulf's distribution system requiring review of philosophies

Distribution

- **Meter to transformer (secondary) – no change to philosophy**
- **Field Transformers – address reliability impacts at FPL**
  - Align initial loading and replacement criteria
  - 6,000 field transformers at FPL - $33MM
- [redacted]

FPL 000154
20220051-EI

The 2010 winter reliability event proved little impact due to transmission/substation facilities

Transmission/Substation

- **Due to cold weather load forecast – portions of the transmission system must be addressed**
- **Transmission**
  - 36 miles of transmission upgraded at a cost of $75MM – FPL only
- **Substation Power Transformers**
  - Align FPL and Gulf emergency rating philosophy
    - -- Increase Gulf capacity from 130% to 150% in winter
  - FPL total substation transformer capacity is ~ 56,000MVA, 4 transformers to be upgraded - $8MM
  - Gulf total substation transformer capacity is ~3,100 MVA, 12 transformers to be upgraded - $28MM
- **Substation Regulators and Reactors**
  - Cold weather load exceeds current capability on 90 regulators and 9 reactors - $3M

Power Delivery Winterization detailed evaluation resulted in a cost reduction from [redacted]

	Revised Forecast	FPL		Gulf		Total Cost
Substation Transformers	Replace/Install 16 transformers – align philosophy	4	$8MM	12	$28MM	$36MM
Substation Equipment	Replace 90 Regulators and 9 Reactors	66 Regulators 9 Reactors	$2.25MM	24 Regulators	$0.75MM	$3MM
[redacted]						
Field Transformers	Replace 6,000 transformers – FPL only	6,000	$33MM	0	0	$33MM
Transmission	Upgrade 36 miles of transmission line	36	$75MM	0	0	$75MM
[redacted]						
Total		$154.25MM		$312.75MM		$467MM

- **Prior Estimated Costs**

[redacted]

Alignment of philosophies and detailed system review reduced estimated costs to $467MM, a significant reduction from original estimate

1) New Substations required in support of new feeder construction

A portion of plan may be recoverable by SPP as currently defined

Clause/Base Split

	Revised Forecast	SPP* Units	SPP Cost	Base Units	Base Cost	Total Cost
Substation Transformers	Replace/Install 16 transformers – align philosophy	16	$36MM			$36MM
Substation Equipment	Replace 90 Regulators and 9 Reactors	60	$1.9MM	30/9	$1.1MM	$3MM
[redacted]						
Field Transformers	Replace 6,000 transformers – FPL only	4500	$24.7MM	1500	$8.3MM	$33MM
Transmission	Upgrade 36 miles of transmission line	36	$75MM			$75MM
[redacted]						
Total			$137.6MM		$329.4MM	$467MM

*Requires 2023 SPP filing
Note: 2022 SPP Filing is complete, no new items included into 2022 SPP budget

- **Already included in SPP filing**
  - Feeder Hardening – 6 feeders at Gulf YE 2022
  - Power Transformers – 1 Increased Capacity – Philips Inlet (Gulf)

After internal capital adjustments, no incremental increase is required for winterization, year over year shift only

Winterization/SR 80/SR 70 Preliminary Capital - Yearly

	Items	# of Items	2022 ($MM)	2023 ($MM)	2024 ($MM)	2025 ($MM)	2026 ($MM)	2027 ($MM)	Capital Total
[redacted]									
[redacted]									
[redacted]									
FPL	Sub Power Transformers - Replacements	4		$ 4.0	$ 4.0				$ 8.0
FPL	Voltage Regulators - 3 per item	22	$ 0.7	$ 0.8	$ 0.7				$ 2.1
FPL	Reactors - 3 per item	3	$ 0.2						$ 0.2
FPL	Distribution Padmount Transformers	4000	$ 5.5	$ 5.5	$ 11.0				$ 22.0
FPL	Distribution Aerial Transformers	2000	$ 2.8	$ 4.1	$ 4.1				$ 11.0
FPL	Transmission Improvements			$ 21.0	$ 35.0	$ 19.0			$ 75.0
[redacted]									
[redacted]									
Gulf	Sub Power Transformers - Increase Capacities	9		$ 7.3	$ 7.3	$ 7.4			$ 22.0
Gulf	Sub Power Transformers - Replacements	3		$ 2.0	$ 2.0	$ 2.0			$ 6.0
Gulf	Voltage Regulators - 3 per item	8	$ 0.3	$ 0.3	$ 0.2				$ 0.8
[redacted]									

[redacted]

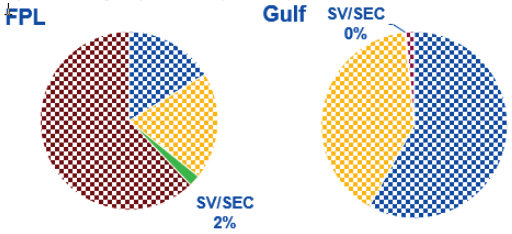
[redacted]

- [redacted]

[redacted]

Appendix

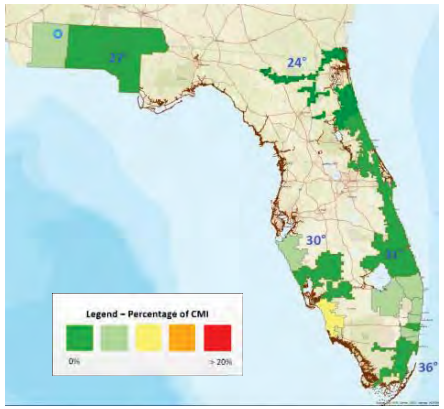
OH/UG Service Standards are aligned between Gulf and FPL



Meter to Transformer

- **Gulf and FPL services are sized to meet the capability of home electrical panels**
- **Review of January 2010 proved limited overall impact - ~1% of total**
  - Primary impacts driven by legacy conductors smaller than current design guidelines
  - Splices/connectors primary failure points
- **Legacy conductor continues to be inherent risk and will be addressed by SSUP program**
  - Small wire services
  - Open wire secondary

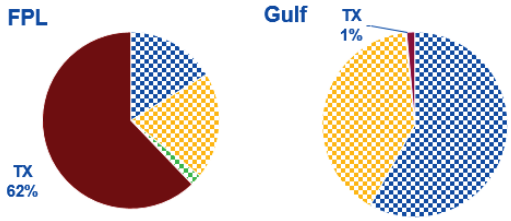
Service CMI



No recommended changes to service philosophy or mitigations required

FPL 000161
20220051-EI

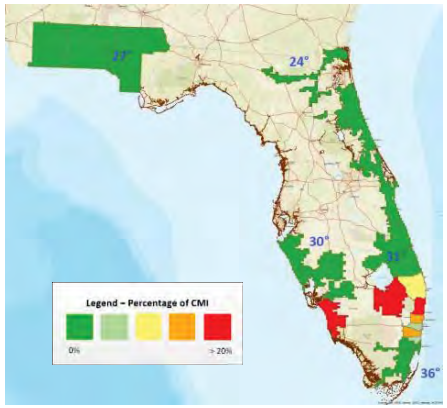
Field transformer outages drove overall reliability impact during January 2010's winter event for FPL



Field Transformers

- **Largest CMI contributor for FPL in 2010 – Underground units**
  - Failures primarily due to loading impacts
- **Regionalized impacts observed south of Lake Okeechobee**
  - Increased population (load) during winter in south – "Snowbirds"
  - More diversity in non-electric heating sources north of Lake (gas, fireplaces, etc.) – reduced loads
- **Recommendations:**
  - Align FPL and Gulf philosophies
  - Proactive replacement of 6,000 units - $33.0MM

Transformer CMI

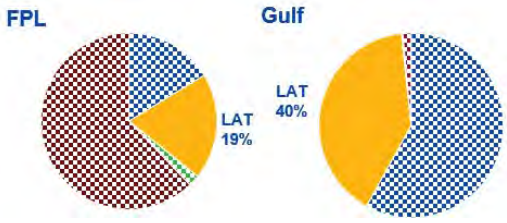


	FPL Existing		Gulf Existing		Proposed	
	Summer	Winter	Summer	Winter	Summer	Winter
Initial Loading	120%	200%	125%	140%	100%	120%
Changeout Loading	200%	200%	160%	180%	160%	180%

1) Level 2 chargers can add 3-7kW per home, estimated 2 homes/transformer (33% adoption on avg.) up to 14kW (15.5kVA)

FPL 000162
20220051-EI

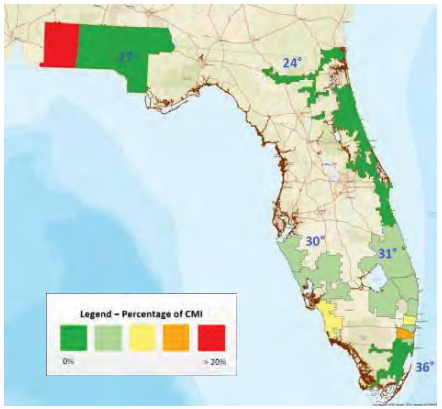
While lateral outages were an impact during the 2010 event, programs exist to mitigate exposure



Laterals

- **During the January 2010 event, lateral outages were a challenge for both Gulf and FPL**
  - 40% total CMI – Gulf, 20% total CMI – FPL
  - Overload – Gulf, Equipment Failure – FPL
    - -- Both main causes primarily on legacy "small wire" (conductor < 1/0)
    - -- Undersized fuse sizing drove outages at Gulf

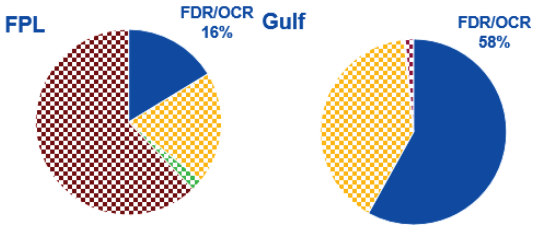
Lateral CMI



- [redacted]
  - -- [redacted]

FPL 000163
20220051-EI

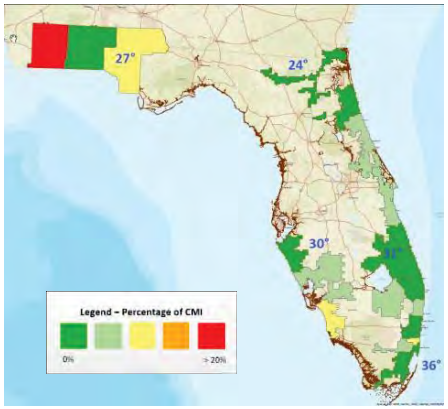
Review of 2010's winter event proved Feeder outages were a large impact at Gulf due to overload



Feeders

- **Feeder performance differed between FPL and Gulf during the January 2010 event**
  - Gulf – ~60% CMI, FPL – ~20% CMI
  - Gulf – overload, FPL – equipment failure
- **Alignment of philosophies for winter loading of feeders will mitigate previous overload scenarios at Gulf Power**
  - 720A (840A emergency), part of yearly planning and system expansion process
  - Mitigate cold load pickup/overload scenarios

Feeder CMI



[redacted]

FPL 000164
20220051-EI

Team Recommendations differ from original estimates due to deeper analysis of philosophies and system capabilities and updated forecast information

Summary of Recommendations

	FPL	Gulf
Field Transformers	Change initial and change-out (capacity upgrade) criterial to align with Gulf: Initial: 100%/120%, Changeout 160%/180% (Summer/Winter) Replace 6,000 units with forecasted overload	Reduce initial loading criteria to align FPL and Gulf philosophies – 100%/120% (Summer/Winter)
[redacted]	[redacted]	[redacted]
Substation Transformers	Replace 4 Power Transformers	Adopt FPL emergency rating philosophy (130% Summer, 150% Winter), Add 9 Transformers, Replace 3
[redacted]	[redacted]	[redacted]
Transmission	Upgrade ampacity on 6 Transmission Lines/Sections (~36 miles)	No recommended actions – Gulf transmission capable for forecasted loads

Reductions in estimated new substations and substation transformers reduces previously estimated overall costs

The documents responsive to OPC's First Request for Production of Documents No. 1, Bates No. 000166-000168, are confidential in their entirety.

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Review of 2020-2029 Storm Protection Plan pursuant to Rule 25-6.030, F.A.C., Tampa Electric Company.	DOCKET NO. 20200067-EI
In re: Review of 2020-2029 Storm Protection Plan pursuant to Rule 25-6.030, F.A.C., Duke Energy Florida, LLC.	DOCKET NO. 20200069-EI
In re: Review of 2020-2029 Storm Protection Plan pursuant to Rule 25-6.030, F.A.C., Gulf Power Company.	DOCKET NO. 20200070-EI
In re: Review of 2020-2029 Storm Protection Plan pursuant to Rule 25-6.030, F.A.C., Florida Power & Light Company.	DOCKET NO. 20200071-EI
In re: Storm protection plan cost recovery clause.	DOCKET NO. 20200092-EI ORDER NO. PSC-2020-0293-AS-EI ISSUED: August 28, 2020

The following Commissioners participated in the disposition of this matter:

GARY F. CLARK, Chairman
ART GRAHAM
JULIE I. BROWN
DONALD J. POLMANN
ANDREW GILES FAY

APPEARANCES:

JAMES D. BEASLEY, J. JEFFRY WAHLEN, and MALCOLM N. MEANS, ESQUIRES, Post Office Box 391, Tallahassee, Florida 32302
On behalf of Tampa Electric Company (TECO).

DIANNE M. TRIPLETT, ESQUIRE, 299 First Avenue North, St. Petersburg, FL 33701 and MATTHEW R. BERNIER, ESQUIRE, 106 E. College Avenue, Suite 800, Tallahassee, Florida 32301
On behalf of Duke Energy Florida, LLC (DEF).

RUSSELL A. BADDERS, ESQUIRE, One Energy Place, Pensacola, FL 32520 and JASON A. HIGGINBOTHAM and JOHN T. BURNETT, ESQUIRES, 700 Universe Boulevard, Juno Beach, Florida 33408-0420
On behalf of Gulf Power Company (Gulf).

CHRISTOPHER T. WRIGHT and JOHN T. BURNETT, ESQUIRES, 700 Universe Boulevard, Juno Beach, Florida 33408-0420
On behalf of Florida Power & Light Company (FPL).

JON C. MOYLE, JR. and KAREN PUTNAL, ESQUIRES, 118 North Gadsden Street, Tallahassee, Florida 32312
On behalf of Florida Industrial Power Users Group (FIPUG).

JAMES W. BREW and LAURA WYNN BAKER, ESQUIRES, Stone Mattheis Xenopoulos & Brew, PC, 1025 Thomas Jefferson Street, NW, Eighth Floor, West Tower, Washington, District of Columbia 20007
On behalf of White Springs Agricultural Chemicals, Inc. d/b/a PCS Phosphate – White Springs (PCS).

PATRICIA A. CHRISTENSEN, A. MIREILLE FALL-FRY, CHARLES REHWINKEL, and THOMAS A. (TAD) DAVID, ESQUIRES, 111 West Madison Street, Room 812, Tallahassee, Florida 32399-1400
On behalf of Office of Public Counsel (OPC).

STEPHANIE U. EATON, ESQUIRE, 110 Oakwood Drive, Suite 500, Winston-Salem, North Carolina 27103 and DERRICK PRICE WILLIAMSON and BARRY A. NAUM, ESQUIRES, 1100 Bent Creek Boulevard, Suite 101, Mechanicsburg, Pennsylvania 17050
On behalf of Walmart Inc. (Walmart).

RACHAEL DZIECHCIARZ and CHARLES MURPHY, ESQUIRES, Florida Public Service Commission, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850
On behalf of the Florida Public Service Commission (Staff).

MARY ANNE HELTON, ESQUIRE, Deputy General Counsel, Florida Public Service Commission, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850
Advisor to the Florida Public Service Commission.

KEITH C. HETRICK, ESQUIRE, General Counsel, Florida Public Service Commission, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850
Florida Public Service Commission General Counsel.

FINAL ORDER APPROVING SETTLEMENT AGREEMENTS
SUBMITTED BY GULF POWER COMPANY, FLORIDA POWER & LIGHT COMPANY,
DUKE ENERGY FLORIDA, LLC, AND TAMPA ELECTRIC COMPANY
AND
FINAL ORDER APPROVING TAMPA ELECTRIC COMPANY'S
MOTION TO APPROVE REVISED TARIFF

BY THE COMMISSION:

Background

Section 366.96(3), Florida Statutes (F.S.), requires each public utility to file a transmission and distribution storm protection plan (SPP) that covers the immediate 10-year planning period, and explains the systematic approach the utility will follow to achieve the objectives of reducing restoration costs and outage times associated with extreme weather events and enhancing reliability. Pursuant to Section 366.96(5) and (6), F.S., every three years the Florida Public Service Commission (Commission) is required to determine whether it is in the public interest to approve, approve with modification, or deny each utility's transmission and distribution storm protection plan filed in accordance with Commission Rule 25-6.030, Florida Administrative Code (F.A.C.). In addition, Section 366.96(7), F.S., requires us to conduct a proceeding, to be referred to as the storm protection plan cost recovery clause (SPPCRC), to determine a utility's prudently incurred plan costs and allow the utility to recover such costs through a charge separate and apart from its base rates in accordance with Rule 25-6.031, F.A.C.

The following dockets were opened to address the SPPs for each of the electric utilities that are subject to the requirements of Section 366.96, F.S.:

- Docket No. 20200067-EI – Tampa Electric Company (TECO) SPP docket
- Docket No. 20200068-EI – Florida Public Utilities Company (FPUC) SPP docket
- Docket No. 20200069-EI – Duke Energy Florida, LLC (DEF) SPP docket
- Docket No. 20200070-EI – Gulf Power Company (Gulf) SPP docket
- Docket No. 20200071-EI – Florida Power & Light Company (FPL) SPP docket

The FPUC SPP docket was closed by Order No. PSC-2020-0097-PCO-EI, issued on April 6, 2020; the remaining dockets were consolidated for the hearing. The Office of Public Counsel (OPC), Walmart Inc. (Walmart), and Florida Industrial Power Users Group (FIPUG) were granted intervention in the TECO, DEF, Gulf, and FPL SPP dockets. White Springs Agricultural Chemicals, Inc. d/b/a PCS Phosphate – White Springs (PCS) was granted intervention in DEF's SPP docket. Docket No. 20200092-EI (SPPCRC docket) was opened to address the SPPCRC for the utilities that submitted SPPs. OPC, Walmart, PCS, and FIPUG were also granted intervention in the SPPCRC docket.

Gulf, FPL, DEF, and TECO entered into Settlement Agreements prior to the administrative hearing. Accordingly, we held an administrative hearing on August 10, 2020, to

hear oral argument from the parties in support of each Settlement Agreement to which it is a signatory, to admit testimony and documentary evidence into the record, and to consider each of the Settlement Agreements.

A. Gulf and FPL Settlement Agreement

On July 27, 2020, Gulf, FPL, OPC, and Walmart submitted a Joint Motion for Expedited Approval of a Stipulation and Settlement Agreement in the Gulf and FPL SPP dockets and the SPPCRC docket, and attached a Settlement Agreement to the Motion (Gulf and FPL Settlement Agreement). The Gulf and FPL Settlement Agreement, attached hereto as Attachment A, is signed and executed by Gulf, FPL, OPC, and Walmart (collectively, the Gulf and FPL Settlement Agreement Signatories). FIPUG took no position on the Joint Motion for Expedited Approval of a Stipulation and Settlement Agreement. PCS is not a party to the Gulf and FPL SPP dockets.

The Gulf and FPL Settlement Agreement Signatories contend that the Gulf and FPL Settlement Agreement resolves all matters in the Gulf and FPL SPP dockets, and also provides a partial resolution of Gulf and FPL's matters in the SPPCRC docket. The Gulf and FPL Settlement Agreement Signatories further contend that approving the stipulations set forth in the Settlement Agreement will promote administrative and regulatory efficiency in those dockets. The Gulf and FPL Settlement Agreement Signatories argue that when considered as a whole, the Gulf and FPL Settlement Agreement fairly and reasonably balances the interests of the customers and utilities, is consistent with the stated purpose and intent of Section 366.96, F.S., and is in the public interest.

Key provisions of the Gulf and FPL Settlement Agreement include:

- The Signatories agree that the record supports a finding that the following Gulf SPP programs are in the public interest, and that Gulf proceeding to implement the following SPP programs is not evidence of imprudence:
    - Gulf Distribution Inspection Program
    - Gulf Transmission Inspection Program
    - Gulf Vegetation Management – Distribution Program
    - Gulf Vegetation Management – Transmission Program
    - Gulf Distribution Feeder Hardening Program
    - Gulf Transmission Hardening Program, including Gulf's Transmission and Substation Resiliency Program and Gulf's Substation Flood Monitoring and Hardening Program
- The Signatories agree that Gulf's pilot Distribution Hardening – Lateral Undergrounding Program, limited for the years 2020-2022 in the amounts reflected for those years in Gulf's SPP, shall be approved for the years 2020-2022. For Distribution Hardening – Lateral Undergrounding Program activities for the year 2023, Gulf shall file an SPP update in 2022 in order to seek recovery of costs for such 2023 activities in 2023. The Signatories further agree that their consent to this pilot program under the terms of the Gulf and FPL Settlement

Agreement will not be binding upon or have any precedential value on any future lateral undergrounding program or projects that Gulf may propose in future SPPs or otherwise.

- The Signatories agree that the record supports a finding that the following FPL SPP programs are in the public interest, and that FPL proceeding to implement the following SPP programs is not evidence of imprudence:
    - FPL Pole Inspections – Distribution Program
    - FPL Structures/Other Equipment Inspections – Transmission Program
    - FPL Feeder Hardening (EWL) – Distribution Program
    - FPL Wood Structures Hardening (Replacing) – Transmission Program
    - FPL Substation Storm Surge/Flood Mitigation Program, for the 10 substations identified in FPL's SPP on page 31 (*See* Exhibit No. 12 of the Comprehensive Exhibit List, Exhibit MJ-1, page 35 of 48)
    - FPL Vegetation Management – Distribution Program
    - FPL Vegetation Management – Transmission Program
- The Signatories agree that with regard to FPL's Distribution Lateral Hardening – Undergrounding Program, FPL shall continue this program as a pilot through 2022 (Continued Pilot). The Signatories retain all rights to assert or challenge the reasonableness of FPL's projected costs and prudence of FPL's actual costs on individual projects under this program in the SPPCRC. For Distribution Lateral Hardening – Undergrounding Program activities for the year 2023, FPL shall file an SPP update in 2022 in order to seek recovery of costs for such 2023 activities in 2023. The Signatories further agree that their consent to this Continued Pilot program under the terms of this Gulf and FPL Settlement Agreement will not be binding upon or have any precedential value on any future lateral undergrounding program or projects that FPL may propose in future SPPs or otherwise.
- The Signatories agree that approval of the Gulf and FPL Settlement Agreement does not include or imply a determination of prudence for any particular project under a given program. OPC retains the right to challenge the prudence or reasonableness of any projects or costs for any project submitted through the SPPCRC docket.
- The Signatories agree that Gulf and FPL will work with Walmart to discuss and evaluate new potential SPP programs prior to filing its next SPP.
- The Signatories agree that FPL and Gulf will not seek recovery of any SPP program O&M expenses incurred in 2020 or 2021 through the SPPCRC. FPL and Gulf will address the recovery of future SPP program O&M expenses in their next base rate cases, including whether such O&M expenses are to be recovered through base rates or through the SPPCRC.
- The Signatories agree to the manner by which Gulf and FPL may seek recovery of and return on capital expenditures and assets related to the SPP programs approved in Docket Nos. 20200070-EI and 20200071-EI.

B. DEF Settlement Agreement

On July 31, 2020, DEF, OPC, and PCS filed a Joint Motion for Expedited Approval of Settlement Agreement in the DEF SPP docket, and attached a Settlement Agreement to the Motion (DEF Settlement Agreement).[1] The DEF Settlement Agreement, attached hereto as Attachment B, is signed and executed by DEF, OPC, PCS, and Walmart (collectively, the DEF Settlement Agreement Signatories).[2] FIPUG took no position on the Joint Motion for Expedited Approval of a Stipulation and Settlement Agreement.

The DEF Settlement Agreement Signatories contend that the DEF Settlement Agreement resolves all matters in DEF's SPP docket, and that approving the stipulations set forth in the DEF Settlement Agreement will promote administrative and regulatory efficiency. The DEF Settlement Agreement Signatories argue that when considered as a whole, the DEF Settlement Agreement fairly and reasonably balances the interests of the customers and the utility, is consistent with the stated purpose and intent of Section 366.96, F.S., and is in the public interest.

Key provisions of the DEF Settlement Agreement include:

- The Signatories agree that the record supports a finding that the following DEF SPP programs are in the public interest, and that DEF proceeding to implement the following SPP programs is not evidence of imprudence:
    - DEF Feeder Hardening Program
    - DEF Lateral Hardening Program
    - DEF Self-Optimizing Grid – SOG Program
    - DEF Underground Flood Mitigation Program
    - DEF Distribution Vegetation Management Program
    - DEF Transmission Structure Hardening Program
    - DEF Substation Flood Mitigation Program
    - DEF Loop Radially-Fed Substations Program
    - DEF Substation Hardening Program
    - DEF Transmission Vegetation Management Program
- The Signatories agree that DEF will file its updated SPP for the period 2023-2032, and that DEF will not materially expand the scope of the programs and associated expenditures it seeks to recover for the years 2020-2022 beyond those that are included in the estimates shown on page 40 of Exhibit JWO-2, filed on April 10, 2020, updated on June 24, 2020 (*See* Exhibit No. 6 of the Comprehensive Exhibit List), and as modified in the filing made on July 24, 2020, in the SPPCRC docket.

[1] This is the second Motion for Settlement Agreement submitted by DEF in Docket No. 20200069-EI. The first Motion for Settlement Agreement was submitted on July 17, 2020, in Docket Nos. 20200069-EI and 20200092-EI; however, this first motion only impacts the SPPCRC docket. By Order No. PSC-2020-0273-PCO-EI, issued on July 31, 2020, the first Motion for Settlement Agreement (submitted on July 17, 2020), was scheduled for our review on September 1, 2020.

[2] The DEF Settlement Agreement was updated on August 3, 2020, to reflect Walmart as a signatory. The updated agreement is attached hereto as Attachment B.

- The Signatories agree that DEF will base its requests for cost recovery through the SPPCRC for the years 2023, 2024 and 2025 on the SPP update to be filed in 2022.
- The Signatories agree that the approval shall not include or imply any determination of prudence for any particular project under said program, and that Signatories retain the right to challenge the prudence or reasonableness of any projects or costs for any project submitted through the SPPCRC.

C. TECO Settlement Agreement

On August 3, 2020, TECO filed a Motion to Approve Stipulation and Settlement Agreement in TECO's SPP docket and the SPPCRC docket, and attached a Settlement Agreement to the Motion (TECO Settlement Agreement).[3] The TECO Settlement Agreement, attached hereto as Attachment C, is signed and executed by TECO, OPC, FIPUG, and Walmart (collectively, the TECO Settlement Agreement Signatories). PCS is not a party to the TECO SPP docket.

The TECO Settlement Agreement Signatories contend that the TECO Settlement Agreement resolves all matters in TECO's SPP docket and all matters with respect to TECO in the SPPCRC docket, and that approving the stipulations set forth in the TECO Settlement Agreement will promote administrative and regulatory efficiency. The TECO Settlement Agreement Signatories argue that when considered as a whole, the TECO Settlement Agreement fairly and reasonably balances the interests of the customers and utility, is consistent with the stated purpose and intent of Section 366.96, F.S., and is in the public interest.

Key provisions of the TECO Settlement Agreement include:

- The Signatories agree that the record supports a finding that the following TECO SPP programs are in the public interest, and that TECO proceeding to implement the following programs in 2020, 2021, and 2022 is not evidence of imprudence:
  - TECO Distribution Lateral Undergrounding Program
  - TECO Vegetation Management Program
  - TECO Transmission Asset Upgrades Program
  - TECO Distribution Overhead Feeder Program
  - TECO Transmission Access Enhancement Program
  - TECO Infrastructure Inspection Program
  - TECO Legacy Storm Hardening Plan Initiatives Program
- The Signatories agree that the record supports a Commission finding that TECO's proposed study for the Substation Extreme Weather Hardening Program is in the

[3] This is the second Motion for Settlement Agreement submitted by TECO in Docket No. 20200067-EI. The first Motion for Settlement Agreement was submitted on April 27, 2020, in Docket Nos. 20200067-EI and 20200092-EI, as well as several other impacted dockets. TECO's first Motion for Settlement Agreement was approved by this Commission on June 30, 2020, by Order No. PSC-2020-0224-AS-EI.

public interest and that TECO proceeding with the study is not evidence of imprudence.

- The Signatories agree that approval of the SPP and programs shall not include or imply any determination of prudence for any project in a program. Except as provided in paragraphs 19-26 of the TECO Settlement Agreement, the Signatories retain the right to challenge the prudence or reasonableness of any project or costs for any project submitted through the SPPCRC during a true-up proceeding in 2021 or thereafter.
- The Signatories agree that TECO will work with Walmart to discuss and evaluate new potential SPP programs prior to filing its next SPP, and that this effort shall be separate from and supplemental to the activity specified in paragraph 15(c) of TECO's prior Settlement Agreement, approved by this Commission by Order No. PSC-2020-0224-AS-EI. (OPC and FIPUG took no position on this provision.)
- TECO will file an updated SPP in early 2022. If approved by the Commission, the Signatories intend that the 2022 updated SPP will form the basis for cost recovery of SPP activities in 2023, 2024, and 2025, and that TECO will then next be required to file an updated SPP for approval again in 2025. TECO agrees it will not materially expand the scope of the programs and associated expenditures it seeks to recover in the SPPCRC for the years 2020 – 2022 beyond those that are included in the estimates shown in TECO's SPP filed on April 10, 2020, and as modified in the filing made on July 24, 2020, in the SPPCRC docket. TECO will base its requests for cost recovery through the SPPCRC for the years 2023, 2024, and 2025 on the SPP update to be filed in 2022.
- The Signatories agree that the direct testimony and exhibits filed by TECO in Docket No. 20200092-EI shall be inserted into the evidentiary record in Docket No. 20200092-EI, and agree to waive cross examination of those witnesses.
- The Signatories agree that there is an evidentiary basis to support TECO's petition for approval of 2020-2021 costs associated with its 2020-2029 SPP, filed on July 24, 2020, in Docket No. 20200092-EI, and the petition shall be granted.
- The Signatories agree that there is an evidentiary basis to approve the costs incurred for development of TECO's 2020-2029 SPP proposed for recovery in the SPPCRC and that those costs are reasonable and eligible for cost recovery through the SPPCRC, subject to a prudence review of actual costs in the applicable SPPCRC proceeding.
- The Signatories agree that nothing in the TECO Settlement Agreement shall be construed to prevent any party from challenging the reasonableness or prudence of SPP projects or costs of any projects in any future SPPCRC proceedings.
- The Signatories agree that TECO's Motion to Approve Revised Tariff, dated July 31, 2020, shall be approved so that the approximately $15 million base rate reduction contemplated in paragraph 11 of TECO's prior Settlement Agreement can be implemented concurrently with the implementation of the new SPPCRC cost recovery factors, effective the first billing cycle of January 2021.

D. TECO's Motion to Approve Revised Tariff

On July 31, 2020, TECO filed a Motion to Approve Revised Tariff (TECO Motion) in the SPPCRC docket, attached hereto as Attachment D. TECO agreed to submit the motion as a condition of its prior Settlement Agreement, approved by this Commission by Order No. PSC-2020-0224-AS-EI, issued on June 30, 2020. In addition, TECO requested approval of the motion in the TECO Settlement Agreement before us today. The TECO Motion contains the revised tariffs necessary to implement a one-time base rate reduction of approximately $15 million.

Decision

The standard for approval of a settlement agreement is whether it is in the public interest.[4] A determination of public interest requires a case-specific analysis based on consideration of the proposed settlement taken as a whole.[5] Approving the Gulf and FPL Settlement Agreement, the DEF Settlement Agreement, and the TECO Settlement Agreement promotes regulatory economy and administrative efficiency, and avoids the time and expense associated with litigating the settled issues in the various existing and continuing Commission dockets.

Based upon the parties' motions, our review of the Settlement Agreements, and the evidence and testimony on the record, we find that the Gulf and FPL Settlement Agreement, the DEF Settlement Agreement, and the TECO Settlement Agreement are in the public interest and are hereby approved. The Settlement Agreements resolve all of the issues in the SPP dockets for Gulf, FPL, DEF, and TECO (Docket Nos. 20200067-EI, 20200069-EI, 20200070-EI, and 20200071-EI). The Gulf and FPL Settlement Agreement also provides a partial resolution of Gulf and FPL's matters in the SPPCRC docket, and the TECO Settlement Agreement resolves all matters with respect to TECO in the SPPCRC docket.

Furthermore, based on our approval of the TECO Settlement Agreement, we hereby approve TECO's associated Motion to Approve Revised Tariff, so that the approximately $15 million base rate reduction can be implemented concurrently with the implementation of TECO's new SPPCRC cost recovery factors effective the first billing cycle of January 2021.

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[4] Order No. PSC-13-0023-S-EI, issued on January 14, 2013, in Docket No. 120015-EI, *In re: Petition for increase in rates by Florida Power & Light Company*; Order No. PSC-11-0089-S-EI, issued February 1, 2011, in Docket Nos. 080677 and 090130, *In re: Petition for increase in rates by Florida Power & Light Company* and *In re: 2009 depreciation and dismantlement study by Florida Power & Light Company*; Order No. PSC-10-0398-S-EI, issued June 18, 2010, in Docket Nos. 090079-EI, 090144-EI, 090145-EI, 100136-EI, *In re: Petition for increase in rates by Progress Energy Florida, Inc.*, *In re: Petition for limited proceeding to include Bartow repowering project in base rates, by Progress Energy Florida, Inc.*, *In re: Petition for expedited approval of the deferral of pension expenses, authorization to charge storm hardening expenses to the storm damage reserve, and variance from or waiver of Rule 25-6.0143(1)(c), (d), and (f), F.A.C., by Progress Energy Florida, Inc.*, and In re: *Petition for approval of an accounting order to record a depreciation expense credit, by Progress Energy Florida, Inc.*; Order No. PSC-05-0945-S-EI, issued September 28, 2005, in Docket No. 050078-EI, *In re: Petition for rate increase by Progress Energy Florida, Inc.*

[5] Order No. PSC-13-0023-S-EI, at p. 7.

Based on the foregoing, it is

ORDERED by the Florida Public Service Commission that the stipulations, findings, and rulings herein are hereby approved. It is further

ORDERED that Gulf Power Company, Florida Power & Light Company, Duke Energy Florida, LLC, and Tampa Electric Company shall abide by the stipulations, findings, and rulings herein which are applicable to it. It is further

ORDERED that the Settlement Agreement submitted on July 27, 2020, by Gulf Power Company and Florida Power and Light Company in Docket Nos. 20200070-EI and 20200071-EI, attached hereto as Attachment A, is approved. It is further

ORDERED that the Settlement Agreement submitted on July 31, 2020, and subsequently updated on August 3, 2020, by Duke Energy Florida, LLC in Docket No. 20200069-EI, attached hereto as Attachment B, is approved. It is further

ORDERED that the Settlement Agreement submitted on August 3, 2020, by Tampa Electric Company in Docket No. 20200067-EI, attached hereto as Attachment C, is approved. It is further

ORDERED that the Motion to Approve Revised Tariff, submitted by Tampa Electric Company in Docket No. 20200092-EI, attached hereto as Attachment D, is approved. It is further

ORDERED that Docket Nos. 20200067-EI, 20200069-EI, 20200070-EI, and 20200071-EI are hereby closed. It is further

ORDERED that the testimony and exhibits filed by Tampa Electric Company in Docket No. 20200092-EI shall be inserted into the evidentiary record at the administrative hearing for Docket No. 20200092-EI at the appropriate time. It is further

ORDERED that Docket No. 20200092-EI shall remain open for future resolution by the Commission for the issues that remain in that docket.

By ORDER of the Florida Public Service Commission this 28th day of August, 2020.

ADAM J. TEITZMAN
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399
(850) 413-6770
www.floridapsc.com

Copies furnished: A copy of this document is provided to the parties of record at the time of issuance and, if applicable, interested persons.

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NOTICE OF FURTHER PROCEEDINGS OR JUDICIAL REVIEW

The Florida Public Service Commission is required by Section 120.569(1), Florida Statutes, to notify parties of any administrative hearing or judicial review of Commission orders that is available under Sections 120.57 or 120.68, Florida Statutes, as well as the procedures and time limits that apply. This notice shall not be construed to mean all requests for an administrative hearing or judicial review will be granted or result in the relief sought.

Any party adversely affected by the Commission's final action in this matter may request: 1) reconsideration of the decision by filing a motion for reconsideration with the Office of Commission Clerk, 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399-0850, within fifteen (15) days of the issuance of this order in the form prescribed by Rule 25-22.060, Florida Administrative Code; or 2) judicial review by the Florida Supreme Court in the case of an electric, gas or telephone utility or the First District Court of Appeal in the case of a water and/or wastewater utility by filing a notice of appeal with the Office of Commission Clerk, and filing a copy of the notice of appeal and the filing fee with the appropriate court. This filing must be completed within thirty (30) days after the issuance of this order, pursuant to Rule 9.110, Florida Rules of Appellate Procedure. The notice of appeal must be in the form specified in Rule 9.900(a), Florida Rules of Appellate Procedure.

Attachment A

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

Review of 2020-2029 Storm Protection Plan pursuant to Rule 25-6.030, F.A.C., Gulf Power Company	Docket No. 20200070-EI
Review of 2020-2029 Storm Protection Plan pursuant to Rule 25-6.030, F.A.C., Florida Power & Light Company	Docket No. 20200071-EI
In re: Storm Protection Plan Cost Recovery Clause	Docket No. 20200092-EI
	Filed July 27, 2020

JOINT MOTION OF THE OFFICE OF PUBLIC COUNSEL, GULF POWER COMPANY, FLORIDA POWER & LIGHT COMPANY, WALMART INC. FOR EXPEDITED APPROVAL OF A STIPULATION AND SETTLEMENT AGREEMENT

Pursuant to Rule 28-106.204(1), Florida Administrative Code ("F.A.C."), the Office of Public Counsel ("OPC"), Gulf Power Company ("Gulf"), Florida Power & Light Company ("FPL"), and Walmart Inc. ("Walmart") (unless the context clearly requires otherwise, the term "Party" or "Parties" means a signatory to this Joint Motion), by and through their respective undersigned counsel, hereby file this Joint Motion and request that the Florida Public Service Commission ("Commission") review and approve on an expedited basis the Stipulation and Settlement Agreement ("Agreement), provided as Attachment A to this Joint Motion, as a full and complete resolution of all matters in Docket Nos. 20200070-EI and 20200071-EI and a partial resolution of significant matters in Docket No. 20200092-EI in accordance with Section 120.57(4), Florida Statutes ("F.S."), and enter a final order reflecting such approval to effectuate implementation of the Agreement. In support of this motion, the Parties jointly state as follows:

1. On June 27, 2019, the Governor of Florida signed CS/CS/CS/SB 796 addressing Storm Protection Plan Cost Recovery, which was codified in Section 366.96, F.S. Therein, the

Florida Legislature directed each utility to file a ten-year Storm Protection Plan ("SPP") that explains the storm hardening programs and projects the utility will implement to achieve the legislative objectives of reducing restoration costs and outage times associated with extreme weather events and enhancing reliability. *See* Section 366.96(3), F.S. The Florida Legislature also directed the Commission to conduct an annual proceeding to determine the utility's prudently incurred SPP costs and to allow the utility to recover such costs through a charge separate and apart from its base rates, to be referenced as the Storm Protection Plan Cost Recovery Clause ("SPPCRC"). *See* Section 366.96(7), F.S.

2. Rule 25-6.030, F.A.C., requires each utility to file an updated SPP at least every three years that covers the utility's immediate ten-year planning period. Rule 25-6.031(2), F.A.C., provides that after a utility has filed its SPP it may petition the Commission for recovery of the costs associated with the SPP and implementation activities.

3. On March 3, 2020, the Commission opened Docket No. 20200070-EI for the Gulf SPP and Docket No. 20200071-EI for the FPL SPP. On March 13, 2020, the Commission opened Docket No. 20200092-EI for the SPPCRC proceedings for all Investor Owned Utilities.

4. On March 11, 2020, the Prehearing Officer issued the Order Establishing Procedure, Order No. PSC-2020-0073-PCO-EI, in the SPP dockets, including Docket Nos. 20200070-EI and 20200071-EI. The Order Establishing Procedure consolidated the SPP dockets for all utilities for purposes of hearings and disposition.

5. On April 10, 2020, FPL filed its Petition requesting Commission approval of the 2020-2029 SPP. In support, FPL submitted the direct testimony of FPL witness Jarro, together with Exhibit MJ-1 – Florida Power & Light Company 2020-2029 Storm Protection Plan. Exhibit MJ-1 was subsequently corrected by an errata submitted on May 12, 2020, correcting an

inadvertent error on pages 46 and 47 and by a second errata submitted on July 13, 2020, correcting a scrivener's error on page 2 of Appendix C.

6. On April 10, 2020, Gulf filed its Petition requesting Commission approval of the 2020-2029 SPP. In support, Gulf submitted the direct testimony of Gulf witness Spoor, together with Exhibit MS-1 – Gulf Power & Company 2020-2029 Storm Protection Plan.

7. On May 29, 2020, the Prehearing Officer issued the Order Establishing Procedure, Order No. PSC-2020-0170-PCO-EI, in the SPPCRC docket, Docket No. 20200092. Pursuant thereto, Gulf and FPL filed their petitions for the SPPCRC on July 24, 2020.

8. On May 26, 2020, OPC submitted the direct testimonies of OPC witnesses Smith and Mara, together with supporting exhibits, in both the Gulf and FPL SPP dockets. On June 18, 2020, OPC submitted an errata in the FPL SPP docket correcting an error on page 13, line 14 of the direct testimony of OPC witness Mara.

9. Also on May 26, 2020, Walmart submitted the direct testimonies of Walmart witness Chriss and Perry in both the Gulf and FPL dockets.

10. On June 26, 2020, FPL submitted the rebuttal testimony of FPL witness Jarro and Gulf submitted the rebuttal testimony of Gulf witness Spoor, together with Exhibits MS-2 and MS-3.

11. The parties have engaged in extensive discovery in both the SPP and SPPCRC dockets. Through this process, the Parties thoroughly reviewed and evaluated FPL's 2020-2029 SPP and Gulf's 2020-2029 SPP. Additionally, OPC has raised the issue of whether the Gulf and FPL SPP costs proposed to be recovered through the SPPCRC include costs recovered through base rates, which is prohibited by Section 366.96(8), F.S., and Rule 25-6.031(6)(b), F.A.C.

12. As a direct result of these efforts, the Parties ultimately entered into the proposed Agreement to resolve all issues raised in the Gulf and FPL SPP dockets, Docket Nos. 20200070-

EI and 20200071-EI, respectively, and have established the reasonable costs which the Commission has a record basis to authorize FPL and Gulf to recover them through the SPPCRC in 2021, subject to Commission review for prudence in the normal course of the clause proceedings, assuming the Gulf and FPL SPPs are approved with modifications set forth in the Attached Settlement Agreement. The Parties hereby jointly request that the Commission review and approve the Agreement in its entirety and without modification.

13. The Commission has a "long history of encouraging settlements, giving great weight and deference to settlements, and enforcing them in the spirit in which they were reached by the parties." *Re Florida Power & Light Company*, Docket No. 20050045-EI, Order No. PSC-2005-0902-S-EI (FPSC Sept. 14, 2005). The proper standard for the Commission's approval of a settlement agreement is whether it is in the public interest. *Sierra Club v. Brown*, 243 So.3d 903, 910-913 (Fla. 2018) (citing *Citizens of State v. FPSC*, 146 So.3d 1143, 1164 (Fla. 2014)); *see also Gulf Coast Elec. Coop., Inc. v. Johnson*, 727 So.2d 259, 264 (Fla. 1999) ("[I]n the final analysis, the public interest is the ultimate measuring stick to guide the PSC in its decisions").[1]

14. The proposed Agreement represents a reasonable compromise of competing positions and is a full and complete resolution of all matters in Docket Nos. 20200070 and 20200071 and a partial resolution of significant matters in Docket No. 20200092. If approved by the Commission, the Agreement will establish a series of stipulations that will reduce the issues to

[1] The Florida Supreme Court has explained that the "determination of what is in the public interest rests exclusively with the Commission." *Citizens*, 146 So.3d at 1173. The Commission has broad discretion in deciding what is in the public interest and may consider a variety of factors in reaching its decision. *See Re The Woodlands of Lake Placid L.P.*, Docket No. 20030102-WS, Order No. PSC-2004-1162-FOF-WS, p. 7, (FPSC Nov. 22, 2004); *In Re: Petition for approval of plan to bring generating units into compliance with the Clean Air Act by Gulf Power Company*, Docket No. 19921155-EI, Order No. PSC-1993-1376-FOF-EI, p. 15 (FPSC Sept. 20, 2003). However, the Commission is not required to resolve the merits of every issue independently. *Sierra Club*, 243 So.3d at 913 (citing Citizens, 146 So.3d at 1153). Rather, a "determination of public interest requires a case-specific analysis based on consideration of the proposed settlement taken as a whole." *In re: Petition for Rate Increase by Gulf Power Co.*, Docket No. 20160186-EI, Order No. PSC-2017-0178-S-EI, 2017 WL 2212158, at *6 (FPSC May 16, 2017).

be litigated in Docket Nos. 20200070-EI, 20200071-EI, and 20200092-EI (with regards to Gulf and FPL). Approving these stipulations should also reduce the volume of discovery in the SPPCRC docket, clarify the issues to be litigated for Gulf and FPL in both dockets, and promote administrative and regulatory efficiency in those dockets.

15. The Parties will work in earnest to review and, if possible, stipulate and settle any remaining issues in the SPPCRC docket, Docket No. 20200092-EI.

16. The terms of the proposed Agreement reflect the Parties' assessments of their respective litigation positions, as well as their efforts to reach a reasonable and mutually acceptable compromise. The Parties entered into the proposed Agreement, each for their own reasons, but all in recognition that the cumulative total of the regulatory activity before the Commission—now and for the rest of 2020 and through 2021—is anticipated to be greater than normal. To maximize the administrative and regulatory efficiency benefits inherent in the proposed Agreement for the Parties and the Commission, and given that discovery in the SPPCRC docket is anticipated to begin in earnest with the filing of SPPCRC petitions on July 24, 2020, the Parties jointly request that the Commission schedule the proposed Agreement for consideration at an agenda conference as soon as possible.

17. Based on the foregoing, the Agreement represents a reasonable compromise of divergent positions and fully resolves all of the issues raised in the Gulf and FPL SPP proceedings, Docket Nos. 2020070-EI and 20200071-EI, respectively, and partially resolves significant matters in the SPPCRC proceeding, Docket No. 20200092-EI. Considered as a whole, the Agreement fairly and reasonably balances the interests of customers and the utilities, and is consistent with the stated purpose and intent of Section 366.96, F.S. Approving the Agreement is consistent with the Commission's long-standing policy of encouraging the settlement of contested proceedings in

a manner that benefits the customers of utilities subject to the Commission's regulatory jurisdiction. Accordingly, the Agreement is in the public interest and should be approved.

18. Pursuant to Rule 28-106.204(3), F.A.C., the Parties have conferred with the Florida Industrial Power Users Group ("FIPUG"), which was granted intervention by Order Nos. PSC-2020-0233-PCO-EI. FIPUG has advised that it takes no position on the Agreement.[2] Notwithstanding, the Parties jointly submit that the proposed Agreement is in the public interest and should be approved in its entirety for the reasons stated above.[3]

WHEREFORE, for all the reasons stated above, the Office of Public Counsel, Gulf Power Company, Florida Power & Light Company, and Walmart Inc. jointly and respectfully request that the Florida Public Service Commission expeditiously approve the Stipulation and Settlement Agreement provided as Attachment A to this Joint Motion.

[2] FIPUG did not actively participate in discovery or submit any testimony or evidence in opposition to the Gulf or FPL SPPs. In its Prehearing Statement, FIPUG did not take a specific position on any of the issues and, instead, adopted the positions of OPC, which is a signatory party to the Stipulation and Settlement Agreement provided as Attachment A to this Joint Motion.

[3] The Florida Supreme Court has affirmed that the Commission has the authority and discretion to approve a non-unanimous settlement over the objections of intervenors if the Commission finds the settlement is in the public interest. *Citizens*, 146 So.3d at 1152-54; *see also S. Fla. Hosp. & Healthcare Ass'n v. Jaber*, 887 So.2d 1210, 1212–13 (Fla. 2004) (affirming the Commission's approval of a non-unanimous settlement agreement despite the absence of a full evidentiary hearing). The Florida Supreme Court has explained that "it would be unreasonable to allow a single holdout party that does not get its way on one issue during settlement negotiations to derail the entire settlement process if settlement is fully in the public's interest all along." *Sierra Club*, 243 So.3d at 913.

Respectfully submitted this 27th day of July, 2020,

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FOR WALMART INC.

Attachment A

ATTACHMENT A
STIPULATION AND SETTLEMENT AGREEMENT

Attachment A

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

Review of 2020-2029 Storm Protection Plan pursuant to Rule 25-6.030, F.A.C., Gulf Power Company	Docket No. 20200070-EI
Review of 2020-2029 Storm Protection Plan pursuant to Rule 25-6.030, F.A.C., Florida Power & Light Company	Docket No. 20200071-EI
In re: Storm Protection Plan Cost Recovery Clause	Docket No. 20200092-EI
	Filed July 27, 2020

STIPULATION AND SETTLEMENT

WHEREAS, Gulf Power Company ("Gulf"), Florida Power & Light Company ("FPL"), Citizens through the Office of Public Counsel ("OPC"), and Walmart Inc. ("Walmart") have signed this Stipulation and Settlement (the "Agreement"; unless the context clearly requires otherwise, the term "Party" or "Parties" means a signatory to this Agreement);

WHEREAS, On June 27, 2019, the Governor of Florida signed CS/CS/CS/SB 796 addressing Storm Protection Plan Cost Recovery, which was codified in Section 366.96, F.S.;

WHEREAS, the Florida Legislature found in Section 366.96(1)(c), F.S., that it was in the State's interest to "strengthen electric utility infrastructure to withstand extreme weather conditions by promoting the overhead hardening of electrical transmission and distribution facilities, the undergrounding of certain electrical distribution lines, and vegetation management," and for each electric utility to "mitigate restoration costs and outage times to utility customers when developing transmission and distribution storm protection plans." Section 366.96(1)(e), F.S.;

Attachment A

WHEREAS, the Florida Legislature directed each utility to file a ten-year Storm Protection Plan ("SPP") that explains the storm hardening programs and projects the utility will implement to achieve the legislative objectives of reducing restoration costs and outage times associated with extreme weather events and enhancing reliability. *See* Section 366.96(3), F.S.;

WHEREAS, The Florida Legislature directed the Florida Public Service Commission ("Commission") to conduct an annual proceeding to determine the utility's prudently incurred SPP costs and to allow the utility to recover such costs through a charge separate and apart from its base rates, to be referenced as the Storm Protection Plan Cost Recovery Clause ("SPPCRC"). *See* Section 366.96(7), F.S.;

WHEREAS, Section 366.96(8), F.S., and Rule 25-6.031(6)(b), F.A.C., provide that the SPP costs to be recovered through the SPPCRC may not include costs recovered through the utility's base rates or any other cost recovery mechanism;

WHEREAS, Rule 25-6.030, F.A.C., requires each utility to file an updated SPP at least every three years that covers the utility's immediate ten-year planning period and specifies the information to be included in each utility's SPP;

WHEREAS, Rule 25-6.031, F.A.C., provides that after a utility has filed its SPP it may petition the Commission for recovery of the costs associated with the SPP and implementation activities and specifies the information to be included in each utility's SPPCRC filings;

WHEREAS, On March 3, 2020, the Commission opened Docket No. 20200070-EI for the Gulf SPP and Docket No. 20200071-EI for the FPL SPP;

WHEREAS, on March 13, 2020, the Commission opened Docket No. 20200092-EI for the SPPCRC proceedings for all Investor Owned Utilities;

WHEREAS, on April 10, 2020, FPL filed its Petition requesting Commission approval of the 2020-2029 SPP, together with the direct testimony of FPL witness Jarro and Exhibit MJ-1 – Florida Power & Light Company 2020-2029 Storm Protection Plan;[1]

WHEREAS, on April 10, 2020, Gulf filed its Petition requesting Commission approval of the 2020-2029 SPP, together with the direct testimony of Gulf witness Spoor and Exhibit Ms-1 – Gulf Power & Company 2020-2029 Storm Protection Plan;

WHEREAS, on May 26, 2020, OPC submitted the direct testimonies of OPC witnesses Smith and Mara, together with supporting exhibits, in both the Gulf and FPL SPP dockets;[2]

WHEREAS, on May 26, 2020, Walmart submitted the direct testimonies of Walmart witness Chriss and Perry in both the Gulf and FPL dockets;

WHEREAS, on June 26, 2020, FPL submitted the rebuttal testimony of FPL witness Jarro and Gulf submitted the rebuttal testimony of Gulf witness Spoor, together with Exhibits MS-2 and MS-3;

WHEREAS, pursuant to Order No. PSC-2020-0170-PCO-EI in Docket No. 20200092-EI, Gulf and FPL will file their petitions for the SPPCRC on July 24, 2020;

---

[1] Exhibit MJ-1 was subsequently corrected by an errata submitted on May 12, 2020, correcting an inadvertent error on pages 46 and 47 and by a second errata submitted on July 13, 2020, correcting a scrivener's error on page 2 of Appendix C.

[2] On June 18, 2020, OPC submitted an errata in the FPL SPP docket correcting an error on page 13, line 14 of the direct testimony of OPC witness Mara.

WHEREAS, the Parties engaged in significant discovery in both the SPP and SPPCRC dockets, and have thoroughly reviewed and evaluated FPL's 2020-2029 SPP and Gulf's 2020-2029 SPP;

WHEREAS, in testimony and discovery, OPC raised the issue of whether the Gulf and FPL SPP costs to be recovered through the SPPCRC in Docket No. 20200092-EI will include costs recovered through base rates;

WHEREAS, after an extensive review and evaluation of Gulf's SPP and FPL's SPP, as well as the issue of whether the Gulf SPP costs and the FPL SPP costs to be recovered through the SPPCRC will include costs recovered through base rates, the Parties to this Agreement have undertaken to reach a full and complete resolution of all matters in Docket Nos. 20200070-EI and 20200071-EI and a partial resolution of significant matters in Docket No. 20200092-EI;

WHEREAS, the Parties have entered into this Agreement in compromise of positions taken in accord with their rights and interests under Chapters 350, 366, and 120, Florida Statutes, as applicable, and as a part of the negotiated exchange of consideration among the Parties to this Agreement each has agreed to concessions to the others with the expectation that all provisions of the Agreement will be enforced by the Commission as to all matters addressed herein with respect to all Parties regardless of whether a court ultimately determines such matters to reflect Commission policy, upon acceptance of the Agreement as provided herein and upon approval as in the public interest; and

NOW THEREFORE, in consideration of the foregoing and the covenants contained herein, the Parties hereby stipulate and agree:

Attachment A

Gulf 2020-2029 Storm Protection Plan
(Docket No. 20200070)

1. The Parties agree that the record supports a Commission finding that Gulf's Distribution Inspection Program is in the public interest and that Gulf proceeding to implement the program is not evidence of imprudence.

2. The Parties agree that the record supports a Commission finding that Gulf's Transmission Inspection Program is in the public interest and that Gulf proceeding to implement the program is not evidence of imprudence.

3. The Parties agree that Gulf's pilot Distribution Hardening – Lateral Undergrounding Program, limited for the years 2020-2022 in the amounts reflected for those years in the SPP, should be approved for the years 2020-2022. In this pilot, Gulf will select laterals that experienced an outage during Hurricane Michael and/or other recent extreme weather events as a primary selection criteria for undergrounding or, as a secondary selection criteria, that have a history of vegetation outages or overall reliability issues that could be exacerbated in an extreme weather event. For Distribution Hardening – Lateral Undergrounding Program activities for the year 2023, Gulf shall file an SPP update in 2022 in order to seek recovery of costs for such 2023 activities in 2023. The Parties further agree that their consent to this pilot program under the terms of this Agreement will not be binding upon or have any precedential value on any future lateral undergrounding program or projects that Gulf may propose in future SPPs or otherwise.

4. Gulf agrees to conduct post-storm analysis after any named storm that impacts Gulf's system, where reasonably possible, to help quantify the benefits of undergrounding laterals and substation flooding mitigation. This analysis may include, among other things,

comparisons of overhead laterals to those that have been placed underground in terms of outage and restoration time, as well as comparing the availability of power from substations that have flooded with that of substations that have received flood mitigation measures.

5. The Parties agree that the record supports a Commission finding that Gulf's Vegetation Management – Distribution Program is in the public interest and that Gulf proceeding to implement the program is not evidence of imprudence.

6. The Parties agree that the record supports a Commission finding that Gulf's Vegetation Management – Transmission Program is in the public interest and that Gulf proceeding to implement the program is not evidence of imprudence.

7. The Parties agree that the record supports a Commission finding that Gulf's Distribution Feeder Hardening Program is in the public interest and that Gulf proceeding to implement the program is not evidence of imprudence.

8. The Parties agree that the record supports a Commission finding that Gulf's Transmission Hardening Program, including Gulf's Transmission and Substation Resiliency program and Gulf's Substation Flood Monitoring and Hardening program, is in the public interest and that Gulf proceeding to implement the program is not evidence of imprudence.

9. The Parties agree that the approval hereunder should not include or imply any determination of prudence for any particular project under said Program. OPC retains the right to challenge the prudence or reasonableness of any projects or costs for any project submitted through the SPPCRC.

Attachment A

10. The Parties agree that Gulf will work with Walmart to discuss and evaluate new potential SPP programs prior to filing its next SPP. OPC takes no position with regard to this provision.

FPL 2020-2029 Storm Protection Plan
(Docket No. 20200071)

11. The Parties agree that the record supports a Commission finding that FPL's Pole Inspections – Distribution Program is in the public interest and that FPL proceeding to implement the program is not evidence of imprudence.

12. The Parties agree that the record supports a Commission finding that FPL's Structures/Other Equipment Inspections – Transmission Program is in the public interest and that FPL proceeding to implement the program is not evidence of imprudence.

13. The Parties agree that the record supports a Commission finding that FPL's Feeder Hardening (EWL) – Distribution Program is in the public interest and that FPL proceeding to implement the program is not evidence of imprudence.

14. The Parties agree that the record supports a Commission finding that FPL's Wood Structures Hardening (Replacing) – Transmission Program is in the public interest and that FPL proceeding to implement the program is not evidence of imprudence.

15. The Parties agree that the record supports a Commission finding that FPL's Substation Storm Surge/Flood Mitigation –Program, for the 10 substations identified in FPL's SPP on page 31 (Exhibit MJ-1, page 35 of 48) is in the public interest and that FPL proceeding to implement the program is not evidence of imprudence.

16. The Parties agree that the record supports a Commission finding that FPL's Vegetation Management – Distribution Program is in the public interest and that FPL proceeding to implement the program is not evidence of imprudence.

17. The Parties agree that the record supports a Commission finding that FPL's Vegetation Management – Transmission Program is in the public interest and that FPL proceeding to implement the program is not evidence of imprudence.

18. The Parties agree that with regard to FPL's Distribution Lateral Hardening-Undergrounding Program, FPL should continue this Program as a pilot through 2022 ("Continued Pilot"). The priority for undergrounding in this Continued Pilot will be targeted for feeders that have the most number of laterals that experienced an outage during Hurricanes Matthew and/or Irma and that have a history of vegetation outages or overall reliability issues, as further described on page 26 of FPL's SPP (Exhibit MJ-1, page 30 of 48). The Parties agree that the record supports a Commission finding that the total number of laterals identified in Appendix C to FPL's SPP (Exhibit MJ-1, Appendix C, page 2 of 2) for the years 2020-2022 should be approved. Further, as part of this Continued Pilot, FPL will collect information and data to establish protocols for determining when a lateral for a feeder being evaluated for undergrounding in FPL's system should be overhead hardened as opposed to being placed underground, and FPL will use such protocols in future SPP work. The Parties retain all rights to assert or challenge the reasonableness of FPL's projected costs and prudence of FPL's actual costs on individual projects under this program in the SPPCRC. For Distribution Lateral Hardening –Undergrounding Program activities for the year 2023, FPL shall file an SPP update in 2022 in order to seek recovery of costs for such 2023 activities in 2023. The Parties further agree that their consent to this

Continued Pilot program under the terms of this Agreement will not be binding upon or have any precedential value on any future lateral undergrounding program or projects that FPL may propose in future SPPs or otherwise.

19. FPL agrees to conduct post-storm analysis after any named storm that impacts FPL's system, where reasonably possible, to help quantify the benefits of undergrounding laterals and substation flooding mitigation. This analysis may include, among other things, comparisons of overhead laterals to those that have been placed underground in terms of outage and restoration time, as well as comparing the availability of power from substations that have flooded with that of substations that have received flood mitigation measures.

20. The Parties agree that the approval hereunder should not include or imply any determination of prudence for any particular project under said Program. OPC retains the right to challenge the prudence or reasonableness of any projects or costs for any project submitted through the SPPCRC.

21. The Parties agree that FPL will work with Walmart to discuss and evaluate new potential SPP programs prior to filing its next SPP. OPC takes no position with regard to this provision.

Gulf and FPL Storm Protection Plan Cost Recovery Clause
(Docket No. 20200092)

22. The Parties agree that FPL and Gulf will not seek recovery of any SPP program O&M expenses incurred in 2020 or 2021 through the SPPCRC. FPL and Gulf will address the recovery of future SPP program O&M expenses in their next base rate cases, including

whether such O&M expenses are to be recovered through base rates or through the SPPCRC.

23. The Parties agree that FPL and Gulf may seek recovery of and return on capital expenditures and assets related to the SPP programs approved in Docket Nos. 20200070-EI and 20200071-EI, in the following manner:

a. Capital expenditures incurred prior to January 1, 2021, shall be recovered through base rates. This means that both the return on the net investment (which includes net plant in service and/or construction-work-in-progress, subject to section D.2.d. below) associated with a capital project cost incurred before January 1, 2021, and the related depreciation expense shall continue to be recovered through base rates and will not be recoverable through the SPPCRC. FPL and Gulf will maintain their records on a basis sufficient to provide the Commission and intervenors with a sufficient audit trail to track net investment costs for purposes of this provision.

b. The return on the net investment (which includes net plant in service and/or construction-work-in-progress, subject to section D.2.d. below) associated with a capital project cost incurred on or after January 1, 2021, and the related depreciation expense may be eligible for cost recovery through the SPPCRC, subject only to a reasonableness review of projected SPP costs and a prudence review of actual SPP costs in the applicable SPPCRC proceeding. FPL and Gulf will maintain their records on a basis sufficient to provide the Commission and intervenors with a sufficient audit trail to track net investment costs for purposes of this provision.

c. FPL and Gulf will not seek recovery through the SPPCRC of either cost of removal or retirements incurred in 2021 related to existing assets.

d. FPL and Gulf will not include any construction-work-in-progress balances as of January 1, 2021, in the beginning SPPCRC rate base balances.

e. The Parties acknowledge that there are depreciation expense savings in base rates resulting from the retirement of existing assets removed from service during the SPP project. These depreciation expense savings exist until FPL and Gulf next set base rates at which time depreciation expense would be adjusted and recovery of any remaining net book value of the retired assets would be incorporated. The Parties agree to meet to revisit issues related to the recovery of depreciation expense for SPP capital investments in base rates and in the SPPCRC no later than three months prior to the anticipated date of the opening of the 2023 SPPCRC Docket. In lieu of making system modifications related to netting depreciation expense recovery in the SPPCRC, the Parties agree that FPL and Gulf will not seek recovery of any property taxes through the SPPCRC associated with storm protection plan capital investments incurred in 2020, 2021, or 2022. Instead, FPL and Gulf will recover property taxes related to SPPCRC capital investments through base rates for each of these periods, including any test year projections filed in a base rate case.

f. To avoid any issues regarding "AFUDC bundling" or the aggregation of SPP projects for the purposes of meeting the threshold for the accrual of AFUDC for SPP projects between the date of this Agreement through 2022, FPL and

Gulf will not accrue or seek recovery of AFUDC for any 2020, 2021, or 2022 SPP programs or projects.

g. FPL and Gulf will apply the utility's most recent Commission-approved depreciation rates to calculate depreciation expense on all capitalized SPP expenditures.

24. The Parties agree that costs incurred for programing, administrative, and additional resources ("implementation costs") are necessary for FPL and Gulf to manage and track SPP projects on an annual basis and are incremental costs eligible for cost recovery through the SPPCRC, subject only to a reasonableness review of projected implementation costs and a prudence review of actual implementation costs in the applicable SPPCRC proceeding.

25. Whenever FPL and/or Gulf petition for a change to its base rates and charges pursuant to sections 366.06 and/or 366.07, Florida Statutes, the assets being recovered through the SPPCRC that have been determined prudent through a final true-up in the SPPCRC by the Commission as of the end of the historic year presented in the Company's minimum filing requirements may, at the Company's option, be included in the Company's minimum filing requirement schedules and included in retail rate base for the applicable test year. Once recovery begins through base rates, these costs will simultaneously be removed from the SPPCRC. Thereafter, new SPP capital and assets related to SPP programs that were not included in the test year used to set base rates may be submitted for recovery through the SPPCRC petition process.

26. By the earlier of April 30, 2021, or the date when FPL and/or Gulf is required to file its projected 2022 SPPCRC costs pursuant to the Order Establishing Procedure issued in the

2022 SPPCRC Docket, FPL and/or Gulf will provide project-level detail to the other Parties for costs expected to be requested for 2022 SPP cost recovery included in FPL's and/or Gulf's current plan at that time, recognizing that planning is on-going and changes may be expected. As necessary, FPL and Gulf will update this information when it files for cost recovery in the SPPCRC later in 2021.

27. The Parties agree that FPL's and Gulf's SPPCRC factors will be a demand charge ($/kW) for rate classes that have base rate demand charges. OPC takes no position with regard to this provision except to note that this provision must be consistent with Section 366.96(8), F.S.

28. The Parties agree and acknowledge that all issues not addressed herein may, consistent with Rule 25-6.031, F.A.C, still be subject to review and challenge by all Parties.

29. The Parties agree that nothing in this Agreement shall be construed to prevent any Party from challenging the reasonableness and/or prudence of SPP costs in any future SPPCRC proceedings.

OTHER PROVISIONS

30. Nothing in the Agreement will have precedential value.

31. The provisions of the Agreement are contingent upon approval by the Commission in its entirety without modification. Except as expressly set out herein, no Party agrees, concedes, or waives any position with respect to any of the issues identified in the Prehearing Order, and this Agreement does not expressly address any specific issue or any position taken thereon. The Parties will support approval of the Agreement and will not

request or support any order, relief, outcome, or result in conflict with it. No Party to the Agreement will request, support, or seek to impose a change to any provision of the Agreement. Approval of the Agreement in its entirety will resolve all matters and issues in this docket. This docket will be closed effective on the date that the Commission Order approving this Agreement is final, and no Party to the Agreement will seek appellate review of any order issued in this docket.

32. The Parties agree that approval of the Agreement is in the public interest.

33. This Agreement may be executed in counterpart originals, and a scanned .pdf copy of an original signature shall be deemed an original. Any person or entity that executes a signature page to this Agreement shall become and be deemed a Party with the full range of rights and responsibilities provided hereunder, notwithstanding that such person or entity is not listed in the first recital above and executes the signature page subsequent to the date of this Agreement, it being expressly understood that the addition of any such additional Party(ies) shall not disturb or diminish the benefits of this Agreement to any current Party.

Attachment A

In Witness Whereof, the Parties evidence their acceptance and agreement with the provisions of this Agreement by their signature.

FLORIDA POWER & LIGHT COMPANY

By: _____
R. Wade Litchfield
Vice President and General Counsel
Florida Power & Light Company
700 Universe Boulevard
Juno Beach, FL 33408-0420

OFFICE OF PUBLIC COUNSEL

By: _____
J.R. Kelly
The Florida Legislature
111 West Madison Street, Room 812
Tallahassee, FL 32899-1400

GULF POWER COMPANY

By: _____
Russell A. Badders
VP & Associate General Counsel
Gulf Power Company
One Energy Place
Pensacola, FL 32520

WALMART INC.

By: _____
Stephanie U. Eaton
Spilman Thomas & Battle, PLLC
110 Oakwood Drive, Suite 500
Winston-Salem, NC 27103

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GULF POWER COMPANY

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Russell A. Badders
VP & Associate General Counsel
Gulf Power Company
One Energy Place
Pensacola, FL 32520

WALMART INC.

By: */s/Stephanie U. Eaton*
Stephanie U. Eaton
Spilman Thomas & Battle, PLLC
110 Oakwood Drive, Suite 500
Winston-Salem, NC 27103

CERTIFICATE OF SERVICE
Docket Nos. 20200070, 20200071, 20200092

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished by electronic service on this 27th day of July 2020 to the following:

Charles Murphy, Esquire Rachael Dziechciarz, Esquire Shaw Stiller, Esquire Florida Public Service Commission 2540 Shumard Oak Boulevard Tallahassee, FL 32399 rdziechc@psc.state.fl.us cmurphy@psc.state.fl.us sstiller@psc.state.fl.us ***For Commission Staff***	Office of Public Counsel c/o The Florida Legislature 111 West Madison Street, Room 812 Tallahassee, FL 32399-1400 kelly.jr@leg.state.fl.us rehwinkel.charles@leg.state.fl.us christensen.patty@leg.state.fl.us david.tad@leg.state.fl.us morse.stephanie@leg.state.fl.us fall-fry.mireille@leg.state.fl.us ***For Office of Public Counsel***
John T. Burnett Vice President and Deputy General Counsel Jason A. Higginbotham Senior Attorney Florida Power & Light Company 700 Universe Boulevard Juno Beach, FL 33408-0420 Email: john.t.burnett@fpl.com Email: jason.higginbotham@fpl.com Russell A. Badders Vice President & Associate General Counsel Gulf Power Company One Energy Place Pensacola, FL 32520 Email: russell.badders@nexteraenergy.com ***For Gulf Power Company***	Dianne M. Triplett Deputy General Counsel Duke Energy Florida, LLC 299 First Avenue North St. Petersburg, FL 33701 E: Dianne.Triplett@Duke-Energy.com Matthew R. Bernier Associate General Counsel Duke Energy Florida, LLC 106 E. College Avenue, Suite 800 Tallahassee, FL 32301 E: Matthew.Bernier@Duke-Energy.com FLRegulatoryLegal@Duke-Energy.com ***For Duke Energy Florida, LLC***

John T. Burnett Vice President and Deputy General Counsel Christopher T. Wright Senior Attorney Florida Power & Light Company 700 Universe Boulevard Juno Beach, FL 33408-0420 Phone: 561-691-7144 Fax: 561-691-7135 Email: john.t.burnett@fpl.com Email: christopher.wright@fpl.com ***For Florida Power & Light Company***	James D. Beasley J. Jeffrey Wahlen Malcolm M. Means Ausley McMullen Post Office Box 391 Tallahassee, Florida 32302 Email: jbeasley@ausley.com Email: jwahlen@ausley.com Email: mmeans@ausley.com Ms. Paula K. Brown Regulatory Affairs P. O. Box 111 Tampa FL 33601-0111 regdept@tecoenergy.com ***For Tampa Electric Company***
Jon C. Moyle, Jr. Karen A. Putnal Moyle Law Firm, P.A. 118 North Gadsden Street Tallahassee, Florida 32301 Telephone: (850) 681-3828 Facsimile: (850) 681-8788 jmoyle@moylelaw.com kputnal@moylelaw.com mqualls@moylelaw.com ***For Florida Industrial Power Users Group***	Stephanie U. Eaton Spilman Thomas & Battle, PLLC 110 Oakwood Drive, Suite 500 Winston-Salem, NC 27103 seaton@spilmanlaw.com Derrick Price Williamson Spilman Thomas & Battle, PLLC 1100 Bent Creek Boulevard, Suite 101 Mechanicsburg, PA 17050 dwilliamson@spilmanlaw.com ***For Walmart Inc.***
James W. Brew Laura Wynn Baker Stone Mattheis Xenopoulos & Brew, PC 1025 Thomas Jefferson Street, NW Suite 800 West Washington, DC 20007-5201 jbrew@smxblaw.com lwb@smxblaw.com ***For PCS Phosphate - White Springs***	

/s/Christopher T. Wright
Christopher T. Wright
Fla. Auth. House Counsel No. 1007055
Florida Power & Light Company
700 Universe Boulevard (JB/LAW)
Juno Beach, Florida 33408

Attorney for Florida Power & Light Company

Attachment B

FILED 8/3/2020
DOCUMENT NO. 04216-2020
FPSC - COMMISSION CLERK

DUKE ENERGY. FLORIDA

Matthew R. Bernier
Associate General Counsel
Duke Energy Florida, LLC

August 3, 2020

VIA ELECTRONIC FILING

Mr. Adam Teitzman, Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: *Review of 2020-2029 Storm Protection Plan Pursuant to Rule 25-6.030, F.A.C. Duke Energy Florida, LLC; Docket No. 20200069-EI*

Dear Mr. Teitzman:

On July 31, 2020, Duke Energy Florida, LLC ("DEF"), filed a Joint Motion for Expedited Approval of Stipulation and Settlement Agreement Regarding the Storm Protection Plan ("Joint Motion"), on behalf of DEF, the Office of Public Counsel ("OPC"), and White Springs Agricultural Chemicals, Inc. d/b/a PCS Phosphate ("PCS Phosphate"). Walmart did not provide a position at the time the Motion was filed. Walmart has agreed to become a signatory to the Settlement Agreement and therefore supports the Joint Motion. There are no other changes to the Settlement Agreement.

Attached for filing is an Updated Stipulation and Settlement Agreement Regarding the Storm Protection Plan.

Thank you for your assistance in this matter. Please feel free to call me at (850) 521-1428 should you have any questions concerning this filing.

Respectfully,

s/Matthew R. Bernier

Matthew R. Bernier
Matt.Bernier@duke-energy.com

MRB/mw
Enclosures

Attachment B

CERTIFICATE OF SERVICE

Docket No. 20200069-EI

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished to the following by electronic mail this 3rd day of August, 2020, to all parties of record as indicated below.

s/ Matthew R. Bernier
Attorney

C. Murphy / R. Dziechciarz Office of General Counsel Florida Public Service Commission 2540 Shumard Oak Blvd. Tallahassee, FL 32399-0850 cmurphy@psc.state.fl.us rdziechc@psc.state.fl.us James W. Brew / Laura Wynn Baker 1025 Thomas Jefferson St., N.W. Suite 800 West Washington, DC 20007-5201 jbrew@smxblaw.com lwb@smxblaw.com Jon C. Moyle, Jr. / Karen A. Putnal 118 North Gadsden Street Tallahassee, FL 32301 jmoyle@moylelaw.com kputnal@moylelaw.com mqualls@moylelaw.com	J.R. Kelly / Charles J. Rehwinkel Office of Public Counsel c/o The Florida Legislature 111 West Madison St., Rm. 812 Tallahassee, FL 32399-1400 kelly.jr@leg.state.fl.us rehwinkel.charles@leg.state.fl.us Stephanie U. Eaton 110 Oakwood Dr., Ste. 500 Winston-Salem, NC 27103 seaton@spilmanlaw.com Derrick P. Williamson / Barry A. Naum 1100 Bent Creed Blvd., Ste. 101 Mechanicsburg, PA 17050 dwilliamson@spilmanlaw.com bnaum@spilmanlaw.com

Attachment B

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

Review of 2020-2029 Storm Protection Plan pursuant to Rule 25-6.030, F.A.C., Duke Energy Florida, LLC	Docket No. 20200069-EI Filed: August 3, 2020

UPDATED STIPULATION AND SETTLEMENT AGREEMENT

WHEREAS, Duke Energy Florida, LLC ("DEF"), Citizens through the Office of Public Counsel ("OPC"), White Springs Agricultural Chemicals, Inc. d/b/a PCS Phosphate ("PCS Phosphate"), and Walmart Inc. (collectively, the "Parties) have signed this Stipulation and Settlement Agreement (the "Agreement"); unless the context clearly requires otherwise, the term "Party" or "Parties" means a signatory to this Agreement;

WHEREAS, On June 27, 2019, the Governor of Florida signed CS/CS/CS/SB 796 addressing Storm Protection Plan Cost Recovery, which was codified in Section 366.96, F.S.;

WHEREAS, the Florida Legislature found in Section 366.96(1)(c), F.S., that it was in the State's interest to "strengthen electric utility infrastructure to withstand extreme weather conditions by promoting the overhead hardening of electrical transmission and distribution facilities, the undergrounding of certain electrical distribution lines, and vegetation management," and for each electric utility to "mitigate restoration costs and outage times to utility customers when developing transmission and distribution storm protection plans." Section 366.96(1)(e), F.S.;

WHEREAS, the Florida Legislature directed each utility to file a ten-year Storm

Protection Plan ("SPP") that explains the storm hardening programs and projects the utility will implement to achieve the legislative objectives of reducing restoration costs and outage times associated with extreme weather events and enhancing reliability. *See* Section 366.96(3), F.S.;

WHEREAS, The Florida Legislature directed the Florida Public Service Commission ("Commission") to conduct an annual proceeding to determine the utility's prudently incurred SPP costs and to allow the utility to recover such costs through a charge separate and apart from its base rates, to be referenced as the Storm Protection Plan Cost Recovery Clause ("SPPCRC"). *See* Section 366.96(7), F.S.;

WHEREAS, Rule 25-6.030, F.A.C., requires each utility to file an updated SPP at least every three years that covers the utility's immediate ten-year planning period and specifies the information to be included in each utility's SPP;

WHEREAS, Rule 25-6.031, F.A.C., provides that after a utility has filed its SPP it may petition the Commission for recovery of the costs associated with the SPP and implementation activities and specifies the information to be included in each utility's SPPCRC filings;

WHEREAS, the Parties engaged in significant discovery in the SPP docket, and have thoroughly reviewed and evaluated DEF's 2020-2029 SPP;

WHEREAS, the Parties have entered into this Agreement in compromise of positions taken in accord with their rights and interests under Chapters 350, 366, and 120, Florida Statutes, as applicable, and as a part of the negotiated exchange of consideration among the Parties to this Agreement each has agreed to concessions to the others with the expectation that all provisions of the Agreement will be enforced by the Commission as to all matters addressed herein with respect to all Parties regardless of whether a court ultimately determines such matters to reflect Commission policy, upon acceptance of the Agreement as provided herein and upon approval as

in the public interest; and

NOW THEREFORE, in consideration of the foregoing and the covenants contained herein, the Parties hereby stipulate and agree:

DEF 2020-2029 Storm Protection Plan
(Docket Nos. 20200069-EI)

1. The Parties agree that the record supports a Commission finding that DEF's Feeder Hardening Program is in the public interest and that DEF proceeding to implement the program (consistent with any action taken pursuant to the provisions of paragraph 11) is not evidence of imprudence.
2. The Parties agree that the record supports a Commission finding that DEF's Lateral Hardening Program is in the public interest and that DEF proceeding to implement the program (consistent with any action taken pursuant to the provisions of paragraph 11) is not evidence of imprudence.
3. The Parties agree that the record supports a Commission finding that DEF's Self-Optimizing Grid – SOG Program is in the public interest and that DEF proceeding to implement the program (consistent with any action taken pursuant to the provisions of paragraph 11) is not evidence of imprudence.
4. The Parties agree that the record supports a Commission finding that DEF's Underground Flood Mitigation Program is in the public interest and that DEF proceeding to implement the program (consistent with any action taken pursuant to the provisions of paragraph 11) is not evidence of imprudence.
5. The Parties agree that the record supports a Commission finding that DEF's Distribution Vegetation Management Program is in the public interest and that DEF proceeding to implement the program (consistent with any action taken pursuant to the provisions of

paragraph 11) is not evidence of imprudence.

6. The Parties agree that the record supports a Commission finding that DEF's Transmission Structure Hardening Program is in the public interest and that DEF proceeding to implement the program (consistent with any action taken pursuant to the provisions of paragraph 11) is not evidence of imprudence.

7. The Parties agree that the record supports a Commission finding that DEF's Substation Flood Mitigation Program is in the public interest and that DEF proceeding to implement the program (consistent with any action taken pursuant to the provisions of paragraph 11) is not evidence of imprudence.

8. The Parties agree that the record supports a Commission finding that DEF's Loop Radially-Fed Substations Program is in the public interest and that DEF proceeding to implement the program (consistent with any action taken pursuant to the provisions of paragraph 11) is not evidence of imprudence.

9. The Parties agree that the record supports a Commission finding that DEF's Substation Hardening Program is in the public interest and that DEF proceeding to implement the program (consistent with any action taken pursuant to the provisions of paragraph 11) is not evidence of imprudence.

10. The Parties agree that the record supports a Commission finding that DEF's Transmission Vegetation Management Program is in the public interest and that DEF proceeding to implement the program (consistent with any action taken pursuant to the provisions of paragraph 11) is not evidence of imprudence.

11. The Parties agree that, in 2022, DEF will file its updated SPP for the period 2023-2032, required by section 366.96(6), F.S., to be filed at least every 3 years after approval of the

Company's SPP. DEF agrees that it will not materially expand the scope of the programs and associated expenditures it seeks to recover in the SPPCRC for the years 2020 – 2022 beyond those that are included in the estimates shown on page 40 of Exhibit JWO-2 (the DEF SPP) filed on April 10, 2020, updated on June 24, 2020, and as modified in the filing made on July 24, 2020, in the SPPCRC. DEF will base its requests for cost recovery through the SPPCRC for the years 2023, 2024 and 2025 on the SPP update to be filed in 2022.

12. The Parties agree that the approval hereunder should not include or imply any determination of prudence for any particular project under said Program. OPC, PCS Phosphate, FIPUG, and Walmart retain the right to challenge the prudence or reasonableness of any projects or costs for any project submitted through the SPPCRC.

OTHER PROVISIONS

13. The Parties Stipulate to entry into the record the direct and rebuttal testimonies and exhibits of DEF witnesses Jay Oliver and Geoff Foster; the direct testimonies and exhibits of OPC witnesses Scott Norwood and Helmuth Schultz III, and the testimony and exhibits of Walmart witness Lisa Perry.

14. The Parties waive cross examination of all witnesses.

15. The Parties waive the right to file a post-hearing brief.

16. Nothing in the Agreement will have precedential value.

17. The provisions of the Agreement are contingent upon approval by the Commission in its entirety without modification. Except as expressly set out herein, no Party agrees, concedes, or waives any position with respect to any of the issues identified in the Prehearing Order, and this Agreement does not expressly address any specific issue or

Attachment B

any position taken thereon. The Parties will support approval of the Agreement and will not request or support any order, relief, outcome, or result in conflict with it. No Party to the Agreement will request, support, or seek to impose a change to any provision of the Agreement. Approval of the Agreement in its entirety will resolve all matters and issues in this docket. This docket will be closed effective on the date that the Commission Order approving this Agreement is final, and no Party to the Agreement will seek appellate review of any order issued in this docket.

18. The Parties agree that approval of the Agreement is in the public interest.

19. This Agreement may be executed in counterpart originals, and a scanned .pdf copy of an original signature shall be deemed an original, or via electronic signature. Any person or entity that executes a signature page to this Agreement shall become and be deemed a Party with the full range of rights and responsibilities provided hereunder, notwithstanding that such person or entity is not listed in the first recital above and executes the signature page subsequent to the date of this Agreement, it being expressly understood that the addition of any such additional Party(ies) shall not disturb or diminish the benefits of this Agreement to any current Party.

Executed the 31st day of July, 2020, Updated the 3rd day of August, 2020.

By: */s/ Catherine Stempien*
Catherine Stempien
State President
Duke Energy Florida, LLC
299 1st Ave. N
St. Petersburg, FL 33701

For Duke Energy Florida, LLC

Attachment B

By: */s/ J.R. Kelly*
J.R. Kelly
Public Counsel
Office of the Public Counsel
c/o The Florida Legislature
111 West Madison St., Room 812
Tallahassee, FL 32399-1400

For Office of Public Counsel

By: */s/ James Brew*
James Brew
Stone Mattheis Xenopoulos & Brew
1025 Thomas Jefferson Street, N.W.
Eighth Floor, West Tower
Washington, D.C. 20007

For White Springs Agricultural Chemicals, Inc. d/b/a PCS Phosphate

By: */s/ Stephanie U. Eaton*
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For Walmart Inc.

Attachment C

AUSLEY MCMULLEN
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TALLAHASSEE, FLORIDA 32301
(850) 224-9115 FAX (850) 222-7560

August 3, 2020

VIA: ELECTRONIC FILING

Mr. Adam J. Teitzman
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: Review of 2020-2029 Storm Protection Plan Pursuant to Rule 25-6.030, F.A.C., Tampa Electric Company, FPSC Docket No. 20200067-EI;
and
Storm Protection Plan Cost Recovery Clause; Docket No. 20200092-EI

Dear Mr. Teitzman:

Attached for filing in the above dockets is Tampa Electric Company's Motion to Approve Stipulation and Settlement Agreement.

Thank you for your assistance in connection with this matter.

Sincerely,

Malcolm N. Means

Malcolm N. Means

MNM/bmp
Attachment

cc: All Parties of Record (w/attachment)

Attachment C

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Review of 2020-2029 Storm Protection Plan pursuant to Rule 25-6.030, F.A.C., Tampa Electric Company	)	Docket No. 20200067-EI
In re: Storm protection plan cost recovery Clause	)	Docket No. 20200092-EI
	)	Filed: August 3, 2020

Tampa Electric Company's
Motion to Approve Stipulation and Settlement Agreement

Tampa Electric Company ("Tampa Electric" or "the company"), pursuant to Rule 28-106.204, Florida Administrative Code., hereby requests that the Florida Public Service Commission ("FPSC" or "Commission") approve the Stipulation and Settlement Agreement included with this Motion as Attachment "A" and made a part hereof, and states:

1. On April 10, 2020 Tampa Electric filed a Petition to approve its 2020-29 Storm Protection Plan ("SPP" or "Plan") in Docket No. 20200067-EI. Its SPP Petition was accompanied by the prepared direct testimony and exhibits of Gerry R. Chasse (Ex. No. GRC-1), Regan B. Haines (Ex. No. RBH-1), John H. Webster, A. Sloan Lewis (Ex. No. ASL-1) and Jason D. DeStigter.

2. On May 4, 2020, Tampa Electric filed a 2020 Settlement Agreement ("2020 Agreement") for approval in Docket Nos. 20200064-EI, 20200065-EI, 20200067-EI and 20200092-EI. The Commission opened Docket No. 20200145-EI to serve as a centralized docket for consideration of all of the issues in the 2020 Agreement.

3. On May 26, OPC filed the direct testimony and exhibits of Lane Kollen (Ex. Nos. LK-1 thru LK-3) and Scott Norwood (Ex. Nos. SN-1 thru SN-3) and related exhibits addressing Tampa Electric's SPP. Walmart filed the direct testimony and exhibits of Steve W. Chriss (Ex.

No. SWC-1) and Lisa V. Perry (Ex. No. LVP-1) on the same day. Tampa Electric filed rebuttal testimony from witnesses Haines, Lewis (and Ex. No. ASL-2) and DeStigter on June 26, 2020.

4. On June 30, 2020, the Commission memorialized its approval of the 2020 Agreement in Order No. PSC-2020-0224-AS-EI. The 2020 Agreement resolves several, but not all, issues in Docket No. 2020067-EI and in this Docket No. 2020092-EI. The centerpiece of 2020 Agreement is a provision under which Tampa Electric will reduce its base rates by an agreed-upon amount and will recover all of its SPP-related costs (with limited exceptions) deemed prudent by the Commission through the SPP Cost Recovery Clause ("SPPCRC").

5. On July 24, 2020 Tampa Electric filed a petition to recover costs associated with its SPP ("Cost Recovery Petition") in Docket No. 20200092-EI.

6. The Parties engaged in extensive discovery in the SPP docket (Docket No. 2020067-EI). Through this process, the Parties thoroughly reviewed and evaluated Tampa Electric's SPP programs, the SPP projects planned for 2020 and 2021, and the related project costs, program costs, and rate impacts. Since the 2020 Agreement included the one-time base rate reduction, no discovery was necessary in the SPPCRC docket (Docket No. 20200092-EI) regarding whether the costs the company will recover through the SPPCRC include costs being recovered through the utility's existing base rates or any other cost recovery mechanism.

7. As a direct result of these efforts, the Parties ultimately entered into the Stipulation and Settlement Agreement, which builds on the foundation of the 2020 Agreement and establishes a series of stipulations intended to resolve all issues in Tampa Electric's SPP docket, Docket No. 20200067-EI, and to resolve all issues related to Tampa Electric in the SPPCRC docket, Docket No. 2020092-EI. The Stipulation and Settlement Agreement is attached to this Motion as Exhibit A.

8. The standard for approving a settlement agreement is whether it is in the public interest.[1]

9. The Parties to the Stipulation and Settlement Agreement agree that the Agreement is in the public interest and should be approved. The Parties entered into the Agreement, each for their own reasons, but all in recognition that the cumulative total of the regulatory activity before the Commission involving Tampa Electric and the other investor owned electric utilities – now and for the rest of 2020 - is greater than normal. Approving these stipulations is in the public interest because doing so will, among other things: (a) allow Tampa Electric to implement its Storm Protection Plan and begin cost recovery through the SPPCRC without delay; (b) reduce the regulatory and administrative costs and risks that would have been associated with two contested hearings before the FPSC and (c) give the FPSC and consumer parties an opportunity to review the company's next SPP one (1) year earlier than required by law while retaining the opportunity to participate in future proceedings on the prudency of costs to be recovered through the SPPCRC through the normal FPSC cost recovery clause process.

10. The Stipulation and Settlement Agreement represents a reasonable compromise of divergent positions and fully resolves all of the issues raised in the Tampa Electric SPP and SPPCRC dockets. Considered as a whole, the Stipulation and Settlement Agreement fairly and

[1] See Order No. PSC-2020-0084-S-EI, issued March 20, 2020, in Docket No. 20190061-EI (Petition for Approval of SolarTogether program and tariff, by Florida Power & Light Company) at 5, citing Sierra Club v. Brown, 243 So. 3d 903, 910-913 (Fla. 2018); Order No. PSC-13-0023-S-EI, issued on January 14, 2013, in Docket No. 120015-EI, In re: Petition for increase in rates by Florida Power & Light Company; Order No. PSC-11-0089-S-EI, issued February 1, 2011, in Docket Nos. 080677-EI and 090130-EI, In re: Petition for increase in rates by Florida Power & Light Company and In re: 2009 depreciation and dismantlement study by Florida Power & Light Company; Order No. PSC-10-0398-S-EI, issued June 18, 2010, in Docket Nos. 090079-EI, 090144-EI, 090145-EI, and 100136-EI, In re: Petition for increase in rates by Progress Energy Florida, Inc., In re: Petition for limited proceeding to include Bartow repowering project in base rates, by Progress Energy Florida, Inc., In re: Petition for expedited approval of the deferral of pension expenses, authorization to charge storm hardening expenses to the storm damage reserve, and variance from or waiver of Rule 25-6.0143(1)(c), (d), and (f), F.A.C., by Progress Energy Florida, Inc., and In re: Petition for approval of an accounting order to record a depreciation expense credit, by Progress Energy Florida, Inc.; Order No. PSC-05-0945-S-EI, issued September 28, 2005, in Docket No. 050078-EI, In re: Petition for rate increase by Progress Energy Florida, Inc.

reasonably balances the interests of customers and the utilities and is consistent with the stated purpose and intent of Section 366.96 of the Florida Statutes. Approving the Stipulation and Settlement Agreement is consistent with the Commission's long-standing policy of encouraging the settlement of contested proceedings in a manner that benefits the customers of utilities subject to the Commission's regulatory jurisdiction. Accordingly, the Stipulation and Settlement Agreement is in the public interest and should be approved.

11. To maximize the administrative and regulatory efficiency benefits inherent in the Stipulation and Settlement Agreement for the Parties and the Commission, and the public, Tampa Electric, with the support of the Parties, requests that the Commission take up the Stipulation and Settlement Agreement for consideration as soon as possible, possibly as early as the beginning of the August 10th hearing scheduled in Docket No. 20200067-EI.[2] Tampa Electric will cooperate fully with Staff and will provide, in a timely manner, whatever information is necessary to enable Commission review of the Stipulation and Settlement Agreement.

12. The undersigned counsel has consulted with counsel for the Office of Public Counsel, the Florida Industrial Power Users Group, and Walmart and is authorized to represent that they support this Motion.

[2] If for notice or other reasons, the Commission doesn't believe that it can take up the Motion and approve the Stipulation and Settlement Agreement in its entirety on August 10th, Tampa Electric requests that the Commission convene the final hearing in Docket No. 20200067-EI on August 10, 2020, admit the testimony and exhibits into the record as provided in the Agreement, recess the hearing, and take up the Motion and Agreement as soon as possible, perhaps at the September 1, 2020 agenda conference.

Attachment C

DATED this 3rd day of August 2020.

Respectfully submitted,

JAMES D. BEASLEY
J. JEFFRY WAHLEN
MALCOLM N. MEANS
Ausley McMullen
Post Office Box 391
Tallahassee, Florida 32302
(850) 224-9115

ATTORNEYS FOR TAMPA ELECTRIC COMPANY

Attachment C

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing Motion, filed on behalf of Tampa Electric Company, has been furnished by electronic mail on this 3rd day of August, 2020 to the following:

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Attachment C

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*** Docket No. 20200092-EI Only**

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Malcolm N. Means

ATTORNEY

Attachment C

ATTACHMENT "A"

Attachment C

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Review of 2020-2029 Storm Protection Plan pursuant to Rule 25-6.030, F.A.C., Tampa Electric Company	)	Docket No. 20200067-EI
In re: Storm protection plan cost recovery Clause	)	Docket No. 20200092-EI

STIPULATION AND SETTLEMENT AGREEMENT

THIS AGREEMENT is dated this 3rd day of August 2020 and is by and between Tampa Electric Company ("Tampa Electric" or the "company") and the Office of Public Counsel ("OPC" or "Citizens"), the Florida Industrial Power Users Group ("FIPUG") and Walmart Inc. ("Walmart"). Collectively, Tampa Electric, OPC, FIPUG and Walmart shall be referred to herein as the "Parties" and the term "Party" shall be the singular form of the term "Parties." This document shall be referred to as the "Tampa Electric SPP Agreement" or the "Agreement."

Recitals

A. Tampa Electric filed a Petition to approve its Storm Protection Plan for 2020-2029 ("SPP") with the Florida Public Service Commission ("FPSC" or "Commission") on April 10, 2020, in Docket No. 20200067-EI. Its SPP Petition and SPP were accompanied by the prepared direct testimony and exhibits of Gerry R. Chasse (Ex. No. GRC-1), Regan B. Haines (Ex. No. RBH-1), John H. Webster, A. Sloan Lewis (Ex. No. ASL-1), and Jason D. DeStigter. The company's SPP includes the following programs: Distribution Lateral Undergrounding, Vegetation Management, Transmission Asset Upgrades, Substation Extreme Weather Hardening, Distribution Overhead Feeder Hardening, Transmission Access Enhancement, Infrastructure Inspections, and Legacy Storm Hardening Plan Initiatives.

B. OPC filed the direct testimony and exhibits of Lane Kollen (Ex. Nos. LK-1 thru LK-3) and Scott Norwood (Ex. Nos. SN-1 thru SN-3) and related exhibits addressing Tampa Electric's SPP on May 26, 2020. Walmart filed the direct testimony and exhibits of Steve W. Chriss (Ex. No. SWC-1) and Lisa V. Perry (Ex. No. LVP-1) on the same day. Tampa Electric filed rebuttal testimony from witnesses Haines, Lewis (and Ex. No. ASL-2) and DeStigter on June 26, 2020.

C. Tampa Electric filed a 2020 Settlement Agreement ("2020 Agreement") for approval in Docket Nos. 20200064-EI, 20200065-EI, 20200067-EI, and 20200092-EI on May 4, 2020. The Commission opened Docket No. 20200145-EI to serve as a centralized docket for consideration of all of the issues in the 2020 Agreement.

D. The centerpiece of the 2020 Agreement is a provision under which Tampa Electric will reduce its base rates by an agreed-upon amount (approximately $15 million) and will recover all of the costs (with limited exceptions) determined prudent by the Commission associated with activities in its SPP (O&M expenses and capital projects) through the Storm Protection Plan Cost Recovery Clause ("SPPCRC"). Among other things, the 2020 Agreement was intended to promote transparency and ensure that the costs the company will recover through the SPPCRC do not include costs being recovered through the utility's existing base rates or any other cost recovery mechanism as required by Rule 25-6.031(6)(b), Florida Administrative Code, in accord with Section 366.96(8), Florida Statutes. The Commission approved the 2020 Agreement and memorialized its decision in Order No. PSC-2020-0224-AS-EI, dated June 30, 2020, in Docket Nos. 20200145-EI, *et seq*.

E. Paragraph 11(b) of the 2020 Agreement specifies the cost of service and rate design principals to be used for the approximately $15 million base rate reduction and development of

cost recovery factors in the SPPCRC proceeding. It states:

> The specified amount of base revenue reduction described above will be accomplished through one-time reductions to base rates using the cost allocation and rate design principles reflected in paragraph 3 of the 2013 Stipulation among the Parties as modified by paragraph 3 of the 2017 Agreement, and those same cost allocation and rate design principles shall be used to develop the cost recovery factors/rates that will be used for SPP cost recovery in the SPPCRC beginning in 2020 and annually thereafter as provided in paragraph 3(g) of the 2017 Agreement.

F. Tampa Electric filed a motion to approve the tariff changes necessary to implement the base rate reduction contemplated in the 2020 Agreement in Docket No. 20200092-EI on July 31, 2020. The tariff changes necessary to implement the base rate reduction contemplated in the 2020 Agreement were prepared using the cost allocation and rate design principles in specified in paragraph 11(b) of that agreement.

G. Tampa Electric filed a petition to recover costs associated with its SPP ("Cost Recovery Petition") on July 24, 2020, in Docket No. 20200092-EI. Its Cost Recovery Petition was accompanied by the prepared direct testimony of Mark R. Roche (Ex. MRR-1), David L. Plusquellic (Ex. DLP-1), A. Sloan Lewis (Exs. ASL-1 and ASL-2), and William R. Ashburn (Ex. WRA-1). The SPP cost recovery factors proposed by the company were developed in accordance with paragraph 11(b) of the 2020 Agreement.

H. The Parties have engaged in extensive formal discovery in the SPP docket and informal discovery in the SPPCRC docket. Through this process, the Parties have thoroughly reviewed and evaluated Tampa Electric's 2020-2029 SPP and the projects planned for 2020 and 2021 and the related project costs, program costs and rate impact of the proposed SPP. The 2020 Agreement included the approximately $15 million base rate reduction described above, so it was not necessary for the Parties to conduct discovery to detect possible double recovery of costs through the SPPCRC and base rates in the SPPCRC docket.

I. Having considered the company's SPP, the testimony and exhibits filed by the Parties, and the extensive information exchanged during formal and informal discovery, the Parties have agreed that there is a record basis for the Commission to approve: (1) the SPP as filed in Docket No. 20200067-EI and (2) cost recovery as proposed by Tampa Electric in Docket No. 20200092-EI, subject to the terms and conditions specified in this Agreement, thereby essentially resolving by approval all of the issues currently pending for Tampa Electric in those two dockets.

J. The Parties have entered into this Agreement in compromise of positions taken in accord with their rights and interests under chapters 350, 366 and 120, Florida Statutes, as applicable, and as part of a negotiated exchange of consideration among the Parties to this Agreement, each Party has agreed to concessions to the others with the expectation, intent, and understanding such that all provisions of the Agreement, upon approval by the Commission, will be enforced by the Commission as to all matters addressed herein with respect to all Parties. The Parties agree that this Agreement is in the public interest and should be approved.

NOW, THEREFORE, in light of the mutual covenants of the Parties and the benefits accruing to all Parties through this Agreement, and for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

Terms

Docket No. 20200067-EI
2020-2029 Storm Protection Plan

1. The Parties agree that the direct and rebuttal testimony and exhibits filed by Tampa Electric, OPC and Walmart as described above should be inserted into the evidentiary record in Docket No. 20200067-EI and waive cross examination of those witnesses. The Parties also further agree that the other exhibits related to Tampa Electric as shown on the Comprehensive Exhibit List prepared by the FPSC Staff should also be admitted into the evidentiary record in Docket No.

20200067-EI. Upon the admission of the testimony and exhibits into the evidentiary record as specified in this paragraph, the Parties agree as provided in paragraphs 2 through 17, below.

2. The Parties agree that the record supports a Commission finding that Tampa Electric's Distribution Lateral Undergrounding Program is in the public interest and that Tampa Electric proceeding to implement the program in 2020, 2021 and 2022 is not evidence of imprudence.

3. The Parties agree that the record supports a Commission finding that Tampa Electric's Vegetation Management Program is in the public interest and that Tampa Electric proceeding to implement the program in 2020, 2021 and 2022 is not evidence of imprudence.

4. The Parties agree that the record supports a Commission finding that Tampa Electric's Transmission Asset Upgrades Program is in the public interest and that Tampa Electric proceeding to implement the program in 2020, 2021 and 2022 is not evidence of imprudence.

5. The Parties agree that the record supports a Commission finding that Tampa Electric's proposed study for the Substation Extreme Weather Hardening Program is in the public interest and that Tampa Electric proceeding with the study is not evidence of imprudence.

6. The Parties agree that the record supports a Commission finding that Tampa Electric's Distribution Overhead Feeder Hardening Program is in the public interest and that Tampa Electric proceeding to implement the program in 2020, 2021 and 2022 is not evidence of imprudence.

7. The Parties agree that the record supports a Commission finding that Tampa Electric's Transmission Access Enhancement Program is in the public interest and that Tampa Electric proceeding to implement the program in 2020, 2021 and 2022 is not evidence of imprudence.

Attachment C

8. The Parties agree that the record supports a Commission finding that Tampa Electric's Infrastructure Inspections Program is in the public interest and that Tampa Electric proceeding to implement the program in 2020, 2021 and 2022 is not evidence of imprudence.

9. The Parties agree that the record supports a Commission finding that Tampa Electric's Legacy Storm Hardening Plan Initiatives Program is in the public interest and that Tampa Electric proceeding to implement the program in 2020, 2021 and 2022 is not evidence of imprudence.

10. The Parties agree that the record supports a Commission finding that Tampa Electric's 2020-2029 Transmission and Distribution Storm Protection Plan meets all of the requirements of Section 366.96 of the Florida Statutes.

11. The Parties agree that the record supports a Commission finding that Tampa Electric's 2020-2029 Transmission and Distribution Storm Protection Plan will further the objectives of Section 366.96 of the Florida Statutes.

12. The Parties agree that the record supports a Commission finding that Tampa Electric's 2020-2029 Transmission and Distribution Storm Protection Plan contains the elements required by Rule 25-6.030 of the Florida Administrative Code.

13. The Parties agree that the record supports a Commission finding that it is in the public interest to approve Tampa Electric's 2020-2029 Transmission and Distribution Storm Protection Plan without modification.

14. The Parties agree that the approval of the SPP and its Programs consistent with this Agreement should not include or imply any determination of prudence for any project in a Program. Except as provided in paragraphs 19 through 26, below, OPC, FIPUG, and Walmart

retain the right to challenge the prudence or reasonableness of any project or costs for any project submitted through the SPPCRC during a true-up proceeding in 2021 or thereafter.

15. The Parties agree that Tampa Electric will work with Walmart to discuss and evaluate new potential SPP Programs prior to filing its next SPP and that this effort shall be separate from and supplemental to the activity specified in paragraph 15(c) of the 2020 Agreement. OPC and FIPUG take no position with regard to this paragraph.

16. Section 366.96(6), Florida Statutes, states:

> At least every 3 years after approval of a utility's transmission and distribution storm protection plan, the utility must file for commission review an updated transmission and distribution storm protection plan that addresses each element specified by commission rule. The commission shall approve, modify, or deny each updated plan pursuant to the criteria used to review the initial plan.

17. Notwithstanding the three-year requirement in Section 366.96(6), in early 2022, Tampa Electric shall file for Commission review and approval an updated transmission and distribution storm protection plan ("2022 Updated SPP"). The company's 2022 Updated SPP shall reflect, at a minimum: (a) a comprehensive review of all of the Programs included in the company's 2020 SPP with revisions and modifications as deemed appropriate by Tampa Electric and (b) any new programs to be proposed by Tampa Electric. Upon approval by the Commission, the Parties intend that the 2022 Updated SPP will form the basis for cost recovery of SPP activities in 2023, 2024, and 2025 and that Tampa Electric will then next be required to file an updated SPP for approval again in 2025. TECO agrees it will not materially expand the scope of the programs and associated expenditures it seeks to recover in the SPPCRC for the years 2020 – 2022 beyond those that are included in the estimates shown in Tampa Electric's SPP filed on April 10, 2020, and as modified in the filing made on July 24, 2020, in the SPPCRC. TECO will base its requests

for cost recovery through the SPPCRC for the years 2023, 2024, and 2025 on the SPP update to be filed in 2022.

Docket No. 20200092-EI
Storm Protection Plan Cost Recovery Clause

18. The Parties agree that the direct testimony and exhibits filed by Tampa Electric in Docket No. 20200092-EI as described above should be inserted into the evidentiary record in Docket No. 20200092-EI and agree to waive cross examination of those witnesses. Walmart and OPC will not file testimony addressing Tampa Electric's petition for cost recovery in Docket No. 20200092-EI, however, Walmart may file testimony referencing Tampa Electric's demand charges in its testimony addressing rate design of the other investor-owned utilities in Docket No. 20200092-EI. Tampa Electric agrees that the company's responses to the Office of Public Counsel's Interrogatory Nos. 189 and 224 may be entered into the record of this proceeding. Upon the admission of the testimony and exhibits into the evidentiary record as specified in this paragraph, the Parties agree as provided in paragraphs 19 through 26, below.

19. The Parties agree that there is an evidentiary basis to support Tampa Electric's petition for approval of 2020-2021 costs associated with its 2020-2029 SPP, filed on July 24, 2020, in Docket No. 20200092-EI, and the petition should be granted.

20. The Parties agree that there is an evidentiary basis to approve the costs incurred for development of Tampa Electric's 2020-2029 SPP proposed for recovery in the SPPCRC and that those costs are reasonable and eligible for cost recovery through the SPPCRC, subject to a prudence review of actual costs in the applicable SPPCRC proceeding.

21. The Parties agree that there is evidentiary basis to approve the proposed total SPPCRC amounts to be collected by Tampa Electric during the period January 2021 through December 2021 in the amount of $39,460,120. This amount includes the recovery of costs in the

amount of $16,435,191 projected to be incurred in 2020, then reduced by $10,400,000 to recognize those SPP costs in 2020 that are being transferred from base rates to the SPPCRC as agreed upon in Tampa Electric's 2020 Settlement Agreement; the recovery of costs in the amount of $33,908,399 projected to be incurred in 2021; a reduction of $511,861 to recognize those cost associated with Tampa Electric's Open Access Transmission Tariff; and an adjustment of $28,391 to include the associated Revenue Tax Factor and that those costs are reasonable, subject to a prudence review of actual costs in the applicable SPPCRC proceeding. In addition, Tampa Electric as part of the 2020 Settlement Agreement will reduce the retail portion of the $15 million in revenue requirements to recognize those ongoing SPP costs transferred from base rates to the SPPCRC.

22. The Parties agree that the appropriate SPPCRC factors for Tampa Electric for the period January 2021 through December 2021 as presented below are reasonable, have evidentiary support in the record and should be approved, subject to true-up in a future SPPCRC proceeding:

Rate Schedule	Cost Recovery Factors (cents per kWh)
RS	0.239
GS and CS	0.251
GSD Optional–Secondary	0.168
GSD Optional–Primary	0.166
GSD Optional–Subtransmission	0.164
LS-1, LS-2	0.354
Rate Schedule	**Cost Recovery Factors (dollars per kW)**
GSD-Secondary	0.72
GSD-Primary	0.71
GSD-Subtransmission	0.71
SBF–Secondary	0.72
SBF–Primary	0.71

SBF–Subtransmission	0.71
IS-Primary	0.17
IS–Subtransmission	0.17

23. The Parties agree that the effective date for billing purposes of Tampa Electric's proposed SPPCRC cost recovery factors specified above shall be the first billing cycle of January 2021.

24. The Parties agree that Tampa Electric Company's Motion to Approve Revised Tariff, dated July 31, 2020, should be approved so that the approximately $15 million base rate reduction contemplated in paragraph 11 of the 2020 Agreement can be implemented concurrently with the implementation of the new SPPCRC cost recovery factors effective the first billing cycle of January 2021.

25. The Parties agree and acknowledge that all issues addressed herein may, consistent with Rule 25-6.031, Florida Administrative Code, still be subject to review and challenge by all Parties.

26. The Parties agree that nothing in this Agreement shall be construed to prevent any Party from challenging the reasonableness or prudence of SPP projects or costs of any projects in any future SPPCRC proceedings.

Other Provisions

27. Commission Approval.

(a) The provisions of this Agreement are contingent on approval of this Agreement in its entirety by the Commission without modification, regardless of the sequence of the individual above styled Docket decisions; further, any decision by the Commission not to approve any provision of this Agreement shall, per se and as a matter of law, render the Agreement null and void and of no force or effect. The Parties further agree that this Agreement is in the public interest,

that they will support this Agreement and that they will not request or support any order, relief, outcome, or result in conflict with the terms of this Agreement in any administrative or judicial proceeding relating to, reviewing, or challenging the establishment, approval, adoption, or implementation of this Agreement or the subject matter hereof.

(b) No Party will assert in any proceeding before the Commission that this Agreement or any of the terms in the Agreement shall have any precedential value. The Parties' agreement to the terms in the Agreement shall be without prejudice to any Party's ability to advocate a different position in future proceedings not involving this Agreement (meaning the Parties are not precluded from raising or advocating any issue in the 2022 SPP docket). The Parties further expressly agree that no individual provision, by itself, necessarily represents a position of any Party in any future proceeding, and the Parties further agree that no Party shall assert or represent in any future proceeding in any forum that another Party endorses any specific provision of this Agreement by virtue of that Party's signature on, or participation in, this Agreement. It is the intent of the Parties to this Agreement that the Commission's approval of all the terms and provisions of this Agreement is an express recognition that no individual term or provision, by itself, necessarily represents a position, in isolation, of any Party or that a Party to this Agreement endorses a specific provision, in isolation, of this Agreement by virtue of that Party's signature on, or participation in, this Agreement.

(c) No Party shall seek appellate review of any Commission order approving this Agreement in its entirety.

28. Disputes. To the extent a dispute arises among the Parties about the provisions, interpretation, or application of this Agreement, the Parties agree to meet and confer in an effort

to resolve the dispute. To the extent that the Parties cannot resolve any dispute, the matter may be submitted to the Commission for resolution.

29. Execution. This Agreement is dated as of August 3, 2020. It may be executed in counterpart originals and a facsimile of an original signature shall be deemed an original. Tampa Electric is authorized to compile executed signature pages and to attach them to this Agreement to constitute the original to be filed with the Commission and served on the Parties.

IN WITNESS WHEREOF, the Parties evidence their acceptance and agreement with the provisions of this Agreement by their signature(s).

Tampa Electric Company
702 N. Franklin Street
Tampa, FL 33601

By Nancy Tower, President

DocID: 20200903100655853

Attachment C

Signature Page to Tampa Electric SPP Agreement

Office of Public Counsel
J. R. Kelly, Esquire
Public Counsel
Charles Rehwinkel, Esquire
Deputy Public Counsel
c/o The Florida Legislature
111 West Madison Street, Room 812
Tallahassee, FL 32399-1400

By: /s/ J.R. Kelly
J.R. Kelly

Attachment C

Signature Page to Tampa Electric SPP Agreement

The Florida Industrial Power Users Group
Jon C. Moyle, Jr., Esquire
Moyle Law Firm
The Perkins House
118 North Gadsden Street
Tallahassee, FL 32301

By: _____
Jon C. Moyle, Jr.

August 3, 2020

Attachment C

Signature Page to Tampa Electric SPP Agreement

Walmart Inc.
Stephanie U. Eaton
Spilman Thomas & Battle, PLLC
110 Oakwood Drive, Suite 500
Winston-Salem, NC 27103

By: _____
Stephanie U. Eaton

Attachment D

AUSLEY MCMULLEN
ATTORNEYS AND COUNSELORS AT LAW
123 SOUTH CALHOUN STREET
P.O. BOX 391 (ZIP 32302)
TALLAHASSEE, FLORIDA 32301
(850) 224-9115 FAX (850) 222-7560

July 31, 2020

VIA: ELECTRONIC FILING

Mr. Adam J. Teitzman
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: Storm Protection Plan Cost Recovery Clause; Docket No. 20200092-EI

Dear Mr. Teitzman:

Attached for filing in the above docket is Tampa Electric Company's Motion to Approve Revised Tariff to implement the company's $15 million base rate reduction in the Storm Protection Plan Cost Recovery Clause docket.

Thank you for your assistance in connection with this matter.

Sincerely,

Malcolm N. Means

MNM/bmp
Attachment

cc. All Parties of Record (w/attachment)

Attachment D

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Storm Protection Plan Cost Recovery Clause	)))	DOCKET NO. 20200092-EI FILED: July 31, 2020

TAMPA ELECTRIC COMPANY'S
MOTION TO APPROVE REVISED TARIFF

Tampa Electric Company ("Tampa Electric" or "company") hereby petitions the Commission for approval of revised tariff sheets to implement the base rate adjustment requirement associated with the 2020 Settlement Agreement, and in support thereof, says:

1. On April 27, 2020, Tampa Electric filed an Agreed-To Motion to Approve 2020 Agreement. The 2020 Agreement is a settlement agreement entered into by Tampa Electric and various consumer parties that is intended to resolve issues in multiple dockets, including this docket. *See* Document No. 02227-2020, filed April 27, 2020 in Docket No. 20200092-EI.

2. On June 30, 2020, the Commission memorialized its approval of the 2020 Agreement in Order No. PSC 2020-0224-AS-EI.

3. The "centerpiece" of the 2020 Agreement is a proposal under which Tampa Electric will reduce its base rates by an agreed-upon amount and will recover all SPP-related costs (with limited exceptions) through the Storm Protection Plan Cost Recovery Clause ("SPPCRC"). Document No. 02227-2020, at ¶ 2.

4. The base rate reduction is governed by Paragraph 11(b) of the 2020 Agreement. Paragraph 11(b) sets out requirements for cost allocation and rate design, the timing of the base rate reduction, and the method for implementing the base rate reduction.

5. First, Paragraph 11(b) requires the company to utilize the cost allocation and rate design principles reflected in paragraph 3 of the 2013 Stipulation as modified by the 2017

Agreement to implement both the base rate reduction as well as the company's SPPCRC cost recovery factors. As explained in the direct testimony of William R. Ashburn filed on July 24, 2020 in this docket, the company used the allocation factors from the 2013 Cost of Service Study prepared in Docket No. 20130040-EI to develop the company's SPPCRC factors. Mr. Ashburn also explains that this methodology applied to the base rate reduction.

6. Second, Paragraph 11(b) states that the base rate reduction must "become effective contemporaneous with the beginning of cost recovery via the SPPCRC." As explained in the direct testimony of A. Sloan Lewis and Mark R. Roche filed on July 24, 2020 in this docket, the base rate reduction will begin concurrently with the inclusion of the SPPCRC factors on customer bills.

7. Finally, Paragraph 11(b) requires Tampa Electric to file the revised tariffs necessary to implement the one-time base rate reduction in this docket "on a schedule such that the necessary customer notices can be given and the proposed base rate reduction can become effective contemporaneous with the effective date of cost recovery by the company under the SPPCRC." The redline version of the proposed revised tariff sheets that will implement the one-time base rate reduction are attached to this motion as Exhibit One[1]. The clean version of the proposed revised tariff sheets are attached as Exhibit Two. A schedule showing how the base rate reduction was allocated to rate class is attached as Exhibit Three. A schedule showing how base rate charges were reduced based on those allocations are included as Exhibit Four. Tampa Electric respectfully requests that the Commission approve these revised tariff sheets at the same time it approves the company's SPPCRC cost recovery factors, or earlier, if possible, which will enable the company to complete the necessary customer notices in a timely manner.

[1] Although the one-time base rate reduction specified in the 2020 Agreement was $15,010,800, this amount was a total company number and after applying jurisdictional separation factors, the retail amount is $14,876,228.78, so the tariffs attached as Exhibit One were prepared to reduce the company's retail revenues by $14,876,228.78 and the remainder of the decrease will be made in conjunction with the company's 2021 wholesale rate filing.

8. The undersigned has consulted with counsel for the Office of Public Counsel and is authorized to state that they support this Motion, and consulted with counsel for Walmart and is authorized to state that they do not oppose this Motion. The undersigned contacted counsel for the other parties to this docket, but as of the filing of this motion those parties had not taken a position on the Motion.

WHEREFORE, Tampa Electric Company respectfully requests the Commission's approval of the company's revised tariff sheets necessary to implement the one-time base rate reduction called for by the 2020 Agreement.

DATED this 31st day of July 2020.

Respectfully submitted,

JAMES D. BEASLEY
jbeasley@ausley.com
J. JEFFRY WAHLEN
jwahlen@ausley.com
MALCOLM N. MEANS
mmeans@ausley.com
Ausley McMullen
Post Office Box 391
Tallahassee, Florida 32302
(850) 224-9115

ATTORNEYS FOR TAMPA ELECTRIC COMPANY

Attachment D

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the foregoing Motion to Approve Revised Tariff filed on behalf of Tampa Electric Company, has been furnished by electronic mail on this 31st day of July 2020 to the following:

Ms. Rachael Dziechciarz
Mr. Charles Murphy
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Office of General Counsel
Florida Public Service Commission
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RDziechc@psc.state.fl.us
CMurphy@psc.state.fl.us

Mr. J. R. Kelly
Mireille Fall-Fry
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Attachment D

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St. Petersburg, FL 33701
zsmith@aarp.org

ATTORNEY

Attachment D

EXHIBIT 1

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

TWENTY-~~SIXTH~~ SEVENTH REVISED SHEET NO. 6.030
CANCELS TWENTY-~~FIFTH~~ SIXTH REVISED SHEET NO. 6.030

RESIDENTIAL SERVICE

SCHEDULE: RS

AVAILABLE: Entire service area.

APPLICABLE: To residential consumers in individually metered private residences, apartment units, and duplex units. All energy must be for domestic purposes and should not be shared with or sold to others. In addition, energy used in commonly-owned facilities in condominium and cooperative apartment buildings will qualify for this rate schedule, subject to the following criteria:

1. 100% of the energy is used exclusively for the co-owners' benefit.
2. None of the energy is used in any endeavor which sells or rents a commodity or provides service for a fee.
3. Each point of delivery will be separately metered and billed.
4. A responsible legal entity is established as the customer to whom the Company can render its bills for said service.

Resale not permitted.

Billing charges shall be prorated for billing periods that are less than 25 days or greater than 35 days. If the billing period exceeds 35 days and the billing extension causes energy consumption, based on average daily usage, to exceed 1,000 kWh, the excess consumption will be charged at the lower monthly Energy and Demand Charge.

LIMITATION OF SERVICE: This schedule includes service to single phase motors rated up to 7.5 HP. Three phase service may be provided where available for motors rated 7.5 HP and over.

MONTHLY RATE:

Basic Service Charge:
$15.05

Energy and Demand Charge:

First 1,000 kWh	5.~~271~~181¢ per kWh
All additional kWh	6.~~271~~181¢ per kWh

MINIMUM CHARGE: The Basic Service Charge.

FUEL CHARGE: See Sheet Nos. 6.020 and 6.021.

Continued to Sheet No. 6.031

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

TWENTY-~~SEVENTH~~ EIGHTH REVISED SHEET NO. 6.050
CANCELS TWENTY-~~SIXTH~~ SEVENTH REVISED SHEET NO. 6.050

GENERAL SERVICE - NON DEMAND

SCHEDULE: GS

AVAILABLE: Entire service area.

APPLICABLE: For lighting and power in establishments not classified as residential whose energy consumption has not exceeded 9,000 kWh in any one of the prior twelve (12) consecutive billing periods ending with the current billing period. For any billing period that exceeds 35 days, the energy consumption shall be prorated to that of a 30-day amount for purposes of administering this requirement. Resale not permitted.

CHARACTER OF SERVICE: Single or 3 phase, 60 cycles and approximately 120 volts or higher, at Company's option.

LIMITATION OF SERVICE: All service under this rate shall be furnished through one meter. Standby service permitted on Schedule GST only.

MONTHLY RATE:

Basic Service Charge:

Metered accounts	$18.06
Un-metered accounts	$15.05

Energy and Demand Charge:
5.~~542~~448¢ per kWh

MINIMUM CHARGE: The Basic Service Charge.

EMERGENCY RELAY POWER SUPPLY CHARGE: The monthly charge for emergency relay power supply service shall be 0.168¢ per kWh of billing energy. This charge is in addition to the compensation the customer must make to the Company as a contribution-in-aid of construction.

Continued to Sheet No. 6.051

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

TWENTY-~~SIXTH~~ SEVENTH REVISED SHEET NO. 6.080
CANCELS TWENTY-~~FIFTH~~ SIXTH REVISED SHEET NO. 6.080

GENERAL SERVICE - DEMAND

SCHEDULE: GSD

AVAILABLE: Entire service area.

APPLICABLE: To any customer whose energy consumption has exceeded 9,000 kWh in any one of the prior twelve (12) consecutive billing periods ending with the current billing period. Also available to customers with energy consumption at any level below 9,000 kWh per billing period who agree to remain on this rate for at least twelve (12) months. For any billing period that exceeds 35 days, the energy consumption shall be prorated to that of a 30-day amount for purposes of administering this requirement. Resale not permitted.

CHARACTER OF SERVICE: A-C; 60 cycles; 3 phase; at any standard Company voltage.

LIMITATION OF SERVICE: Standby service is permitted only for customers who generate less than 20% of their on-site load requirements or whose generating equipment is used for emergency purposes.

MONTHLY RATE:

STANDARD		OPTIONAL	
Basic Service Charge:		Basic Service Charge:	
Secondary Metering Voltage	$ 30.10	Secondary Metering Voltage	$ 30.10
Primary Metering Voltage	$ 130.44	Primary Metering Voltage	$ 130.44
Subtrans. Metering Voltage	$ 993.27	Subtrans. Metering Voltage	$ 993.27
Demand Charge:		Demand Charge:	
~~$11.03~~10.76 per kW of billing demand		$0.00 per kW of billing demand	
Energy Charge:		Energy Charge:	
1.589¢ per kWh		6.~~650~~585¢ per kWh	

The customer may select either standard or optional. Once an option is selected, the customer must remain on that option for twelve (12) consecutive months.

Continued to Sheet No. 6.081

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC
AN EMERA COMPANY

TWENTY-~~FOURTH~~ FIFTH REVISED SHEET NO. 6.085
CANCELS TWENTY-~~THIRD~~ FOURTH REVISED SHEET NO. 6.085

INTERRUPTIBLE SERVICE
(CLOSED TO NEW BUSINESS AS OF MAY 7, 2009)

SCHEDULE: IS

AVAILABLE: Entire Service Area.

APPLICABLE: To be eligible for service under Rate Schedule IS, a customer must have been taking interruptible service under rate schedules IS-1, IST-1, IS-3, IST-3, SBI-1, or SBI-3 on May 6, 2009 and have signed the Agreement for the Purchase of Industrial Load Management Service under Rate Schedule GSLM-2. When electric service is desired at more than one location, each such location or point of delivery shall be considered as a separate customer. Resale not permitted.

CHARACTER OF SERVICE: The electric energy supplied under this schedule is three phase primary voltage or higher.

LIMITATION OF SERVICE: Standby service is permitted only for customers who generate less than 20% of their on-site load requirements or whose generating equipment is used for emergency purposes.

MONTHLY RATE:

Basic Service Charge:

Primary Metering Voltage	$ 624.05
Subtransmission Metering Voltage	$2,379.85

Demand Charge:
$3.~~96~~90 per KW of billing demand

Energy Charge:
2.513¢ per KWH

Continued to Sheet No. 6.086

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

THIRTY-~~SECOND~~ THIRD REVISED SHEET NO. 6.290
CANCELS THIRTY-~~FIRST~~ SECOND REVISED SHEET NO. 6.290

CONSTRUCTION SERVICE

SCHEDULE: CS

AVAILABLE: Entire service area.

APPLICABLE: Single phase temporary service used primarily for construction purposes.

LIMITATION OF SERVICE: Service is limited to construction poles and services installed under the TUG program. Construction poles are limited to a maximum of 70 amperes at 240 volts for construction poles. Larger (non-TUG) services and three phase service entrances must be served under the appropriate rate schedule, plus the cost of installing and removing the temporary facilities is required.

MONTHLY RATE:
Basic Service Charge: $18.06

Energy and Demand Charge: 5.~~542~~448¢ per kWh

MINIMUM CHARGE: The Basic Service Charge

FUEL CHARGE: See Sheet Nos. 6.020 and 6.021.

ENERGY CONSERVATION CHARGE: See Sheet Nos. 6.020 and 6.021.

CAPACITY CHARGE: See Sheet Nos. 6.020 and 6.021.

ENVIRONMENTAL COST RECOVERY CHARGE: See Sheet Nos. 6.020 and 6.021.

FLORIDA GROSS RECEIPTS TAX: Sheet No. 6.021.

FRANCHISE FEE CHARGE: See Sheet No. 6.021.

MISCELLANEOUS: A Temporary Service Charge of $260.00 shall be paid upon application for the recovery of costs associated with providing, installing, and removing the company's temporary service facilities for construction poles. Where the Company is required to provide additional facilities other than a service drop or connection point to the Company's existing distribution system, the customer shall also pay, in advance, for the estimated cost of providing, installing and removing such additional facilities, excluding the cost of any portion of these facilities which will remain as a part of the permanent service.

PAYMENT OF BILLS: See Sheet No. 6.022.

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

TWENTY-~~SIXTH~~ SEVENTH REVISED SHEET NO. 6.320
CANCELS TWENTY-~~FIFTH~~ SIXTH REVISED SHEET NO. 6.320

TIME-OF-DAY
GENERAL SERVICE - NON DEMAND
(OPTIONAL)

SCHEDULE: GST

AVAILABLE: Entire service area.

APPLICABLE: For lighting and power in establishments not classified as residential whose energy consumption has not exceeded 9,000 kWh in any one of the prior twelve (12) consecutive billing periods ending with the current billing period. All of the electric load requirements on the customer's premises must be metered at one (1) point of delivery. For any billing period that exceeds 35 days, the energy consumption shall be prorated to that of a 30-day amount for purposes of administering this requirement. Resale not permitted.

CHARACTER OF SERVICE: Single or 3 phase, 60 cycles and approximately 120 volts or higher, at Company's option.

LIMITATION OF SERVICE: All service under this rate shall be furnished through one meter. Standby service permitted.

MONTHLY RATE:

Basic Service Charge:
$20.07

Energy and Demand Charge:
12.~~465~~371¢ per kWh during peak hours
3.~~147~~053¢ per kWh during off-peak hours

Continued to Sheet No. 6.321

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

TWENTY-~~SEVENTH~~ EIGHTH REVISED SHEET NO. 6.330
CANCELS TWENTY-~~SIXTH~~ SEVENTH REVISED SHEET NO. 6.330

TIME-OF-DAY
GENERAL SERVICE - DEMAND
(OPTIONAL)

SCHEDULE: GSDT

AVAILABLE: Entire service area.

APPLICABLE: To any customer whose energy consumption has exceeded 9,000 kWh in any one of the prior twelve (12) consecutive billing periods ending with the current billing period. Also available to customers with energy consumption at any level below 9,000 kWh per billing period who agree to remain on this rate for at least twelve (12) months. For any billing period that exceeds 35 days, the consumption shall be prorated to that of a 30-day amount for purposes of administering this requirement. Resale not permitted.

CHARACTER OF SERVICE: A-C; 60 cycles; 3 phase; at any standard Company voltage.

LIMITATION OF SERVICE: Standby service is permitted only for customers who generate less than 20% of their on-site load requirements or whose generating equipment is used for emergency purposes.

MONTHLY RATE:

Basic Service Charge:

Secondary Metering Voltage	$ 30.10
Primary Metering Voltage	$ 130.44
Subtransmission Metering Voltage	$ 993.27

Demand Charge:
$3.~~71~~44 per kW of billing demand, plus
$7.~~31~~04 per kW of peak billing demand

Energy Charge:
2.908¢ per kWh during peak hours
1.049¢ per kWh during off-peak hours

Continued to Sheet No. 6.331

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

TWENTY-~~FOURTH~~ FIFTH REVISED SHEET NO. 6.340
CANCELS TWENTY-~~THIRD~~ FOURTH REVISED SHEET NO. 6.340

TIME OF DAY
INTERRUPTIBLE SERVICE
(CLOSED TO NEW BUSINESS AS OF MAY 7, 2009)

SCHEDULE: IST

AVAILABLE: Entire Service Area.

APPLICABLE: To be eligible for service under Rate Schedule IST, a customer must have been taking interruptible service under rate schedules IS-1, IST-1, IS-3, IST-3, SBI-1, or SBI-3 on May 6, 2009 and have signed the Agreement for the Purchase of Industrial Load Management Service under Rate Schedule GSLM-2. When electric service is desired at more than one location, each such location or point of delivery shall be considered as a separate customer. Resale not permitted.

CHARACTER OF SERVICE: The electric energy supplied under this schedule is three phase primary voltage or higher.

LIMITATION OF SERVICE: Standby service is permitted only for customers who generate less than 20% of their on-site load requirements or whose generating equipment is used for emergency purposes.

Basic Service Charge:

Primary Metering Voltage	$ 624.05
Subtransmission Metering Voltage	$2,379.85

Demand Charge:
$3.~~96~~ 90 per KW of billing demand

Energy Charge:
2.513¢ per KWH

Continued to Sheet No. 6.345

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO
TAMPA ELECTRIC
AN EMERA COMPANY

~~TWELFTH~~ THIRTEENTH REVISED SHEET NO. 6.565
CANCELS ~~ELEVENTH~~ TWELFTH REVISED SHEET NO. 6.565

Continued from Sheet No. 6.560

MONTHLY RATES:
Basic Service Charge: $15.05

Energy and Demand Charges: 5.~~585~~495¢ per kWh (for all pricing periods)

MINIMUM CHARGE: The Basic Service Charge.

FUEL CHARGE: See Sheet Nos. 6.020 and 6.021.

ENERGY CONSERVATION CHARGE: See Sheet Nos. 6.020 and 6.021.

CAPACITY CHARGE: See Sheet Nos. 6.020 and 6.021.

ENVIRONMENTAL COST RECOVERY CHARGE: See Sheet Nos. 6.020 and 6.021.

FLORIDA GROSS RECEIPTS TAX: See Sheet No. 6.021.

FRANCHISE FEE CHARGE: See Sheet No. 6.021.

PAYMENT OF BILLS: See Sheet No. 6.022.

DETERMINATION OF PRICING PERIODS: Pricing periods are established by season for weekdays and weekends. The pricing periods for price levels P_1 (Low Cost Hours), P_2 (Moderate Cost Hours) and P_3 (High Cost Hours) are as follows:

May through October	P_1	P_2	P_3
Weekdays	11 P.M. to 6 A.M.	6 A.M. to 1 P.M. 6 P.M. to 11 P.M.	1 P.M. to 6 P.M.
Weekends	11 P.M. to 6 A.M.	6 A.M. to 11 P.M.	----------

November through April	P_1	P_2	P_3
Weekdays	11 P.M. to 5 A.M.	5 A.M. to 6 A.M. 10 A.M. to 11 P.M.	6 A.M. to 10 A.M.
Weekends	11 P.M. to 6 A.M.	6 A.M. to 11 P.M.	----------

The pricing periods for price level P_4 (Critical Cost Hours) shall be determined at the sole discretion of the Company. Level P_4 hours shall not exceed 134 hours per year.

Continued to Sheet No. 6.570

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

~~FIFTEENTH~~ SIXTEENTH REVISED SHEET NO. 6.600
CANCELS ~~FOURTEENTH~~ FIFTEENTH REVISED SHEET NO. 6.600

FIRM STANDBY AND SUPPLEMENTAL SERVICE

SCHEDULE: SBF

AVAILABLE: Entire service area.

APPLICABLE: Required for all self-generating Customers whose generating capacity in kilowatts (exclusive of emergency generation equipment) exceeds 20% of their site load in kilowatts and who take firm service from the utility. Also available to self-generating Customers whose generating capacity in kilowatts does not exceed 20% of their site load in kilowatts, but who agree to all the terms and conditions of this rate schedule. Resale not permitted.

CHARACTER OF SERVICE: A-C; 60 cycles; 3 phase; at any standard company voltage.

LIMITATION OF SERVICE: A customer taking service under this tariff must sign a Tariff Agreement for the Purchase of Firm Standby and Supplemental Service. (See Sheet No. 7.600)

MONTHLY RATE:

Basic Service Charge:

Secondary Metering Voltage	$ 55.18
Primary Metering Voltage	$ 155.51
Subtransmission Metering Voltage	$1,018.36

CHARGES FOR STANDBY SERVICE:

Demand Charge:

$ 1.~~9568~~ per kW-Month of Standby Demand (Local Facilities Reservation Charge)

plus the greater of:

$ 1.55 per kW-Month of Standby Demand (Power Supply Reservation Charge) or

$ 0.62 per kW-Day of Actual Standby Billing Demand (Power Supply Demand Charge)

Energy Charge:

0.917¢ per Standby kWh

Continued to Sheet No. 6.601

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

~~SEVENTEENTH~~ EIGHTEENTH REVISED SHEET NO. 6.601
CANCELS ~~SIXTEENTH~~ SEVENTEENTH REVISED SHEET NO. 6.601

Continued from Sheet No. 6.600

CHARGES FOR SUPPLEMENTAL SERVICE:

Demand Charge:
$~~11.03~~10.76 per kW-Month of Supplemental Billing Demand (Supplemental Billing Demand Charge)

Energy Charge:
1.589¢ per Supplemental kWh

DEFINITIONS OF THE USE PERIODS: All time periods stated in clock time. (Meters are programmed to automatically adjust for changes from standard to daylight saving time and vice-versa.)

	April 1 - October 31	November 1 - March 31
Peak Hours: (Monday-Friday)	12:00 Noon - 9:00 PM	6:00 AM - 10:00 AM and 6:00 PM - 10:00 PM

Off-Peak Hours: All other weekday hours, and all hours on Saturdays, Sundays, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day shall be off-peak.

BILLING UNITS:

Demand Units: Metered Demand - The highest measured 30-minute interval kW demand served by the company during the month.

Site Load - The highest kW total of Customer generation plus deliveries by the company less deliveries to the Company, occurring in the same 30-minute interval, during the month.

Normal Generation - The generation level equaled or exceeded by the Customer's generation 10% of the metered intervals during the previous twelve months.

Supplemental Billing Demand - The amount, if any, by which the highest Site Load during any 30-minute interval in the month exceeds Normal Generation, but no greater than Metered Demand.

Continued to Sheet No. 6.602

ISSUED BY: N. G. Tower, President **DATE EFFECTIVE:** ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

~~TWELFTH~~ THIRTEENTH REVISED SHEET NO. 6.605
CANCELS ~~ELEVENTH~~ TWELFTH REVISED SHEET NO. 6.605

TIME-OF-DAY
FIRM STANDBY AND SUPPLEMENTAL SERVICE
(OPTIONAL)

SCHEDULE: SBFT

AVAILABLE: Entire service area.

APPLICABLE: Required for all self-generating Customers whose generating capacity in kilowatts (exclusive of emergency generation equipment) exceeds 20% of their site load in kilowatts and who take firm service from the utility. Also available to self-generating Customers whose generating capacity in kilowatts does not exceed 20% of their site load in kilowatts, but who agree to all the terms and conditions of this rate schedule. Resale not permitted.

CHARACTER OF SERVICE: A-C; 60 cycles; 3 phase; at any standard company voltage.

LIMITATION OF SERVICE: A Customer taking service under this tariff must sign a Tariff Agreement for the Purchase of Firm Standby and Supplemental Service. (See Sheet No. 7.600)

MONTHLY RATE:

Basic Service Charge:

Secondary Metering Voltage	$ 55.18
Primary Metering Voltage	$ 155.51
Subtransmission Metering Voltage	$1,018.36

CHARGES FOR STANDBY SERVICE:

Demand Charge:
$ 1.~~9568~~ per kW-Month of Standby Demand
(Local Facilities Reservation Charge)
plus the greater of:
$ 1.55 per kW-Month of Standby Demand
(Power Supply Reservation Charge) or
$ 0.62 per kW-Day of Actual Standby Billing Demand
(Power Supply Demand Charge)

Energy Charge:
0.917¢ per Standby kWh

Continued to Sheet No. 6.606

ISSUED BY: N. G. Tower, President **DATE EFFECTIVE:** ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

~~FOURTEENTH~~ FIFTEENTH REVISED SHEET NO. 6.606
CANCELS ~~THIRTEENTH~~ FOURTEENTH REVISED SHEET NO. 6.606

Continued from Sheet No. 6.605

CHARGES FOR SUPPLEMENTAL SERVICE

Demand Charge:

$3.~~7~~144	per kW-Month of Supplemental Demand (Supplemental Billing Demand Charge), plus
$7.~~3~~104	per kW-Month of Supplemental Peak Demand (Supplemental Peak Billing Demand Charge)

Energy Charge:

2.908¢	per Supplemental kWh during peak hours
1.049¢	per Supplemental kWh during off-peak hours

DEFINITIONS OF THE USE PERIODS: All time periods stated in clock time. (Meters are programmed to automatically adjust for changes from standard to daylight saving time and vice-versa.)

	April 1 - October 31	November 1 - March 31
Peak Hours: (Monday-Friday)	12:00 Noon - 9:00 PM	6:00 AM - 10:00 AM and 6:00 PM - 10:00 PM

Off-Peak Hours: All other weekday hours, and all hours on Saturdays, Sundays, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day shall be off-peak.

BILLING UNITS:

Demand Units: Metered Demand - The highest measured 30-minute interval kW demand served by the Company during the month.

Metered Peak Demand - The highest measured 30-minute interval kW demand served by the Company during the peak hours.

Site Load - The highest kW total of Customer generation plus deliveries by the company less deliveries to the company, occurring in the same 30-minute interval, during the month.

Continued to Sheet No. 6.607

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

~~TWELFTH~~ THIRTEENTH REVISED SHEET NO. 6.700
CANCELS ~~ELEVENTH~~ TWELFTH REVISED SHEET NO. 6.700

INTERRUPTIBLE STANDBY AND SUPPLEMENTAL SERVICE
(CLOSED TO NEW BUSINESS AS OF MAY 7, 2009)

SCHEDULE: SBI

AVAILABLE: Entire service area.

APPLICABLE: Required for all self-generating customers eligible for service under rate schedules IS or IST whose generating capacity in kilowatts (exclusive of emergency generation equipment) exceeds 20% of their site load in kilowatts. Also available to self-generating customers eligible for service under rate schedules IS or IST whose generating capacity in kilowatts does not exceed 20% of their site load in kilowatts, but who agree to all the terms and conditions of this rate schedule. To be eligible for service under this rate schedule, a customer must have been taking interruptible service under rate schedules IS-1, IST-1, IS-3, IST-3, SBI-1, or SBI-3 on May 6, 2009 and have signed the Supplemental Tariff Agreement for the Purchase of Industrial Standby and Supplemental Load Management Rider Service. Resale not permitted.

CHARACTER OF SERVICE: The electric energy supplied under this schedule is three phase primary voltage or higher

LIMITATION OF SERVICE: A customer taking service under this tariff must sign the Tariff Agreement for the Purchase of Standby and Supplemental Service

MONTHLY RATE:

Basic Service Charge:
Primary Metering Voltage $649.14
Subtransmission Metering Voltage $2,404.93

Demand Charge:
$3.~~96~~90 per KW-Month of Supplemental Demand (Supplemental Demand Charge)
$1.~~45~~39 per KW-Month of Standby Demand (Local Facilities Reservation Charge)

plus the greater of:
$1.20 per KW-Month of Standby Demand (Power Supply Reservation Charge); or
$0.48 per KW-Day of Actual Standby Billing Demand (Power Supply Demand Charge)

Continued to Sheet No. 6.705

ISSUED BY: N. G. Tower, President **DATE EFFECTIVE:** ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

~~TENTH~~ ELEVENTH REVISED SHEET NO. 6.805
CANCELS ~~NINTH~~ TENTH REVISED SHEET NO. 6.805

Continued from Sheet No. 6.800

MONTHLY RATE:

High Pressure Sodium Fixture, Maintenance, and Base Energy Charges:

Rate Code			Lamp Size				Charges per Unit ($)			
					kWh				Base Energy[4]	
Dusk to Dawn	Timed Svc.	Description	Initial Lumens[2]	Lamp Wattage[3]	Dusk to Dawn	Timed Svc.	Fixture	Maint.	Dusk to Dawn	Timed Svc.
800	860	Cobra[1]	4,000	50	20	10	3.16	2.48	~~0.504~~ 7	~~0.252~~ 4
802	862	Cobra/Nema[1]	6,300	70	29	14	3.20	2.11	~~0.736~~ 9	~~0.353~~ 3
803	863	Cobra/Nema[1]	9,500	100	44	22	3.63	2.33	~~1.100~~ 4	~~0.555~~ 2
804	864	Cobra[1]	16,000	150	66	33	4.18	2.02	~~1.665~~ 5	~~0.937~~ 8
805	865	Cobra[1]	28,500	250	105	52	4.87	2.60	~~2.644~~ 9	~~1.312~~ 3
806	866	Cobra[1]	50,000	400	163	81	5.09	2.99	~~4.093~~ 88	~~2.031~~ 92
468	454	Flood[1]	28,500	250	105	52	5.37	2.60	~~2.644~~ 9	~~1.312~~ 3
478	484	Flood[1]	50,000	400	163	81	5.71	3.00	~~4.093~~ 86	~~2.031~~ 92
809	869	Mongoose[1]	50,000	400	163	81	6.50	3.02	~~4.093~~ 86	~~2.031~~ 92
509	508	Post Top (PT)[1]	4,000	50	20	10	3.98	2.48	~~0.504~~ 7	~~0.252~~ 4
570	530	Classic PT[1]	9,500	100	44	22	11.85	1.89	~~1.100~~ 4	~~0.555~~ 2
810	870	Coach PT[1]	6,300	70	29	14	4.71	2.11	~~0.736~~ 9	~~0.353~~ 3
572	532	Colonial PT[1]	9,500	100	44	22	11.75	1.89	~~1.100~~ 4	~~0.555~~ 2
573	533	Salem PT[1]	9,500	100	44	22	9.03	1.89	~~1.100~~ 4	~~0.555~~ 2
550	534	Shoebox[1]	9,500	100	44	22	8.01	1.89	~~1.100~~ 4	~~0.555~~ 2
566	536	Shoebox[1]	28,500	250	105	52	8.69	3.18	~~2.644~~ 9	~~1.342~~ 3
552	538	Shoebox[1]	50,000	400	163	81	9.52	2.44	~~4.093~~ 86	~~2.031~~ 92

(1) Closed to new business

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

~~TENTH~~ ELEVENTH REVISED SHEET NO. 6.805
CANCELS ~~NINTH~~ TENTH REVISED SHEET NO. 6.805

(2) Lumen output may vary by lamp configuration and age.
(3) Wattage ratings do not include ballast losses.
(4) The Base Energy charges are calculated by multiplying the kWh times the lighting base energy rate of 2.~~410369~~¢ per kWh for each fixture.

Continued to Sheet No. 6.806

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

~~EIGHTH~~ NINTH REVISED SHEET NO. 6.806
CANCELS ~~SEVENTH~~ EIGHTH REVISED SHEET NO. 6.806

Continued from Sheet No. 6.805

MONTHLY RATE:

Metal Halide Fixture, Maintenance, and Base Energy Charges:

Rate Code			Lamp Size				Charges per Unit ($)			
					kWh				Base Energy[4]	
Dusk to Dawn	Timed Svc.	Description	Initial Lumens[2]	Lamp Wattage[3]	Dusk to Dawn	Timed Svc.	Fixture	Maint.	Dusk to Dawn	Timed Svc.
704	724	Cobra[1]	29,700	350	138	69	7.53	4.99	3.462 7	1.736 3
520	522	Cobra[1]	32,000	400	159	79	8.03	4.01	3.997 7	1.988 7
705	725	Flood[1]	29,700	350	138	69	8.55	5.04	3.462 7	1.736 3
556	541	Flood[1]	32,000	400	159	79	8.36	4.02	3.997 7	1.988 7
558	578	Flood[1]	107,800	1,000	383	191	10.50	8.17	9.610 7	4.795 2
701	721	General PT[1]	12,000	150	67	34	10.60	3.92	1.685 9	0.858 1
574	548	General PT[1]	14,400	175	74	37	10.89	3.73	1.867 5	0.938 8
700	720	Salem PT[1]	12,000	150	67	34	9.33	3.92	1.685 9	0.858 1
575	568	Salem PT[1]	14,400	175	74	37	9.38	3.74	1.867 5	0.938 8
702	722	Shoebox[1]	12,000	150	67	34	7.22	3.92	1.685 9	0.858 1
564	549	Shoebox[1]	12,800	175	74	37	7.95	3.70	1.867 5	0.938 8
703	723	Shoebox[1]	29,700	350	138	69	9.55	4.93	3.462 7	1.736 3
554	540	Shoebox[1]	32,000	400	159	79	10.02	3.97	3.997 7	1.988 7
576	577	Shoebox[1]	107,800	1,000	383	191	16.50	8.17	9.610 7	4.795 2

(1) Closed to new business
(2) Lumen output may vary by lamp configuration and age
(3) Wattage ratings do not include ballast losses
(4) The Base Energy charges are calculated by multiplying the kWh times the lighting base energy rate of 2.~~519~~369¢ per kWh for each fixture

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC
AN EMERA COMPANY

~~EIGHTH~~ NINTH REVISED SHEET NO. 6.806
CANCELS ~~SEVENTH~~ EIGHTH REVISED SHEET NO. 6.806

Continued to Sheet No. 6.808

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

ORDER NO. PSC-2020-0293-AS-EI
DOCKET NOS. 20200067-EI, 20200069-EI,
20200070-EI, 20200071-EI, 20200092-EI
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TECO TAMPA ELECTRIC AN EMERA COMPANY

~~NINTH~~ TENTH REVISED SHEET NO. 6.808
CANCELS ~~EIGHTH~~NINTH REVISED SHEET NO. 6.808

Continued from Sheet No. 6.806

MONTHLY RATE:

LED Fixture, Maintenance, and Base Energy Charges:

Rate Code			Size				Charges per Unit ($)			
					kWh[1]				Base Energy[4]	
Dusk to Dawn	Timed Svc.	Description	Initial Lumens[2]	Lamp Wattage[3]	Dusk to Dawn	Timed Svc.	Fixture	Maintenance	Dusk to Dawn	Timed Svc.
828	848	Roadway[1]	5,155	56	20	10	7.27	1.74	0.~~50~~47	0.~~25~~24
820	840	Roadway [1]	7,577	103	36	18	11.15	1.19	0.~~99~~85	0.~~46~~43
821	841	Roadway[1]	8,300	106	37	19	11.15	1.20	0.~~99~~88	0.~~48~~45
829	849	Roadway[1]	15,285	157	55	27	11.10	2.26	1.~~36~~30	0.~~68~~64
822	842	Roadway[1]	15,300	196	69	34	14.58	1.26	1.~~73~~63	0.~~85~~81
823	843	Roadway[1]	14,831	206	72	36	16.80	1.38	1.~~91~~71	0.~~90~~85
835	855	Post Top[1]	5,176	60	21	11	16.53	2.28	0.~~53~~50	0.~~28~~26
824	844	Post Top[1]	3,974	67	24	12	19.67	1.54	0.~~69~~57	0.~~30~~28
825	845	Post Top[1]	6,030	99	35	17	20.51	1.56	0.~~88~~83	0.~~43~~40
836	856	Post Top[1]	7,380	100	35	18	16.70	2.28	0.~~88~~83	0.~~46~~43
830	850	Area-Lighter[1]	14,100	152	53	27	14.85	2.51	1.~~33~~26	0.~~68~~64
826	846	Area-Lighter[1]	13,620	202	71	35	19.10	1.41	1.~~78~~68	0.~~88~~83
827	847	Area-Lighter[1]	21,197	309	108	54	20.60	1.55	2.~~71~~62	1.~~36~~28
831	851	Flood[1]	22,122	238	83	42	15.90	3.45	2.~~09~~97	1.~~08~~99
832	852	Flood[1]	32,087	359	126	63	19.16	4.10	3.~~16~~98	1.~~58~~48
833	853	Mongoose[1]	24,140	245	86	43	14.71	3.04	2.~~26~~04	1.~~08~~02
834	854	Mongoose[1]	32,093	328	115	57	16.31	3.60	2.~~89~~72	1.~~43~~35

[1] Closed to new business
[2] Average
[3] Average wattage. Actual wattage may vary by up to +/- 5 watts.
[4] The Base Energy charges are calculated by multiplying the kWh times the lighting base energy rate of 2.~~6103608~~ per kWh for each fixture.

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

~~NINTH~~ TENTH REVISED SHEET NO. 6.808
CANCELS ~~EIGHTH~~NINTH REVISED SHEET NO. 6.808

Continued to Sheet No. 6.810

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

~~FOURTH~~ FIFTH REVISED SHEET NO. 6.809
CANCELS ~~THIRD~~ FOURTH REVISED SHEET NO. 6.809

Continued from Sheet No. 6.808

MONTHLY RATE:

LED Fixture, Maintenance, and Base Energy Charges:

Rate Code			Size				Charges per Unit ($)			
					kWh[1]				Base Energy[3]	
Dusk to Dawn	Timed Svc.	Description	Initial Lumens[1]	Lamp Wattage[2]	Dusk to Dawn	Timed Svc.	Fixture	Maint.	Dusk to Dawn	Timed Svc.
912	981	Roadway	2,600	27	9	5	4.83	1.74	~~0.232~~ 1	~~0.4312~~
914		Roadway	5,392	47	16		5.97	1.74	~~0.493~~ 8	
921		Roadway/Area	8,500	88	31		8.97	1.74	~~0.787~~ 3	
926	982	Roadway	12,414	105	37	18	6.83	1.19	~~0.938~~ 8	~~0.4643~~
932		Roadway/Area	15,742	133	47		14.15	1.38	~~1.181~~ 1	
935		Area-Lighter	16,113	143	50		11.74	1.41	~~1.261~~ 8	
937		Roadway	16,251	145	51		8.61	2.26	~~1.282~~ 1	
941	983	Roadway	22,233	182	64	32	11.81	2.51	~~1.635~~ 2	~~0.8026~~
945		Area-Lighter	29,533	247	86		16.07	2.51	~~2.160~~ 4	
947	984	**Area-Lighter**	33,600	330	116	58	20.13	1.55	~~2.947~~ 5	~~1.4637~~
951	985	Flood	23,067	199	70	35	11.12	3.45	~~1.755~~ 6	~~0.8883~~
953	986	Flood	33,113	255	89	45	21.48	4.10	~~2.231~~ 1	~~1.1307~~
956	987	Mongoose	23,563	225	79	39	11.78	3.04	~~1.988~~ 7	~~0.9892~~
958		Mongoose	34,937	333	117		17.84	3.60	~~2.947~~ 7	
965		Granville Post Top (PT)	3,024	26	9		5.80	2.28	~~0.232~~ 1	
967	988	Granville PT	4,990	39	14	7	13.35	2.28	~~0.353~~ 3	~~0.4817~~
968	989	Granville PT Enh[4]	4,476	39	14	7	15.35	2.28	~~0.353~~ 3	~~0.4817~~
971		Salem PT	5,240	55	19		10.95	1.54	~~0.484~~ 5	
972		Granville PT	7,076	60	21		14.62	2.28	~~0.535~~ 0	
973		Granville PT Enh[4]	6,347	60	21		16.62	2.28	~~0.535~~ 0	
975	990	Salem PT	7,188	76	27	13	13.17	1.54	~~0.686~~ 4	~~0.3331~~

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

~~FOURTH~~ FIFTH REVISED SHEET NO. 6.809
CANCELS ~~THIRD~~ FOURTH REVISED SHEET NO. 6.809

(1) Average
(2) Average wattage. Actual wattage may vary by up to +/- 10 %.
(3) The Base Energy charges are calculated by multiplying the kWh times the lighting base energy rate of 2.~~649389~~¢ per kWh for each fixture.
(4) Enhanced Post Top. Customizable decorative options

Continued to Sheet No. 6.810

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

~~EIGHTH~~ NINTH REVISED SHEET NO. 6.815
CANCELS ~~SEVENTH~~ EIGHTH REVISED SHEET NO. 6.815

Continued from Sheet No. 6.810

Miscellaneous Facilities Charges:

Rate Code	Description	Monthly Facility Charge	Monthly Maintenance Charge
563	Timer	$7.54	$1.43
569	PT Bracket (accommodates two post top fixtures)	$4.27	$0.06

NON-STANDARD FACILITIES AND SERVICES:

The customer shall pay all costs associated with additional company facilities and services that are not considered standard for providing lighting service, including but not limited to, the following:

1. relays;
2. distribution transformers installed solely for lighting service;
3. protective shields;
4. bird deterrent devices;
5. light trespass shields;
6. light rotations;
7. light pole relocations;
8. devices required by local regulations to control the levels or duration of illumination including associated planning and engineering costs;
9. removal and replacement of pavement required to install underground lighting cable; and
10. directional boring.

MINIMUM CHARGE: The monthly charge.

FUEL CHARGE: See Sheet Nos. 6.020 and 6.021.

ENERGY CONSERVATION CHARGE: See Sheet Nos. 6.020 and 6.021.

CAPACITY CHARGE: See Sheet Nos. 6.020 and 6.021

ENVIRONMENTAL COST RECOVERY CHARGE: See Sheet Nos. 6.020 and 6.021

FLORIDA GROSS RECEIPTS TAX: See Sheet No. 6.021

FRANCHISE FEE: See Sheet No. 6.021

PAYMENT OF BILLS: See Sheet No. 6.022

SPECIAL CONDITIONS:
On customer-owned public street and highway lighting systems not subject to other rate schedules, the monthly rate for energy served at primary or secondary voltage, at the company's option, shall be 2.~~510369~~¢ per kWh of metered usage, plus a Basic Service Charge of $10.52 per month and the applicable additional charges as specified on Sheet Nos. 6.020 and 6.021.

Continued to Sheet No. 6.820

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~January 1, 2020~~

Attachment D

TECO
TAMPA ELECTRIC
AN EMERA COMPANY

~~FIRST~~ SECOND REVISED SHEET NO. 6.830
CANCELS ~~ORIGINAL~~ FIRST SHEET NO. 6.830

CUSTOMER SPECIFIED LIGHTING SERVICE

SCHEDULE: LS-2

AVAILABLE: Entire service area

APPLICABLE:

Customer Specified Lighting Service is applicable to any customer for the sole purpose of lighting roadways or other outdoor areas. Service hereunder is provided for the sole and exclusive benefit of the customer, and nothing herein or in the contract executed hereunder is intended to benefit any third party or to impose any obligation on the Company to any such third party. At the Company's option, a deposit amount of up to a two (2) month's average bill may be required at anytime.

CHARACTER OF SERVICE:

Service is provided during the hours of darkness normally on a dusk-to-dawn basis. At the Company's option and at the customer's request, the company may permit a timer to control a lighting system provided under this rate schedule that is not used for dedicated street or highway lighting. The Company shall install and maintain the timer at the customer's expense. The Company shall program the timer to the customer's specifications as long as such service does not exceed 2,100 hours each year. Access to the timer is restricted to company personnel.

LIMITATION OF SERVICE:

Installation shall be made only when, in the judgment of the Company, location of the proposed lights are, and will continue to be, feasible and accessible to Company personnel and equipment for both construction and maintenance and such installation is not appropriate as a public offering under LS-1.

TERM OF SERVICE:

Service under this rate schedule shall, at the option of the customer, be for an initial term of twenty (20) years beginning on the date one or more of the lighting equipment is installed, energized, and ready for use and shall continue after the initial term for successive one-year terms until terminated by either party upon providing ninety (90) days prior written notice.

SPECIAL CONDITIONS:

On lighting systems not subject to other rate schedules, the monthly rate for energy served at primary or secondary voltage, at the company's option, shall be 2.~~510~~369¢ per kWh of metered usage, plus a Basic Service Charge of $10.52 per month and the applicable additional charges as specified on Sheet Nos. 6.020 and 6.021

Continued to Sheet No. 6.835

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~June 9, 2020~~

Attachment D

TECO
TAMPA ELECTRIC
AN EMERA COMPANY

~~FIRST~~ SECOND REVISED SHEET NO. 6.835
CANCELS ~~ORIGINAL~~ FIRST SHEET NO. 6.835

Continued from Sheet No. 6.830

MONTHLY RATE: The monthly charge shall be calculated by applying the monthly rate of 1.19% to the In-Place Value of the customer specific lighting facilities identified in the Outdoor Lighting Agreement entered into between the customer and the Company for service under this schedule.

The In-Place Value may change over time as new lights are added to the service provided under this Rate Schedule to a customer taking service, the monthly rate shall be applied to the In-Place Value in effect that billing month.

NON-STANDARD FACILITIES AND SERVICES:

The customer shall pay all costs associated with additional company facilities and services that are not considered standard for providing lighting service, including but not limited to, the following:

1. relays;
2. distribution transformers installed solely for lighting service;
3. protective shields;
4. bird deterrent devices;
5. light trespass shields;
6. light rotations;
7. light pole relocations;
8. devices required by local regulations to control the levels or duration of illumination including associated planning and engineering costs;
9. removal and replacement of pavement required to install underground lighting cable;
10. directional boring;
11. specialized permitting that is incremental to a standard construction permit; and
12. specialized engineering scope required by either the customer or by local code or ordinance that is unique to the requested work.

Payment may be made in a lump sum at the time the agreement is entered into, or at the customer's option these non-standard costs may be included in the In-Place Value to which the monthly rate will be applied.

MINIMUM CHARGE: The monthly charge.

ENERGY CHARGE: For monthly energy served under this rate schedule, 2.~~510~~369¢ per kWh.

FUEL CHARGE: See Sheet Nos. 6.020 and 6.021.

ENERGY CONSERVATION CHARGE: See Sheet Nos. 6.020 and 6.021.

CAPACITY CHARGE: See Sheet Nos. 6.020 and 6.021

ENVIRONMENTAL COST RECOVERY CHARGE: See Sheet Nos. 6.020 and 6.021

FLORIDA GROSS RECEIPTS TAX: See Sheet No. 6.022

FRANCHISE FEE: See Sheet No. 6.022

PAYMENT OF BILLS: See Sheet No. 6.022

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE: ~~May 19, 2020~~

Attachment D

EXHIBIT 2

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

TWENTY-SEVENTH REVISED SHEET NO. 6.030
CANCELS TWENTY-SIXTH REVISED SHEET NO. 6.030

RESIDENTIAL SERVICE

SCHEDULE: RS

AVAILABLE: Entire service area.

APPLICABLE: To residential consumers in individually metered private residences, apartment units, and duplex units. All energy must be for domestic purposes and should not be shared with or sold to others. In addition, energy used in commonly-owned facilities in condominium and cooperative apartment buildings will qualify for this rate schedule, subject to the following criteria:

1. 100% of the energy is used exclusively for the co-owners' benefit.
2. None of the energy is used in any endeavor which sells or rents a commodity or provides service for a fee.
3. Each point of delivery will be separately metered and billed.
4. A responsible legal entity is established as the customer to whom the Company can render its bills for said service.

Resale not permitted.

Billing charges shall be prorated for billing periods that are less than 25 days or greater than 35 days. If the billing period exceeds 35 days and the billing extension causes energy consumption, based on average daily usage, to exceed 1,000 kWh, the excess consumption will be charged at the lower monthly Energy and Demand Charge.

LIMITATION OF SERVICE: This schedule includes service to single phase motors rated up to 7.5 HP. Three phase service may be provided where available for motors rated 7.5 HP and over.

MONTHLY RATE:

Basic Service Charge:
$15.05

Energy and Demand Charge:

First 1,000 kWh	5.181¢ per kWh
All additional kWh	6.181¢ per kWh

MINIMUM CHARGE: The Basic Service Charge.

FUEL CHARGE: See Sheet Nos. 6.020 and 6.021.

Continued to Sheet No. 6.031

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

TWENTY-EIGHTH REVISED SHEET NO. 6.050
CANCELS TWENTY-SEVENTH REVISED SHEET NO. 6.050

GENERAL SERVICE - NON DEMAND

SCHEDULE: GS

AVAILABLE: Entire service area.

APPLICABLE: For lighting and power in establishments not classified as residential whose energy consumption has not exceeded 9,000 kWh in any one of the prior twelve (12) consecutive billing periods ending with the current billing period. For any billing period that exceeds 35 days, the energy consumption shall be prorated to that of a 30-day amount for purposes of administering this requirement. Resale not permitted.

CHARACTER OF SERVICE: Single or 3 phase, 60 cycles and approximately 120 volts or higher, at Company's option.

LIMITATION OF SERVICE: All service under this rate shall be furnished through one meter. Standby service permitted on Schedule GST only.

MONTHLY RATE:

Basic Service Charge:

Metered accounts	$18.06
Un-metered accounts	$15.05

Energy and Demand Charge:
5.448¢ per kWh

MINIMUM CHARGE: The Basic Service Charge.

EMERGENCY RELAY POWER SUPPLY CHARGE: The monthly charge for emergency relay power supply service shall be 0.168¢ per kWh of billing energy. This charge is in addition to the compensation the customer must make to the Company as a contribution-in-aid of construction.

Continued to Sheet No. 6.051

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

TWENTY-SEVENTH REVISED SHEET NO. 6.080
CANCELS TWENTY-SIXTH REVISED SHEET NO. 6.080

GENERAL SERVICE - DEMAND

SCHEDULE: GSD

AVAILABLE: Entire service area.

APPLICABLE: To any customer whose energy consumption has exceeded 9,000 kWh in any one of the prior twelve (12) consecutive billing periods ending with the current billing period. Also available to customers with energy consumption at any level below 9,000 kWh per billing period who agree to remain on this rate for at least twelve (12) months. For any billing period that exceeds 35 days, the energy consumption shall be prorated to that of a 30-day amount for purposes of administering this requirement. Resale not permitted.

CHARACTER OF SERVICE: A-C; 60 cycles; 3 phase; at any standard Company voltage.

LIMITATION OF SERVICE: Standby service is permitted only for customers who generate less than 20% of their on-site load requirements or whose generating equipment is used for emergency purposes.

MONTHLY RATE:

STANDARD		OPTIONAL	
Basic Service Charge:		Basic Service Charge:	
Secondary Metering Voltage	$ 30.10	Secondary Metering Voltage	$ 30.10
Primary Metering Voltage	$ 130.44	Primary Metering Voltage	$ 130.44
Subtrans. Metering Voltage	$ 993.27	Subtrans. Metering Voltage	$ 993.27
Demand Charge:		Demand Charge:	
$10.76 per kW of billing demand		$0.00 per kW of billing demand	
Energy Charge:		Energy Charge:	
1.589¢ per kWh		6.585¢ per kWh	

The customer may select either standard or optional. Once an option is selected, the customer must remain on that option for twelve (12) consecutive months.

Continued to Sheet No. 6.081

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

TWENTY-FIFTH REVISED SHEET NO. 6.085
CANCELS TWENTY-FOURTH REVISED SHEET NO. 6.085

INTERRUPTIBLE SERVICE
(CLOSED TO NEW BUSINESS AS OF MAY 7, 2009)

SCHEDULE: IS

AVAILABLE: Entire Service Area.

APPLICABLE: To be eligible for service under Rate Schedule IS, a customer must have been taking interruptible service under rate schedules IS-1, IST-1, IS-3, IST-3, SBI-1, or SBI-3 on May 6, 2009 and have signed the Agreement for the Purchase of Industrial Load Management Service under Rate Schedule GSLM-2. When electric service is desired at more than one location, each such location or point of delivery shall be considered as a separate customer. Resale not permitted.

CHARACTER OF SERVICE: The electric energy supplied under this schedule is three phase primary voltage or higher.

LIMITATION OF SERVICE: Standby service is permitted only for customers who generate less than 20% of their on-site load requirements or whose generating equipment is used for emergency purposes.

MONTHLY RATE:

Basic Service Charge:

Primary Metering Voltage	$ 624.05
Subtransmission Metering Voltage	$2,379.85

Demand Charge:
$3.90 per KW of billing demand

Energy Charge:
2.513¢ per KWH

Continued to Sheet No. 6.086

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

THIRTY-THIRD REVISED SHEET NO. 6.290
CANCELS THIRTY-SECOND REVISED SHEET NO. 6.290

CONSTRUCTION SERVICE

SCHEDULE: CS

AVAILABLE: Entire service area.

APPLICABLE: Single phase temporary service used primarily for construction purposes.

LIMITATION OF SERVICE: Service is limited to construction poles and services installed under the TUG program. Construction poles are limited to a maximum of 70 amperes at 240 volts for construction poles. Larger (non-TUG) services and three phase service entrances must be served under the appropriate rate schedule, plus the cost of installing and removing the temporary facilities is required.

MONTHLY RATE:
Basic Service Charge: $18.06

Energy and Demand Charge: 5.448¢ per kWh

MINIMUM CHARGE: The Basic Service Charge.

FUEL CHARGE: See Sheet Nos. 6.020 and 6.021.

ENERGY CONSERVATION CHARGE: See Sheet Nos. 6.020 and 6.021.

CAPACITY CHARGE: See Sheet Nos. 6.020 and 6.021.

ENVIRONMENTAL COST RECOVERY CHARGE: See Sheet Nos. 6.020 and 6.021.

FLORIDA GROSS RECEIPTS TAX: Sheet No. 6.021.

FRANCHISE FEE CHARGE: See Sheet No. 6.021.

MISCELLANEOUS: A Temporary Service Charge of $260.00 shall be paid upon application for the recovery of costs associated with providing, installing, and removing the company's temporary service facilities for construction poles. Where the Company is required to provide additional facilities other than a service drop or connection point to the Company's existing distribution system, the customer shall also pay, in advance, for the estimated cost of providing, installing and removing such additional facilities, excluding the cost of any portion of these facilities which will remain as a part of the permanent service.

PAYMENT OF BILLS: See Sheet No. 6.022.

ISSUED BY: N. G. Tower, President **DATE EFFECTIVE:**

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

TWENTY-SEVENTH REVISED SHEET NO. 6.320
CANCELS TWENTY-SIXTH REVISED SHEET NO. 6.320

TIME-OF-DAY
GENERAL SERVICE - NON DEMAND
(OPTIONAL)

SCHEDULE: GST

AVAILABLE: Entire service area.

APPLICABLE: For lighting and power in establishments not classified as residential whose energy consumption has not exceeded 9,000 kWh in any one of the prior twelve (12) consecutive billing periods ending with the current billing period. All of the electric load requirements on the customer's premises must be metered at one (1) point of delivery. For any billing period that exceeds 35 days, the energy consumption shall be prorated to that of a 30-day amount for purposes of administering this requirement. Resale not permitted.

CHARACTER OF SERVICE: Single or 3 phase, 60 cycles and approximately 120 volts or higher, at Company's option.

LIMITATION OF SERVICE: All service under this rate shall be furnished through one meter. Standby service permitted.

MONTHLY RATE:

Basic Service Charge:
$20.07

Energy and Demand Charge:
12.371¢ per kWh during peak hours
3.053¢ per kWh during off-peak hours

Continued to Sheet No. 6.321

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

TWENTY-EIGHTH REVISED SHEET NO. 6.330
CANCELS TWENTY-SEVENTH REVISED SHEET NO.6.330

TIME-OF-DAY
GENERAL SERVICE - DEMAND
(OPTIONAL)

SCHEDULE: GSDT

AVAILABLE: Entire service area.

APPLICABLE: To any customer whose energy consumption has exceeded 9,000 kWh in any one of the prior twelve (12) consecutive billing periods ending with the current billing period. Also available to customers with energy consumption at any level below 9,000 kWh per billing period who agree to remain on this rate for at least twelve (12) months. For any billing period that exceeds 35 days, the consumption shall be prorated to that of a 30-day amount for purposes of administering this requirement. Resale not permitted.

CHARACTER OF SERVICE: A-C; 60 cycles; 3 phase; at any standard Company voltage.

LIMITATION OF SERVICE: Standby service is permitted only for customers who generate less than 20% of their on-site load requirements or whose generating equipment is used for emergency purposes.

MONTHLY RATE:

Basic Service Charge:

Secondary Metering Voltage	$ 30.10
Primary Metering Voltage	$ 130.44
Subtransmission Metering Voltage	$ 993.27

Demand Charge:
$3.44 per kW of billing demand, plus
$7.04 per kW of peak billing demand

Energy Charge:
2.908¢ per kWh during peak hours
1.049¢ per kWh during off-peak hours

Continued to Sheet No. 6.331

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

TWENTY-FIFTH REVISED SHEET NO. 6.340
CANCELS TWENTY-FOURTH REVISED SHEET NO. 6.340

TIME OF DAY
INTERRUPTIBLE SERVICE
(CLOSED TO NEW BUSINESS AS OF MAY 7, 2009)

SCHEDULE: IST

AVAILABLE: Entire Service Area.

APPLICABLE: To be eligible for service under Rate Schedule IST, a customer must have been taking interruptible service under rate schedules IS-1, IST-1, IS-3, IST-3, SBI-1, or SBI-3 on May 6, 2009 and have signed the Agreement for the Purchase of Industrial Load Management Service under Rate Schedule GSLM-2. When electric service is desired at more than one location, each such location or point of delivery shall be considered as a separate customer. Resale not permitted.

CHARACTER OF SERVICE: The electric energy supplied under this schedule is three phase primary voltage or higher.

LIMITATION OF SERVICE: Standby service is permitted only for customers who generate less than 20% of their on-site load requirements or whose generating equipment is used for emergency purposes.

Basic Service Charge:

Primary Metering Voltage	$ 624.05
Subtransmission Metering Voltage	$2,379.85

Demand Charge:
$3.90 per KW of billing demand

Energy Charge:
2.513¢ per KWH

Continued to Sheet No. 6.345

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

THIRTEENTH REVISED SHEET NO. 6.565
CANCELS TWELFTH REVISED SHEET NO. 6.565

Continued from Sheet No. 6.560

MONTHLY RATES:
Basic Service Charge: $15.05

Energy and Demand Charges: 5.495¢ per kWh (for all pricing periods)

MINIMUM CHARGE: The Basic Service Charge.

FUEL CHARGE: See Sheet Nos. 6.020 and 6.021.

ENERGY CONSERVATION CHARGE: See Sheet Nos. 6.020 and 6.021.

CAPACITY CHARGE: See Sheet Nos. 6.020 and 6.021.

ENVIRONMENTAL COST RECOVERY CHARGE: See Sheet Nos. 6.020 and 6.021.

FLORIDA GROSS RECEIPTS TAX: See Sheet No. 6.021.

FRANCHISE FEE CHARGE: See Sheet No. 6.021.

PAYMENT OF BILLS: See Sheet No. 6.022.

DETERMINATION OF PRICING PERIODS: Pricing periods are established by season for weekdays and weekends. The pricing periods for price levels P_1 (Low Cost Hours), P_2 (Moderate Cost Hours) and P_3 (High Cost Hours) are as follows:

May through October	P_1	P_2	P_3
Weekdays	11 P.M. to 6 A.M.	6 A.M. to 1 P.M. 6 P.M. to 11 P.M.	1 P.M. to 6 P.M.
Weekends	11 P.M. to 6 A.M.	6 A.M. to 11 P.M.	----------

November through April	P_1	P_2	P_3
Weekdays	11 P.M. to 5 A.M.	5 A.M. to 6 A.M. 10 A.M. to 11 P.M.	6 A.M. to 10 A.M.
Weekends	11 P.M. to 6 A.M.	6 A.M. to 11 P.M.	----------

The pricing periods for price level P_4 (Critical Cost Hours) shall be determined at the sole discretion of the Company. Level P_4 hours shall not exceed 134 hours per year.

Continued to Sheet No. 6.570

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

SIXTEENTH REVISED SHEET NO. 6.600
CANCELS FIFTEENTH REVISED SHEET NO. 6.600

FIRM STANDBY AND SUPPLEMENTAL SERVICE

SCHEDULE: SBF

AVAILABLE: Entire service area.

APPLICABLE: Required for all self-generating Customers whose generating capacity in kilowatts (exclusive of emergency generation equipment) exceeds 20% of their site load in kilowatts and who take firm service from the utility. Also available to self-generating Customers whose generating capacity in kilowatts does not exceed 20% of their site load in kilowatts, but who agree to all the terms and conditions of this rate schedule. Resale not permitted.

CHARACTER OF SERVICE: A-C; 60 cycles; 3 phase; at any standard company voltage.

LIMITATION OF SERVICE: A customer taking service under this tariff must sign a Tariff Agreement for the Purchase of Firm Standby and Supplemental Service. (See Sheet No. 7.600)

MONTHLY RATE:

Basic Service Charge:

Secondary Metering Voltage	$ 55.18
Primary Metering Voltage	$ 155.51
Subtransmission Metering Voltage	$1,018.36

CHARGES FOR STANDBY SERVICE:

Demand Charge:

$ 1.68 per kW-Month of Standby Demand
(Local Facilities Reservation Charge)

plus the greater of:

$ 1.55 per kW-Month of Standby Demand
(Power Supply Reservation Charge) or

$ 0.62 per kW-Day of Actual Standby Billing Demand
(Power Supply Demand Charge)

Energy Charge:

0.917¢ per Standby kWh

Continued to Sheet No. 6.601

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

TECO TAMPA ELECTRIC AN EMERA COMPANY

EIGHTEENTH REVISED SHEET NO. 6.601
CANCELS SEVENTEENTH REVISED SHEET NO. 6.601

Continued from Sheet No. 6.600

CHARGES FOR SUPPLEMENTAL SERVICE:

Demand Charge:
$10.76 per kW-Month of Supplemental Billing Demand (Supplemental Billing Demand Charge)

Energy Charge:
1.589¢ per Supplemental kWh

DEFINITIONS OF THE USE PERIODS: All time periods stated in clock time. (Meters are programmed to automatically adjust for changes from standard to daylight saving time and vice-versa.)

	April 1 - October 31	November 1 - March 31
Peak Hours: (Monday-Friday)	12:00 Noon - 9:00 PM	6:00 AM - 10:00 AM and 6:00 PM - 10:00 PM

Off-Peak Hours: All other weekday hours, and all hours on Saturdays, Sundays, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day shall be off-peak.

BILLING UNITS:

Demand Units:

Metered Demand - The highest measured 30-minute interval kW demand served by the company during the month.

Site Load - The highest kW total of Customer generation plus deliveries by the company less deliveries to the Company, occurring in the same 30-minute interval, during the month.

Normal Generation - The generation level equaled or exceeded by the Customer's generation 10% of the metered intervals during the previous twelve months.

Supplemental Billing Demand - The amount, if any, by which the highest Site Load during any 30-minute interval in the month exceeds Normal Generation, but no greater than Metered Demand.

Continued to Sheet No. 6.602

ISSUED BY: N. G. Tower, President **DATE EFFECTIVE:**

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

THIRTEENTH REVISED SHEET NO. 6.605
CANCELS TWELFTH REVISED SHEET NO. 6.605

TIME-OF-DAY
FIRM STANDBY AND SUPPLEMENTAL SERVICE
(OPTIONAL)

SCHEDULE: SBFT

AVAILABLE: Entire service area.

APPLICABLE: Required for all self-generating Customers whose generating capacity in kilowatts (exclusive of emergency generation equipment) exceeds 20% of their site load in kilowatts and who take firm service from the utility. Also available to self-generating Customers whose generating capacity in kilowatts does not exceed 20% of their site load in kilowatts, but who agree to all the terms and conditions of this rate schedule. Resale not permitted.

CHARACTER OF SERVICE: A-C; 60 cycles; 3 phase; at any standard company voltage.

LIMITATION OF SERVICE: A Customer taking service under this tariff must sign a Tariff Agreement for the Purchase of Firm Standby and Supplemental Service. (See Sheet No. 7.600)

MONTHLY RATE:

Basic Service Charge:

Secondary Metering Voltage	$ 55.18
Primary Metering Voltage	$ 155.51
Subtransmission Metering Voltage	$1,018.36

CHARGES FOR STANDBY SERVICE:

Demand Charge:
$ 1.68 per kW-Month of Standby Demand
(Local Facilities Reservation Charge)
plus the greater of:
$ 1.55 per kW-Month of Standby Demand
(Power Supply Reservation Charge) or
$ 0.62 per kW-Day of Actual Standby Billing Demand
(Power Supply Demand Charge)

Energy Charge:
0.917¢ per Standby kWh

Continued to Sheet No. 6.606

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

FIFTEENTH REVISED SHEET NO. 6.606
CANCELS FOURTEENTH REVISED SHEET NO. 6.606

Continued from Sheet No. 6.605

CHARGES FOR SUPPLEMENTAL SERVICE

Demand Charge:

$3.44	per kW-Month of Supplemental Demand (Supplemental Billing Demand Charge), plus
$7.04	per kW-Month of Supplemental Peak Demand (Supplemental Peak Billing Demand Charge)

Energy Charge:

2.908¢	per Supplemental kWh during peak hours
1.049¢	per Supplemental kWh during off-peak hours

DEFINITIONS OF THE USE PERIODS: All time periods stated in clock time. (Meters are programmed to automatically adjust for changes from standard to daylight saving time and vice-versa.)

	April 1 - October 31	November 1 - March 31
Peak Hours: (Monday-Friday)	12:00 Noon - 9:00 PM	6:00 AM - 10:00 AM and 6:00 PM - 10:00 PM

Off-Peak Hours: All other weekday hours, and all hours on Saturdays, Sundays, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day shall be off-peak.

BILLING UNITS:

Demand Units: Metered Demand - The highest measured 30-minute interval kW demand served by the Company during the month.

Metered Peak Demand - The highest measured 30-minute interval kW demand served by the Company during the peak hours.

Site Load - The highest kW total of Customer generation plus deliveries by the company less deliveries to the company, occurring in the same 30-minute interval, during the month.

Continued to Sheet No. 6.607

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

THIRTEENTH REVISED SHEET NO. 6.700
CANCELS TWELFTH REVISED SHEET NO. 6.700

INTERRUPTIBLE STANDBY AND SUPPLEMENTAL SERVICE
(CLOSED TO NEW BUSINESS AS OF MAY 7, 2009)

SCHEDULE: SBI

AVAILABLE: Entire service area.

APPLICABLE: Required for all self-generating customers eligible for service under rate schedules IS or IST whose generating capacity in kilowatts (exclusive of emergency generation equipment) exceeds 20% of their site load in kilowatts. Also available to self-generating customers eligible for service under rate schedules IS or IST whose generating capacity in kilowatts does not exceed 20% of their site load in kilowatts, but who agree to all the terms and conditions of this rate schedule. To be eligible for service under this rate schedule, a customer must have been taking interruptible service under rate schedules IS-1, IST-1, IS-3, IST-3, SBI-1, or SBI-3 on May 6, 2009 and have signed the Supplemental Tariff Agreement for the Purchase of Industrial Standby and Supplemental Load Management Rider Service. Resale not permitted.

CHARACTER OF SERVICE: The electric energy supplied under this schedule is three phase primary voltage or higher

LIMITATION OF SERVICE: A customer taking service under this tariff must sign the Tariff Agreement for the Purchase of Standby and Supplemental Service

MONTHLY RATE:

Basic Service Charge:

Primary Metering Voltage	$649.14
Subtransmission Metering Voltage	$2,404.93

Demand Charge:

$3.90 per KW-Month of Supplemental Demand (Supplemental Demand Charge)
$1.39 per KW-Month of Standby Demand (Local Facilities Reservation Charge)

plus the greater of:
$1.20 per KW-Month of Standby Demand (Power Supply Reservation Charge); or
$0.48 per KW-Day of Actual Standby Billing Demand (Power Supply Demand Charge)

Continued to Sheet No. 6.705

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

ELEVENTH REVISED SHEET NO. 6.805
CANCELS TENTH REVISED SHEET NO. 6.805

Continued from Sheet No. 6.800

MONTHLY RATE:

High Pressure Sodium Fixture, Maintenance, and Base Energy Charges:

Rate Code			Lamp Size				Charges per Unit ($)			
					kWh				Base Energy[4]	
Dusk to Dawn	Timed Svc.	Description	Initial Lumens[2]	Lamp Wattage[3]	Dusk to Dawn	Timed Svc.	Fixture	Maint.	Dusk to Dawn	Timed Svc.
800	860	Cobra[1]	4,000	50	20	10	3.16	2.48	0.47	0.24
802	862	Cobra/Nema[1]	6,300	70	29	14	3.20	2.11	0.69	0.33
803	863	Cobra/Nema[1]	9,500	100	44	22	3.63	2.33	1.04	0.52
804	864	Cobra[1]	16,000	150	66	33	4.18	2.02	1.56	0.78
805	865	Cobra[1]	28,500	250	105	52	4.87	2.60	2.49	1.23
806	866	Cobra[1]	50,000	400	163	81	5.09	2.99	3.86	1.92
468	454	Flood[1]	28,500	250	105	52	5.37	2.60	2.49	1.23
478	484	Flood[1]	50,000	400	163	81	5.71	3.00	3.86	1.92
809	869	Mongoose[1]	50,000	400	163	81	6.50	3.02	3.86	1.92
509	508	Post Top (PT)[1]	4,000	50	20	10	3.98	2.48	0.47	0.24
570	530	Classic PT[1]	9,500	100	44	22	11.85	1.89	1.04	0.52
810	870	Coach PT[1]	6,300	70	29	14	4.71	2.11	0.69	0.33
572	532	Colonial PT[1]	9,500	100	44	22	11.75	1.89	1.04	0.52
573	533	Salem PT[1]	9,500	100	44	22	9.03	1.89	1.04	0.52
550	534	Shoebox[1]	9,500	100	44	22	8.01	1.89	1.04	0.52
566	536	Shoebox[1]	28,500	250	105	52	8.69	3.18	2.49	1.23
552	538	Shoebox[1]	50,000	400	163	81	9.52	2.44	3.86	1.92

[1] Closed to new business
[2] Lumen output may vary by lamp configuration and age.
[3] Wattage ratings do not include ballast losses.
[4] The Base Energy charges are calculated by multiplying the kWh times the lighting base energy rate of 2.369¢ per kWh for each fixture.

Continued to Sheet No. 6.806

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

NINTH REVISED SHEET NO. 6.806
CANCELS EIGHTH REVISED SHEET NO. 6.806

Continued from Sheet No. 6.805

MONTHLY RATE:

Metal Halide Fixture, Maintenance, and Base Energy Charges:

Rate Code			Lamp Size				Charges per Unit ($)			
					kWh				Base Energy[4]	
Dusk to Dawn	Timed Svc.	Description	Initial Lumens[2]	Lamp Wattage[3]	Dusk to Dawn	Timed Svc.	Fixture	Maint.	Dusk to Dawn	Timed Svc.
704	724	Cobra[1]	29,700	350	138	69	7.53	4.99	3.27	1.63
520	522	Cobra[1]	32,000	400	159	79	6.03	4.01	3.77	1.87
705	725	Flood[1]	29,700	350	138	69	8.55	5.04	3.27	1.63
556	541	Flood[1]	32,000	400	159	79	8.36	4.02	3.77	1.87
558	578	Flood[1]	107,800	1,000	383	191	10.50	8.17	9.07	4.52
701	721	General PT[1]	12,000	150	67	34	10.60	3.92	1.59	0.81
574	548	General PT[1]	14,400	175	74	37	10.89	3.73	1.75	0.88
700	720	Salem PT[1]	12,000	150	67	34	9.33	3.92	1.59	0.81
575	568	Salem PT[1]	14,400	175	74	37	9.38	3.74	1.75	0.88
702	722	Shoebox[1]	12,000	150	67	34	7.22	3.92	1.59	0.81
564	549	Shoebox[1]	12,800	175	74	37	7.95	3.70	1.75	0.88
703	723	Shoebox[1]	29,700	350	138	69	9.55	4.93	3.27	1.63
554	540	Shoebox[1]	32,000	400	159	79	10.02	3.97	3.77	1.87
576	577	Shoebox[1]	107,800	1,000	383	191	16.50	8.17	9.07	4.52

[1] Closed to new business
[2] Lumen output may vary by lamp configuration and age.
[3] Wattage ratings do not include ballast losses.
[4] The Base Energy charges are calculated by multiplying the kWh times the lighting base energy rate of 2.369¢ per kWh for each fixture.

Continued to Sheet No. 6.808

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

TENTH REVISED SHEET NO. 6.808
CANCELS NINTH REVISED SHEET NO. 6.808

Continued from Sheet No. 6.806

MONTHLY RATE:

LED Fixture, Maintenance, and Base Energy Charges:

Rate Code			Size				Charges per Unit ($)			
					kWh[1]				Base Energy[4]	
Dusk to Dawn	Timed Svc.	Description	Initial Lumens[2]	Lamp Wattage[3]	Dusk to Dawn	Timed Svc.	Fixture	Maintenance	Dusk to Dawn	Timed Svc.
828	848	Roadway[1]	5,155	56	20	10	7.27	1.74	0.47	0.24
820	840	Roadway [1]	7,577	103	36	18	11.15	1.19	0.85	0.43
821	841	Roadway[1]	8,300	106	37	19	11.15	1.20	0.88	0.45
829	849	Roadway[1]	15,285	157	55	27	11.10	2.26	1.30	0.64
822	842	Roadway[1]	15,300	196	69	34	14.58	1.26	1.63	0.81
823	843	Roadway[1]	14,831	206	72	36	16.80	1.38	1.71	0.85
835	855	Post Top[1]	5,176	60	21	11	16.53	2.28	0.50	0.26
824	844	Post Top[1]	3,974	67	24	12	19.67	1.54	0.57	0.28
825	845	Post Top[1]	6,030	99	35	17	20.51	1.56	0.83	0.40
836	856	Post Top[1]	7,360	100	35	18	16.70	2.28	0.83	0.43
830	850	Area-Lighter[1]	14,100	152	53	27	14.85	2.51	1.26	0.64
826	846	Area-Lighter[1]	13,620	202	71	35	19.10	1.41	1.68	0.83
827	847	Area-Lighter[1]	21,197	309	108	54	20.60	1.55	2.56	1.28
831	851	Flood[1]	22,122	238	83	42	15.90	3.45	1.97	0.99
832	852	Flood[1]	32,087	359	126	63	19.16	4.10	2.98	1.49
833	853	Mongoose[1]	24,140	245	86	43	14.71	3.04	2.04	1.02
834	854	Mongoose[1]	32,093	328	115	57	16.31	3.60	2.72	1.35

[1] Closed to new business
[2] Average
[3] Average wattage. Actual wattage may vary by up to +/- 5 watts.
[4] The Base Energy charges are calculated by multiplying the kWh times the lighting base energy rate of 2.369¢ per kWh for each fixture.

Continued to Sheet No. 6.810

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

ORDER NO. PSC-2020-0293-AS-EI
DOCKET NOS. 20200067-EI, 20200069-EI,
20200070-EI, 20200071-EI, 20200092-EI
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TECO TAMPA ELECTRIC AN EMERA COMPANY

FIFTH REVISED SHEET NO. 6.809
CANCELS FOURTH REVISED SHEET NO. 6.809

Continued from Sheet No. 6.808

MONTHLY RATE:

LED Fixture, Maintenance, and Base Energy Charges:

Rate Code			Size				Charges per Unit ($)			
					kWh[1]				Base Energy[3]	
Dusk to Dawn	Timed Svc.	Description	Initial Lumens[1]	Lamp Wattage[2]	Dusk to Dawn	Timed Svc.	Fixture	Maint.	Dusk to Dawn	Timed Svc.
912	981	Roadway	2,600	27	9	5	4.83	1.74	0.21	0.12
914		Roadway	5,392	47	16		5.97	1.74	0.38	
921		Roadway/Area	8,500	88	31		8.97	1.74	0.73	
926	982	Roadway	12,414	105	37	18	6.83	1.19	0.88	0.43
932		Roadway/Area	15,742	133	47		14.15	1.38	1.11	
935		Area-Lighter	16,113	143	50		11.74	1.41	1.18	
937		Roadway	16,251	145	51		8.61	2.26	1.21	
941	983	Roadway	22,233	182	64	32	11.81	2.51	1.52	0.76
945		Area-Lighter	29,533	247	86		16.07	2.51	2.04	
947	984	Area-Lighter	33,600	330	116	58	20.13	1.55	2.75	1.37
951	985	Flood	23,067	199	70	35	11.12	3.45	1.66	0.83
953	986	Flood	33,113	255	89	45	21.48	4.10	2.11	1.07
956	987	Mongoose	23,563	225	79	39	11.78	3.04	1.87	0.92
958		Mongoose	34,937	333	117		17.84	3.60	2.77	
965		Granville Post Top (PT)	3,024	26	9		5.80	2.28	0.21	
967	988	Granville PT	4,990	39	14	7	13.35	2.28	0.33	0.17
968	989	Granville PT Enh[4]	4,476	39	14	7	15.35	2.28	0.33	0.17
971		Salem PT	5,240	55	19		10.95	1.54	0.45	
972		Granville PT	7,076	60	21		14.62	2.28	0.50	
973		Granville PT Enh[4]	6,347	60	21		16.62	2.28	0.50	
975	990	Salem PT	7,188	76	27	13	13.17	1.54	0.64	0.31

[1] Average
[2] Average wattage. Actual wattage may vary by up to +/- 10 %.
[3] The Base Energy charges are calculated by multiplying the kWh times the lighting base energy rate of 2.369¢ per kWh for each fixture.
[4] Enhanced Post Top. Customizable decorative options

Continued to Sheet No. 6.810

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

NINTHREVISED SHEET NO. 6.815
CANCELS EIGHTH REVISED SHEET NO. 6.815

Continued from Sheet No. 6.810

Miscellaneous Facilities Charges:

Rate Code	Description	Monthly Facility Charge	Monthly Maintenance Charge
563	Timer	$7.54	$1.43
569	PT Bracket (accommodates two post top fixtures)	$4.27	$0.06

NON-STANDARD FACILITIES AND SERVICES:

The customer shall pay all costs associated with additional company facilities and services that are not considered standard for providing lighting service, including but not limited to, the following:

1. relays;
2. distribution transformers installed solely for lighting service;
3. protective shields;
4. bird deterrent devices;
5. light trespass shields;
6. light rotations;
7. light pole relocations;
8. devices required by local regulations to control the levels or duration of illumination including associated planning and engineering costs;
9. removal and replacement of pavement required to install underground lighting cable; and
10. directional boring.

MINIMUM CHARGE: The monthly charge.

FUEL CHARGE: See Sheet Nos. 6.020 and 6.021.

ENERGY CONSERVATION CHARGE: See Sheet Nos. 6.020 and 6.021.

CAPACITY CHARGE: See Sheet Nos. 6.020 and 6.021

ENVIRONMENTAL COST RECOVERY CHARGE: See Sheet Nos. 6.020 and 6.021

FLORIDA GROSS RECEIPTS TAX: See Sheet No. 6.021

FRANCHISE FEE: See Sheet No. 6.021

PAYMENT OF BILLS: See Sheet No. 6.022

SPECIAL CONDITIONS:
On customer-owned public street and highway lighting systems not subject to other rate schedules, the monthly rate for energy served at primary or secondary voltage, at the company's option, shall be 2.369¢ per kWh of metered usage, plus a Basic Service Charge of $10.52 per month and the applicable additional charges as specified on Sheet Nos. 6.020 and 6.021.

Continued to Sheet No. 6.820

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

SECOND REVISED SHEET NO. 6.830
CANCELS FIRST SHEET NO. 6.830

CUSTOMER SPECIFIED LIGHTING SERVICE

SCHEDULE: LS-2

AVAILABLE: Entire service area

APPLICABLE:

Customer Specified Lighting Service is applicable to any customer for the sole purpose of lighting roadways or other outdoor areas. Service hereunder is provided for the sole and exclusive benefit of the customer, and nothing herein or in the contract executed hereunder is intended to benefit any third party or to impose any obligation on the Company to any such third party. At the Company's option, a deposit amount of up to a two (2) month's average bill may be required at anytime.

CHARACTER OF SERVICE:

Service is provided during the hours of darkness normally on a dusk-to-dawn basis. At the Company's option and at the customer's request, the company may permit a timer to control a lighting system provided under this rate schedule that is not used for dedicated street or highway lighting. The Company shall install and maintain the timer at the customer's expense. The Company shall program the timer to the customer's specifications as long as such service does not exceed 2,100 hours each year. Access to the timer is restricted to company personnel.

LIMITATION OF SERVICE:

Installation shall be made only when, in the judgment of the Company, location of the proposed lights are, and will continue to be, feasible and accessible to Company personnel and equipment for both construction and maintenance and such installation is not appropriate as a public offering under LS-1.

TERM OF SERVICE:

Service under this rate schedule shall, at the option of the customer, be for an initial term of twenty (20) years beginning on the date one or more of the lighting equipment is installed, energized, and ready for use and shall continue after the initial term for successive one-year terms until terminated by either party upon providing ninety (90) days prior written notice.

SPECIAL CONDITIONS:

On lighting systems not subject to other rate schedules, the monthly rate for energy served at primary or secondary voltage, at the company's option, shall be 2.369¢ per kWh of metered usage, plus a Basic Service Charge of $10.52 per month and the applicable additional charges as specified on Sheet Nos. 6.020 and 6.021

Continued to Sheet No. 6.835

ISSUED BY: N. G. Tower, President

DATE EFFECTIVE:

Attachment D

TECO TAMPA ELECTRIC AN EMERA COMPANY

SECOND REVISED SHEET NO. 6.835
CANCELS FIRST SHEET NO. 6.835

Continued from Sheet No. 6.830

MONTHLY RATE: The monthly charge shall be calculated by applying the monthly rate of 1.19% to the In-Place Value of the customer specific lighting facilities identified in the Outdoor Lighting Agreement entered into between the customer and the Company for service under this schedule.

The In-Place Value may change over time as new lights are added to the service provided under this Rate Schedule to a customer taking service, the monthly rate shall be applied to the In-Place Value in effect that billing month.

NON-STANDARD FACILITIES AND SERVICES:

The customer shall pay all costs associated with additional company facilities and services that are not considered standard for providing lighting service, including but not limited to, the following:

1. relays;
2. distribution transformers installed solely for lighting service;
3. protective shields;
4. bird deterrent devices;
5. light trespass shields;
6. light rotations;
7. light pole relocations;
8. devices required by local regulations to control the levels or duration of illumination including associated planning and engineering costs;
9. removal and replacement of pavement required to install underground lighting cable;
10. directional boring;
11. specialized permitting that is incremental to a standard construction permit; and
12. specialized engineering scope required by either the customer or by local code or ordinance that is unique to the requested work.

Payment may be made in a lump sum at the time the agreement is entered into, or at the customer's option these non-standard costs may be included in the In-Place Value to which the monthly rate will be applied.

MINIMUM CHARGE: The monthly charge.

ENERGY CHARGE: For monthly energy served under this rate schedule, 2.369¢ per kWh.

FUEL CHARGE: See Sheet Nos. 6.020 and 6.021.

ENERGY CONSERVATION CHARGE: See Sheet Nos. 6.020 and 6.021.

CAPACITY CHARGE: See Sheet Nos. 6.020 and 6.021

ENVIRONMENTAL COST RECOVERY CHARGE: See Sheet Nos. 6.020 and 6.021

FLORIDA GROSS RECEIPTS TAX: See Sheet No. 6.022

FRANCHISE FEE: See Sheet No. 6.022

PAYMENT OF BILLS: See Sheet No. 6.022

ISSUED BY: N. G. Tower, President **DATE EFFECTIVE:**

Attachment D

EXHIBIT 3

Attachment D

Projection Year	2021		
Calculation of GSDO Portion		RS (Tier 1, Tier 2, RSVP)	GS & CS
Distribution Factors	105	59.1870%	5.6709%
Transmission Factors	117	55.4154%	6.0893%

Factors to be used		RS (Tier 1, Tier 2, RSVP)	GS & CS
Distribution Factors		59.1870%	5.6709%
Transmission Factors		55.4154%	6.0893%

Load Forecast Data at Meter for Projected Year	MWh	kW
RS (Tier 1, Tier 2, RSVP)	9,684,803	
GS & CS	902,049	
GSD, RSD, SBF	7,544,170	17,528,483
GSD Optional	360,212	
IS		1,986,004
LS1	134,246	
LTG-FAC	0	

	RS (Tier 1, Tier 2, RSVP)	GS & CS
	MWh	MWh
Billing determinants for Projected Year	9,684,803	902,049

Transmission Demand Separation Factor	Average 12 CP MW from (Projection Year - 1)
FPSC Jurisdictional Factor	92.5292%
FERC Jurisdictional Factor	7.4708%
Total	1.000

	Revenue Requirements from Regulatory Accounting
Capital	

Attachment D

Distribution Lateral Undergrounding	$0.00
Transmission Asset Upgrades	$0.00
Substation Extreme Weather Protection	$0.00
Distribution Overhead Feeder Hardening	$0.00
Transmission Access Enhancements	$100,000.00
O&M	Revenue Requirements from Regulatory Accounting
Distribution Vegetation Management - planned	$12,000,000.00
Transmission Vegetation Management - planned	$1,200,000.00
Transmission Asset Upgrades	$0.00
Substation Extreme Weather Protection	$0.00
Distribution Overhead Feeder Hardening	$0.00
Distribution Infrastructure Inspections	$1,200,000.00
Transmission Infrastructure Inspections	$500,000.00
SPP Planning & Common	$0.00

ORDER NO. PSC-2020-0293-AS-EI
DOCKET NOS. 20200067-EI, 20200069-EI,
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GSD, SBF	GSD Optional	IS	LS1, LS2	LTG-FAC
33.1831%	1.5122%	0.5405%	1.4185%	0.0000%
35.8142%	1.6321%	2.5863%	0.0948%	0.0000%

GSD, SBF	GSD Optional	IS	LS1, LS2	LTG-FAC		
31.6709%	1.5122%	0.5405%	1.4185%	0.0000%	100.0000%	Check
34.1821%	1.6321%	2.5863%	0.0948%	0.0000%	100.0000%	

GSD, SBF	GSD Optional	IS	LS1, LS2	LTG-FAC
kW	MWh	kW	MWh	MWh
17,528,483	360,212	1,986,004	134,246	0

%	
92.53%	
7.47%	
100.00%	Check

Attachment D

EXHIBIT 4

ORDER NO. PSC-2020-0293-AS-EI
DOCKET NOS. 20200067-EI, 20200069-EI, 20200070-EI, 20200071-EI, 20200092-EI
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Storm Protection Plan Cost Recovery

Reduction of 15 million from Base Rates

		Current Rate/Tariff sheet	SPP Reduction	New Rate
RS **Energy**	T1	5.271 ¢/kWh	0.0903 ¢/kWh	5.181 ¢/kWh
	T2	6.271 ¢/kWh	0.0903 ¢/kWh	6.181 ¢/kWh
RSVP **Energy**		5.585 ¢/kWh	0.0903 ¢/kWh	5.495 ¢/kWh
GS & CS **Energy**		5.542 ¢/kWh	0.0943 ¢/kWh	5.448 ¢/kWh
GST				
ON Peak **Energy**		12.465 ¢/kWh	0.0943 ¢/kWh	12.371 ¢/kWh
OFF Peak **Energy**		3.147 ¢/kWh	0.0943 ¢/kWh	3.053 ¢/kWh
GSD **Demand**		11.03 $/kW	0.27 $/kW	10.76 $/kW
SBF Supplement **Demand**		11.03 $/kW	0.27 $/kW	10.76 $/kW
SBF Standby **Demand**		1.95 $/kW	0.27 $/kW	1.68 $/kW
GSDT **Demand**				
On Peak		3.71 $/kW	0.27 $/kW	3.44 $/kW
Off Peak		7.31 $/kW	0.27 $/kW	7.04 $/kW
SBFT **Demand**				
SBFT Standby **Demand**		1.95 $/kW	0.27 $/kW	1.68 $/kW
On Peak		3.71 $/kW	0.27 $/kW	3.44 $/kW
Off Peak		7.31 $/kW	0.27 $/kW	7.04 $/kW
GSD Optional **Energy**		6.648 ¢/kWh	0.0630 ¢/kWh	6.585 ¢/kWh
IS,IST SBI				
IS, IST Billing Demand		3.96 $/kW	0.06 $/kW	3.90 $/kW
SBI Supplemental Demand		3.96 $/kW	0.06 $/kW	3.90 $/kW
SBI Standby Demand		1.45 $/kW	0.06 $/kW	1.39 $/kW
LS1,LS2 **Energy**		2.510 ¢/kWh	0.1408 ¢/kWh	2.369 ¢/kWh

Florida Power & Light Company
Docket No. 20220051-EI
OPC's Fifth Request For Production of Documents
Request No. 33
Page 1 of 1

QUESTION:
Please provide all documents identified in Late Filed Deposition Exhibit No. 8 (and the related discussion) from the May 24, 20022 deposition of FPL employee Eduard DeVarona, relating to the "2010 report".

RESPONSE:
Please see the attached responsive document.

Cold Weather Event Jan 9-11, 2010

Transformer Analysis Summary

Distribution

February 1, 2010

Executive Summary (slide 1 of 2)

- **During January 9 -11, 2010, the entire state faced record temperatures impacting customer usage – roughly, a once in thirty-five year event**
- **Customers affected = 171,134** (Distribution outages = 130,592)
- **Transformers accounted for the most Customer Minutes Interrupted (CMI) and second most Customers Interrupted (CI)**
- **Analysis shows:**
  - Transformer loading was the most significant factor
  - FPL service region was the second most significant factor

Executive Summary (slide 2 of 2)

Follow-up Actions based upon analysis results:

- Develop risk-factored prioritization list of East Region transformers by using transformer load %, number of customers/transformer, average KVA-Demand per customer, and transformer KVA size. Expand to entire system.

- Revise Asset Management System (AMS) load calculations to incorporate available Automated Metering Infrastructure (AMI) data to improve accuracy of peak load calculations.

- Options for pursuing transformer replacements:
  - Based upon current information, up to 22,000 padmount transformer replacements may be required over time to address indicated overload conditions - estimated data limiting accuracy of plans (i.e. estimated transformer loading)
  - Incorporate AMI data as it becomes available to determine necessity for replacing overloaded transformer conditions based on risk evaluation - more accurate data insures appropriate corrective actions over time (i.e. AMI data deriving accurate transformer loading)

Overview & Facts

Event Summary

- **Weather – During this event, the entire state faced record temperatures impacting customer usage**
  - West Palm Beach Airport – Average 12-day temperature, 49.9 degrees, was the lowest on record for any 12-day period
  - Miami International Airport – Average 12-day temperature, 52.7 degrees, 10th lowest on record for any 12-day period and the coldest such period since 1940
- **Customers Affected – 171,134**
  - Substation Outages 40,542
  - Distribution Outages 130,592

Customer Out by Day					
9-Jan	61,606	10-Jan	80,683	11-Jan	28,845
Customers Out By Region					
North	17,739	East	41,889	West	48,078
Broward	42,364	Dade	21,064	**Total**	**171,134**

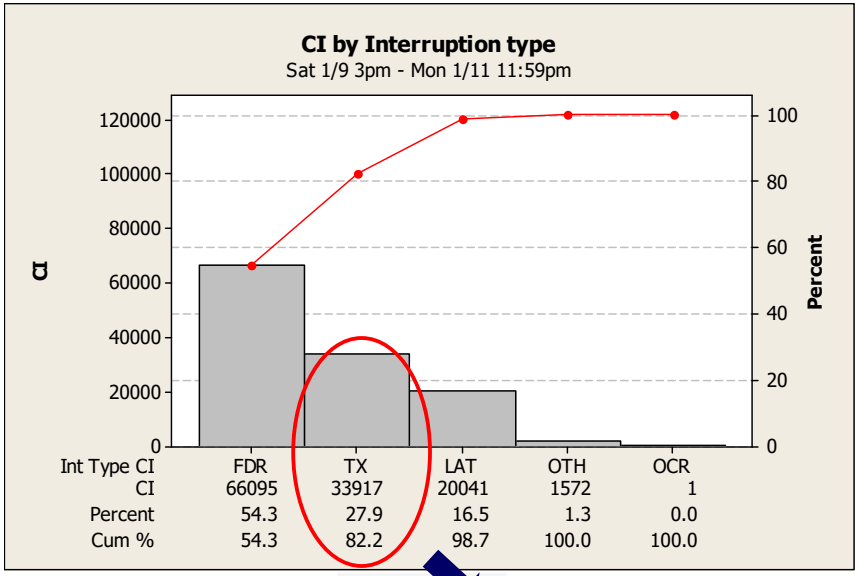
Unprecedented record temperatures forced an event that we had not previously faced.

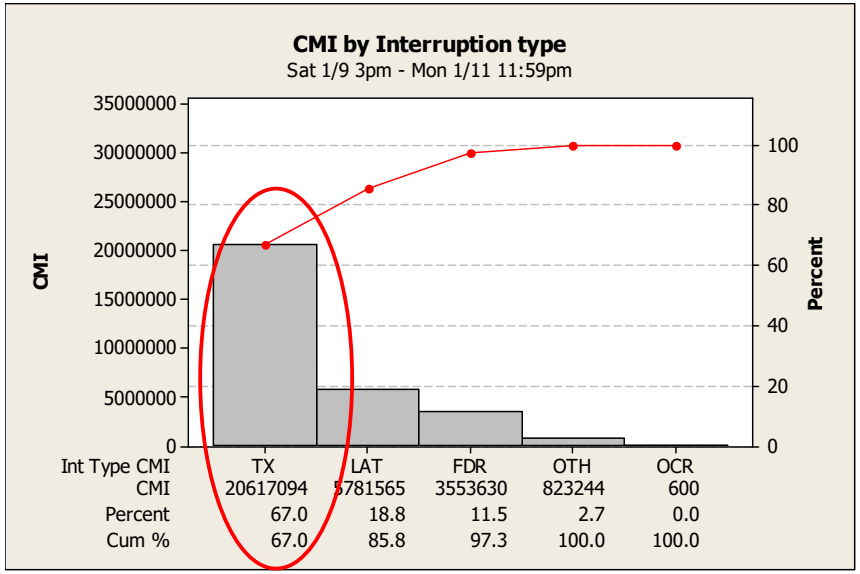
FPL

FPL 000671
20220051-EI

What device impacted our indicators the most during the event?

Sat 1/9 3pm – Mon 1/11 11:59pm





Two Proportions Test of TX % contribution to CI

Sample	X	N	Sample p
Event	33917	121626	0.278863
Avg. Jan 08&09	83065	988761	0.084009

3X greater!

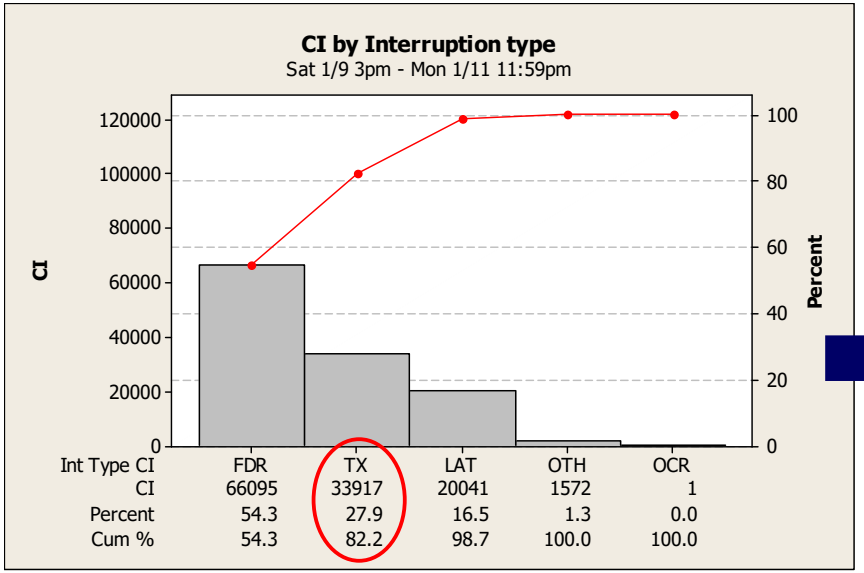
Difference = p (1) - p (2)
Estimate for difference: 0.194854
95% CI for difference: (0.192275, 0.197433)
Test for difference = 0 (vs not = 0): Z = 148.09 P-Value = 0.000

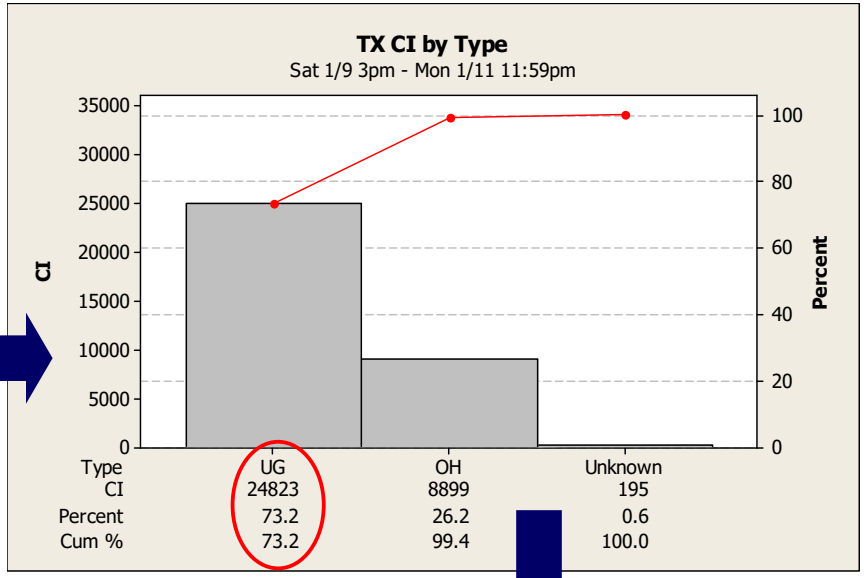
Fisher's exact test: P-Value = 0.000

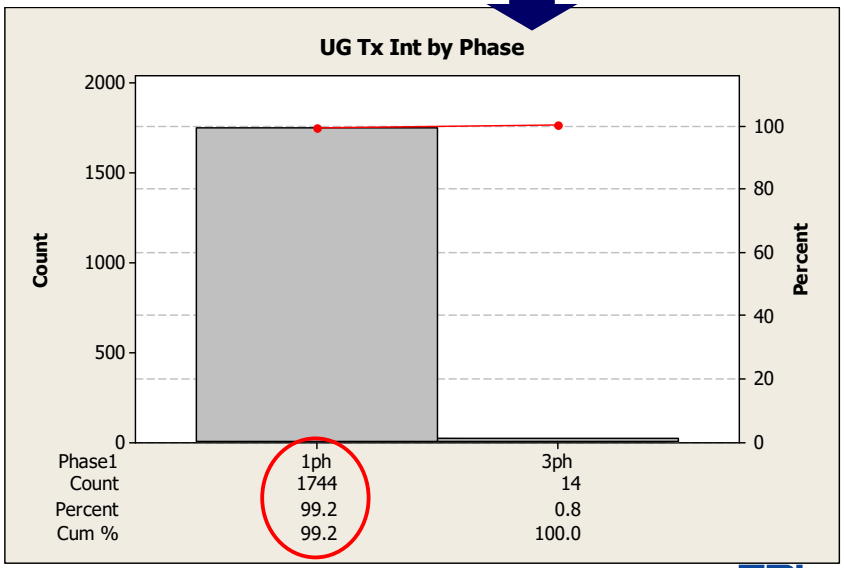
Transformers accounted for the most CMI during the event. They also accounted for the second most CI, which is not typical compared to an average day in January.

Source: Data Warehouse

What type of Transformers impacted CI the most?







Single-phase Underground (Padmount) Transformers accounted for the majority of the Transformer interruptions

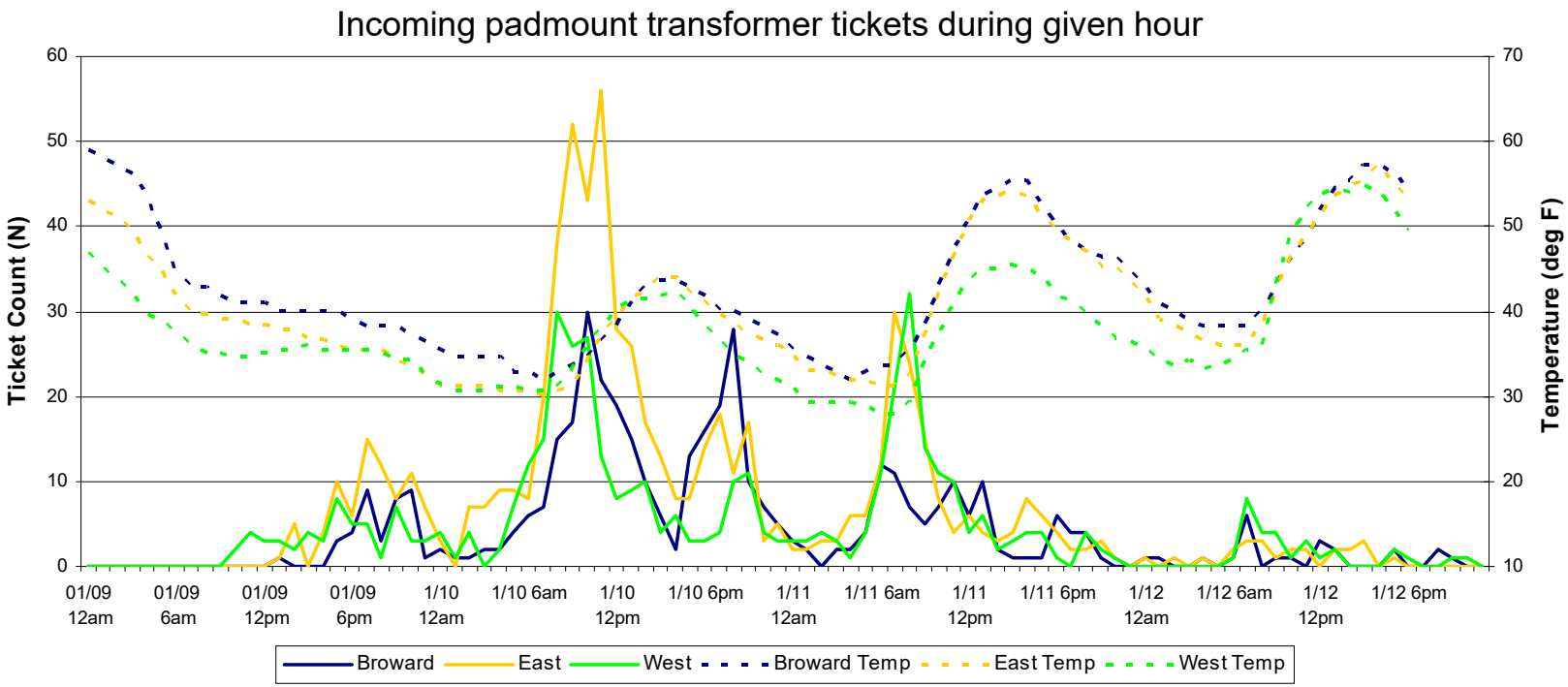
Source: Data Warehouse

FPL

FPL 000673
20220051-EI

Overview & Facts

Padmount Transformer Failures Summary



North and Dade regions were minimally impacted. Broward, East, and West regions accounted for 78% of the transformer tickets for this event.

As temperatures dipped below 40 degrees, padmount transformer interruptions began to increase, accounting for 41% of the Customer Minutes Interrupted (CMI) and 20% of the Customers Interrupted (CI).

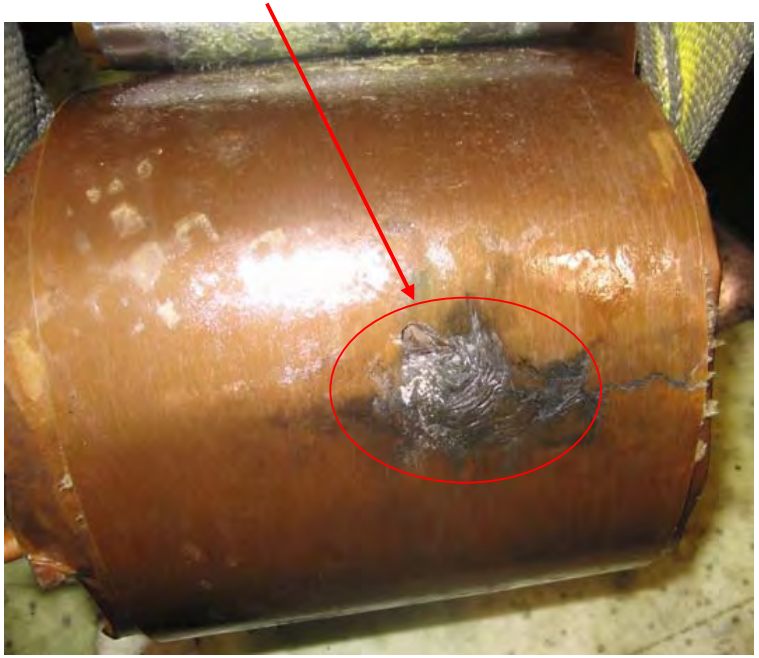
FPL

FPL 000674
20220051-EI

What failed inside the transformers?

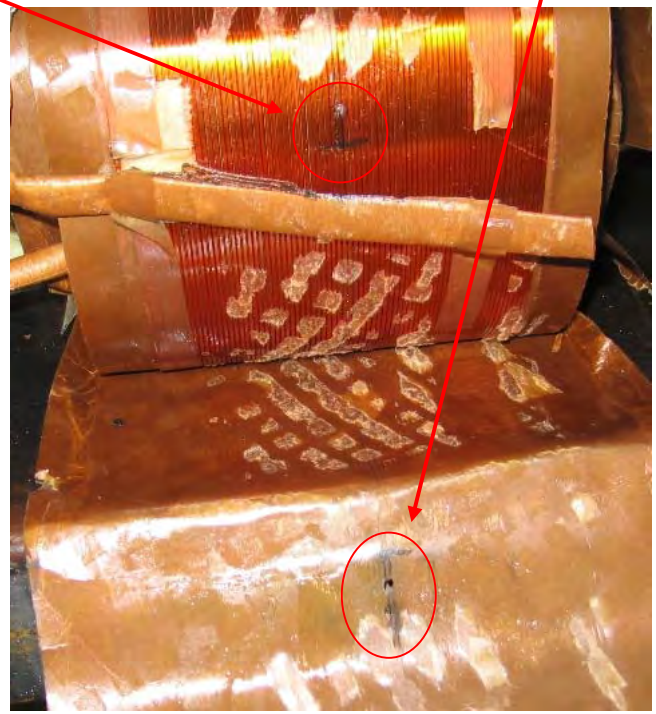
Forensic Analysis Results

Hot spot between primary and secondary coils compromised dielectric strength of insulation



Flash point on primary winding

Pin hole burn caused by the dielectric breakdown



Overloading of transformers will deteriorate, over time, the dielectric strength of the insulation. The voltage between the primary and secondary windings creates an arc perforating the insulation and shorting the two windings.

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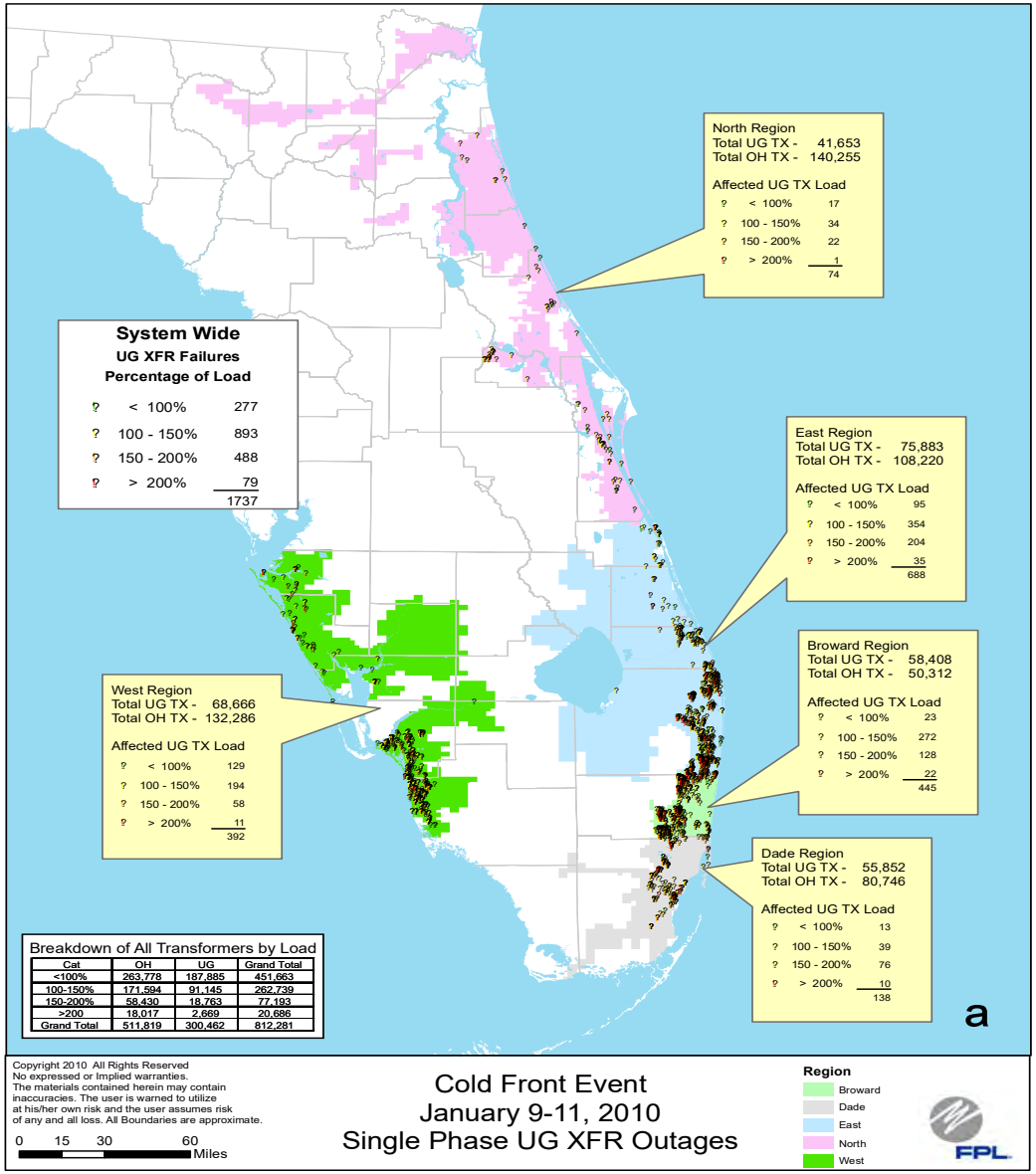
Impact Summary



What was the impact of the cold weather event on transformers?

- 0.38% of all transformers were interrupted
  - Out of population size of 812,281
  - 99.6% were not affected which translates to a sigma level of 2.7
- 0.78% of all underground pad mounted transformers were interrupted
  - 1,737 affected out of population size of 222,511
  - 99.2% were not affected which translates to a sigma level of 2.4

How often to these cold weather events occur?

- In the period from 1940 to present, extended cold event periods comparable to the recent one have occurred roughly every 35 years
  - 37 years from 1940 to 1977 and 33 years from 1977 to 2010

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What factors are the most statistically significant?

Logistic Regression Table

Predictor	Coef	SE Coef	Z	P	Odds Ratio
Constant	-8.63753	0.192389	-44.90	0.000	
KVA size					
38	0.567977	0.176791	3.21	0.001	1.76
50	1.66192	0.168157	9.88	0.000	5.27
75	2.33022	0.176295	13.22	0.000	10.28
100	1.86547	0.201108	9.28	0.000	6.46
Phase					
B	-0.0086861	0.0584801	-0.15	0.882	0.99
C	-0.0737969	0.0599859	-1.23	0.219	0.93
Region					
DADE	-0.966837	0.0987967	-9.79	0.000	0.38
EAST	0.556199	0.0639701	8.69	0.000	1.74
NORTH	-1.03798	0.127356	-8.15	0.000	0.35
WEST	0.337818	0.0724947	4.66	0.000	1.40
Summer Load %					
100%-150%	2.00649	0.0743520	26.99	0.000	7.44
150%-200%	3.42808	0.0910336	37.66	0.000	30.82
200+	4.19360	0.146133	28.70	0.000	66.26
Type					
Live Front	-1.24346	0.227795	-5.46	0.000	0.29
Customers					
c6-8	0.185886	0.0758334	2.45	0.014	1.20
d9-15	0.538929	0.0768843	7.01	0.000	1.71
e16-50	0.135744	0.121321	1.12	0.263	1.15
f51-100	-20.6175	9051.30	-0.00	0.998	0.00
g>100	-21.7593	51351.5	-0.00	1.000	0.00
Primary Voltage					
22.9	0.416369	0.0518143	8.04	0.000	1.52
4.16	-15.7696	50345.2	-0.00	1.000	0.00
Unknown	-18.1831	28704.8	-0.00	0.999	0.00

Tests for terms with more than 1 degree

Term	Chi-Square	DF	P
KVA size	346.18	4	0.000
Phase	1.09	2	0.581
Region	367.67	4	0.000
Summer Load %	1421.28	3	0.000
Customers	53.25	5	0.000
Primary Voltage	54.34	3	0.000
Install Year	5.62	4	0.230

- Phase & Install Year not significant
- 50-100 KVA Tx had the highest interruption rates
- East region had the highest interruption rate out of all regions followed by the West
- TX's loaded 150% or greater were 30-66 times more likely to have interruptions than those loaded below 100%

Logistic regression shows Load was the most statistically significant factor (Issue #1) followed by Region (Issue #2) and KVA size (combined with Issue #1)

Issue #1

How is transformer loading calculated?

Meter-reading Data *(current)*

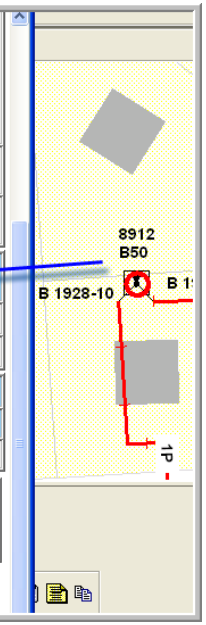
Substation Name	BUTTS	**AMS Facility Status**	Constructed	**PPD Address**	DEL PRADO CIR N. W/O SOLIMAR CIR.# ENTR
Service Center	BRO - Boca Raton	**Last Updated**	07/22/2001	**Ref Drawing**	C02CK1
Mgmt Area	Boca Raton	**Last Updated By**	sw$admin	**Original Install Date**	

	Current Information	Summer Peak Information	Winter Peak Information
Date	01/01/2010	10/29/2008	01/01/2009
Customers	4	4.000000	4.000000

	Current Load			Summer Peak Load			Winter Peak Load		
Phase	**KVA**	**KVAD**	**%**	**KVA**	**KVAD**	**%**	**KVA**	**KVAD**	**%**
B	50	33.0	66.00	50	44.0	88.0	50	34.0	68.0

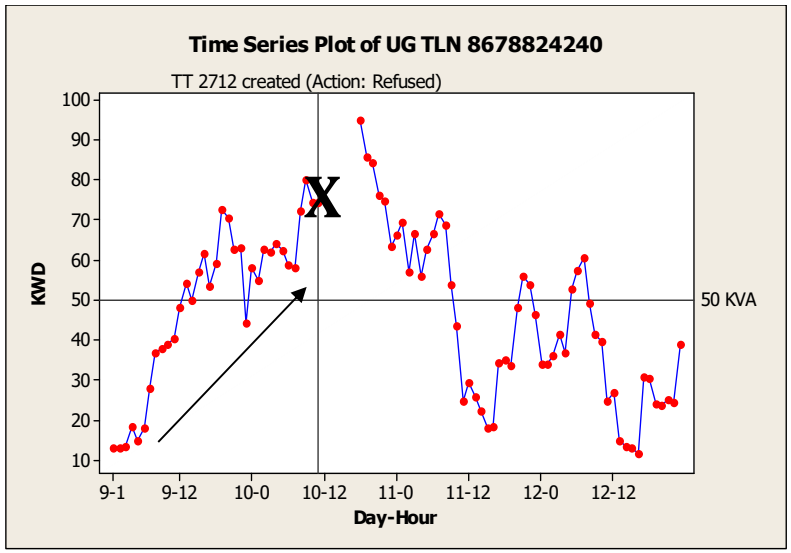
Ph	Type	DV	M S Num	Mfg	Latest Install Date
B	Padmount - Dead Front	No	459481	MCE	04/01/1998

Ph	Loop	Sw1	Status 1	Sw2	Status 2
B	1928	11	Normal Closed	10	Normal Closed



- AMS currently estimates demand based on **monthly meter department kWh readings**

Advanced Metering Infrastructure Data *(future)*



- **AMI** captures load information on an **hourly basis**.
- Approximately 100K AMI meters in place primarily in Broward

AMI technology will improve load data accuracy and resolution in the near future

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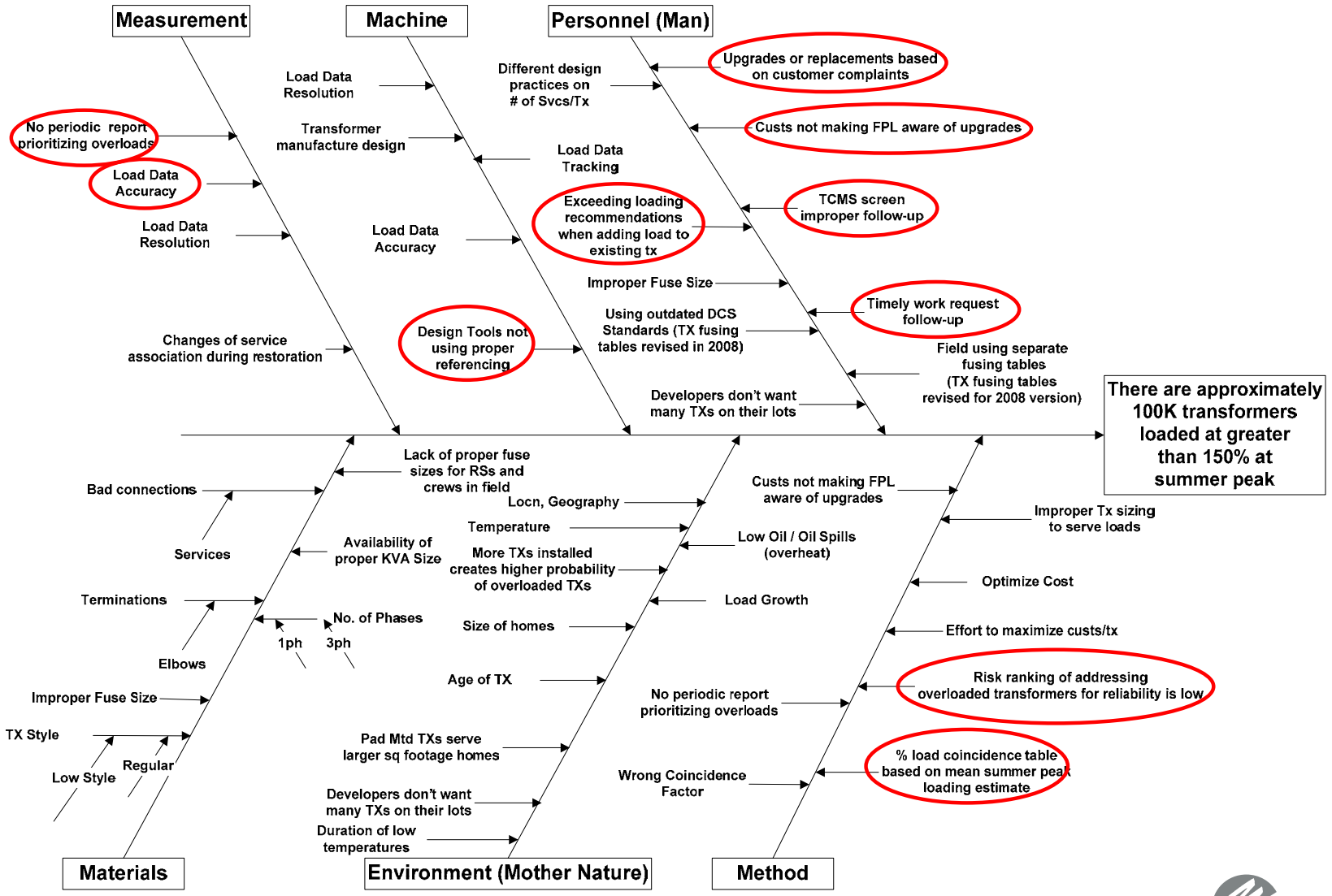
Issue #1

Why are transformers overloaded?



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Issue #1

What causes are contributing the most to the problem?

FMEA

Process Function	Potential Failure Mode	Potential Effects of Failure	SEV	Potential Cause(s)/ Mechanism(s) of Failure	OCC	Current Process Controls	DET	RPN
AMS Reports	No periodic report prioritizing overloads	Areas are not aware of magnitude of overloaded transformer population.	8	Addressing overloaded transformers not a high priortity. Overloaded transformers have low reliability impact.	8	We have Distribution Transformer Loading Guidelines in the Service Planning Quick Reference Guide for designers.	8	512
	Load Data Accuracy	Overloaded transformers not recognized or overloaded transformers incorrectly identified.	5	Customer transformer misassociation and AMS to TCMS link could be inaccurate.	5	No formal process to correct inaccurate associations or data transfer issues.	8	200
Design Reference	Design Tools not using proper referencing	Transformer size to load match is incorrect.	7	Tool references to transformer design needs to be reviewed and revised if necessary.	2	Review triggered by change in product characteristics or design.	9	126
	Risk ranking of addressing overloaded transformers is low	Overloaded transformers get neglected due to low priority and are only addressed on an individual basis.	9	Addressing overloaded transformers not a high priortity. Overloaded transformers have low reliability impact.	8	We have Distribution Transformer Loading Guidelines in the Service Planning Quick Reference Guide for designers.	8	576
	% load coincidence table based on mean summer peak loading estimate.	Undersized transformer; actual peak load could be higher than estimated.	8	Coincidence table is designed to estimate the mean peak load.	8	Review triggered by change in customer demand patterns.	9	576
Existing Customer Upgrades	Exceeding loading recommendations when adding load to existing transformers.	Overloaded transformers and Power Quality issues with services.	8	Mis-application or not referring to transformer loading guidelines.	7	No process control to review all load additons to existing transformers.	9	504
	Upgrades or replacements based on customer complaints.	Not addressing all overloaded transformer cases.	5	Overloaded transformers have low reliability impact. Resources allocated to high CI projects.	2	Customer generated only. Many overloaded transformers are missed under this process.	8	80
	Custs not making FPL aware of upgrades.	Potential overloaded transformers not identified during customer upgrades.	5	Communication of cust upgrade not required in all cases.	7	No process for the "hidden" customer load increases.	8	280
Customer Complaint Process	TCMS screen improper follow-up.	Backlog of overloaded transformers that may not be replaced.	7	Volume of tickets too high to address and screen to prioritize.	3	Review of transformer related tickets by area personnel.	3	63
	Timely work request follow-up.	Backlog of overloaded transformers that may not be replaced.	7	Volume of work requests too high to address and screen to prioritize.	3	Review of transformer related work requests by area personnel.	3	63

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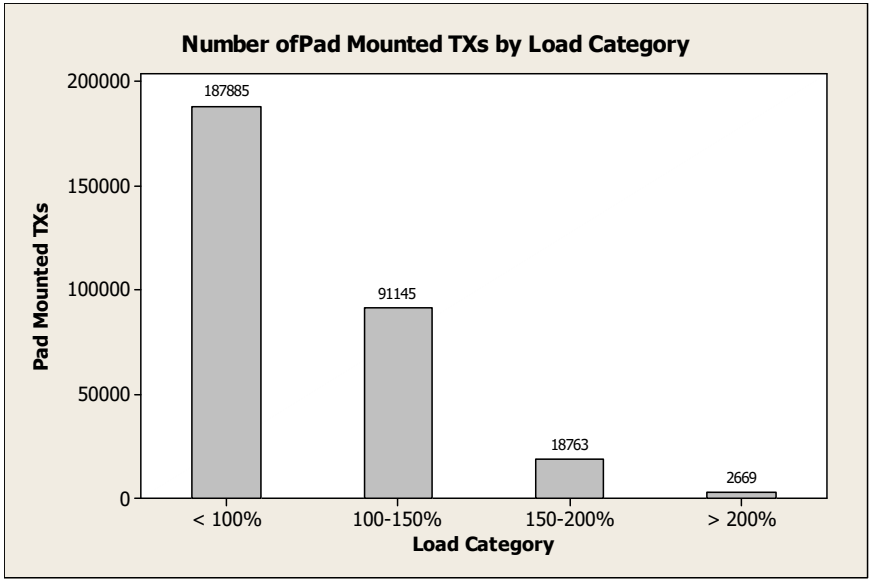
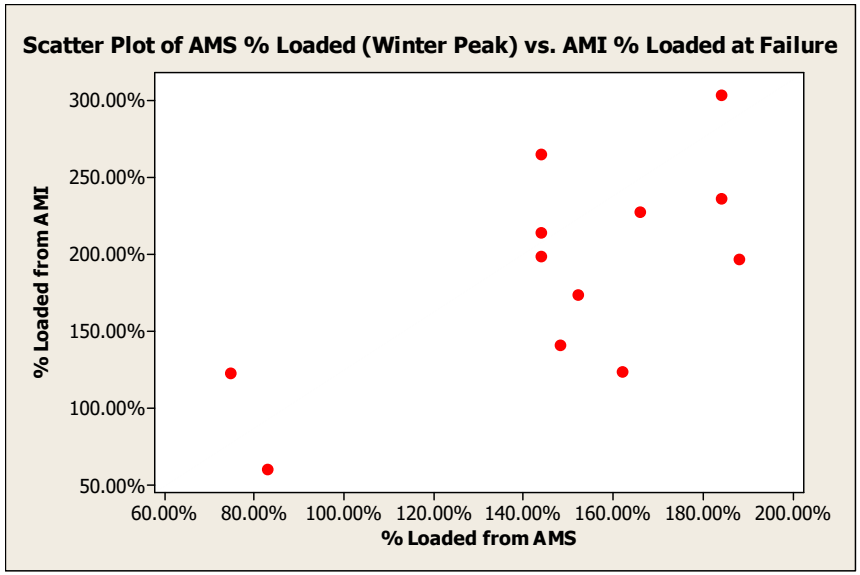
Issue #1

Padmount Transformer Load

- **Load was the most statistically significant factor in transformer-related outages, followed by region and kVA size.**
  - Transformers loaded 150% or greater were 30 to 66 times more likely to have interruptions than those loaded below 100%.

- **Correction Plan**
  - Develop prioritization list for transformers based on load %, customer count, kVAD per customer, and kVA size
  - Develop ability to detect and track overloaded conditions at a transformer level
  - Incorporate AMI data to improve accuracy of peak load data





Load accounted for the most statistically significant factor, AMI data shows that we are not predicting peaks well.

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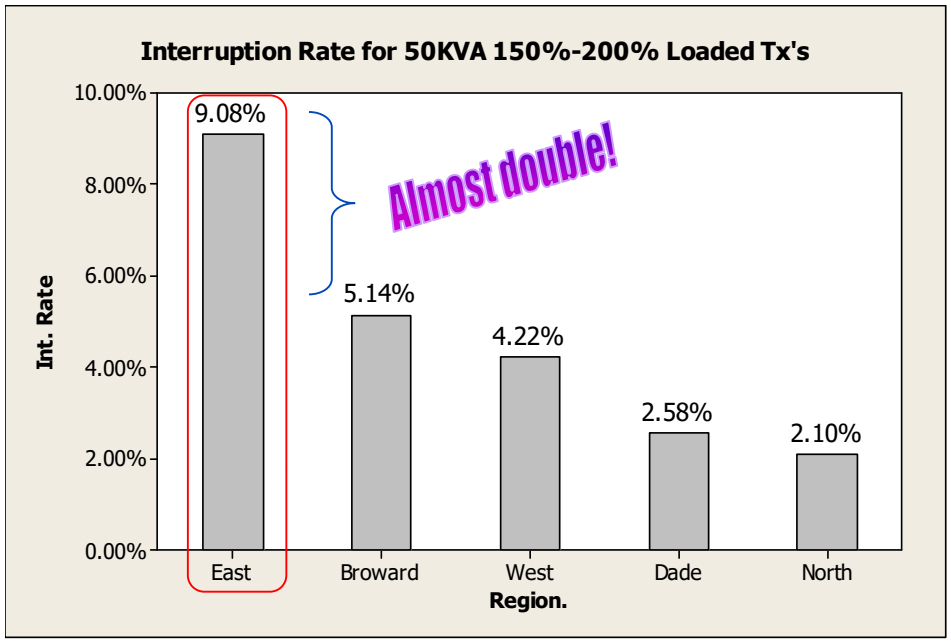
Issue #2

What Regions had the most Transformer interruptions?

- 50 KVA Tx's loaded between 150% and 200% is the largest population of transformers within the high interruption-rate category highlighted in the regression model. Within this category:
  - East has 3rd lowest population of 50 KVA, 150%-200% loaded transformers but had the highest transformer interruption rate during the event



So what drove the high interruption rates in the East Region??

Source: Data Warehouse / AMS

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Issue #2

Do customer load characteristics differ in the East Region?

- *Non-normal data*
- *Analyzing population of 50 KVA TX's loaded 150%-200%*

Kruskal-Wallis Test: Summer Peak versus Region

Kruskal-Wallis Test on Summer Peak

Region	N	Median	Ave Rank	Z
BRWD	2230	81.00	3927.4	1.29
DADE	2151	80.00	3908.0	0.78
EAST	1609	80.00	3800.4	-1.52
NORTH	971	80.00	3837.2	-0.58
WEST	790	80.00	3845.3	-0.[illegible]
Overall	7751		3876.	

No difference

H = 3.90 DF = 4 P = 0.420
H = 3.92 DF = 4 P = 0.417 (adjusted for ties)

Summer peak KVAD / TX

Customers / TX

Kruskal-Wallis Test: Cust Served versus Region

Kruskal-Wallis Test on Cust Served

Region	N	Median	Ave Rank	Z
BRWD	2230	8.000	3836.4	-0.99
DADE	2151	9.000	4121.3	5.98
EAST	1609	8.000	3188.4	-13.85
NORTH	971	10.000	4671.3	11.84
WEST	790	8.000	3742.7	-1.77
Overall	7751		3876.0	

Fewer customers!

H = 303.93 DF = 4 P = 0.000
H = 308.75 DF = 4 P = 0.000 (adjusted for ties)

Summer peak KVAD / Customer

Kruskal-Wallis Test: KVAD per Cus versus Region

Kruskal-Wallis Test on KVAD per Cus

Region	N	Median	Ave Rank	Z
BRWD	2230	9.625	3948.0	1.80
DADE	2151	9.222	3634.3	-5.89
EAST	1609	10.125	4532.6	13.22
NORTH	971	8.182	3075.5	-11.92
WEST	790	9.556	3977.5	1.35
Overall	7751		3876.0	

Larger loads!

H = 291.84 DF = 4 P = 0.000
H = 291.88 DF = 4 P = 0.000 (adjusted for ties)

Within the high interruption-rate category, the East tends to have fewer customers per TX with larger loads per customer. This increases the probability of all customers in TX simultaneously experiencing peak demand (Coincidence Factor).

Issue #2

Why do the East Region customers have larger loads?

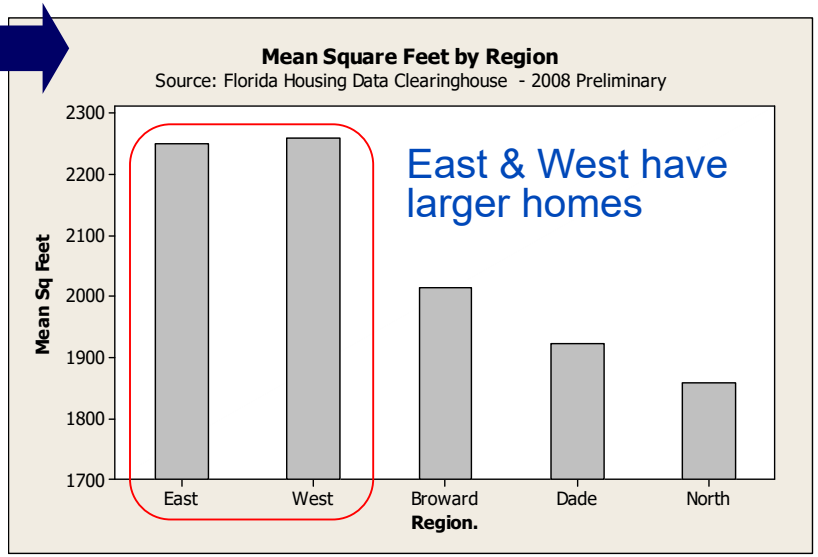
Mean Sq Feet by County (single-family homes)

Source: Shimberg Center - Florida Housing Data Clearinghouse 2008 Preliminary

County	Region	Single Family Mean Sq Feet	Residential Cus	PM Tx
Palm Beach	East	2,400	609,135	56,295
Broward	Broward	2,014	761,796	52,311
Miami-Dade	Dade	1,923	867,413	46,316
Lee	West	3,038	202,844	19,884
Manatee	West	2,560	148,451	13,447
Sarasota	West	1,796	220,496	18,043
Collier*	West	*2,017*	158,937	15,000
Brevard	North	1,717	253,131	16,460
Martin	East	1,979	83,501	8,826
Volusia	North	1,636	151,237	10,273
St. Johns	North	2,480	62,159	6,511
St. Lucie	East	1,718	99,382	6,815
Indian River	East	2,107	45,881	4,394
Charlotte	West	1,680	89,328	5,263
Seminole	North	1,945	43,079	4,136
Flagler	North	2,267	44,961	2,965
Nassau	North	2,238	15,668	1,611
Okeechobee	East	1,725	17,552	908
Columbia	North	1,921	10,653	715
DeSoto	West	1,757	12,888	762
Hendry	West	1,705	8,446	704
Putnam	North	2,042	16,840	368
Baker	North	1,807	4,182	158
Suwannee	North	1,670	4,101	145
Bradford	North	1,716	3,986	49
Union	North	1,801	1,311	37
Clay	North	2,187	703	23
Highlands	East	1,799	624	14
Florida	**FPL**	**2,017**	**3,938,685**	**292,433**

Collier county data not available; using Florida mean

Mean Sq Feet by Region

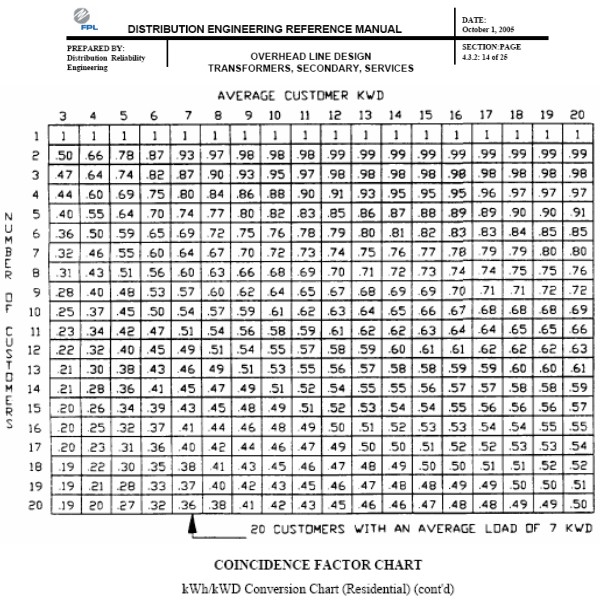


The East & West regions tend to have larger homes which typically have larger loads.

Issue #2

Coincidence Factor

- Most end use appliances are turned on and off randomly. Because of this, the probability of all customers simultaneously experiencing peak demand is small and decreases as the number of customers increases.
- Because of this, our Distribution system is designed to supply less power than the sum of individual customer peak demands.
- The ratio of peak system demand to the sum of individual customer peak demands is called Coincidence Factor.
- **Significant factor during this event since the probability of all customers simultaneously experiencing peak demand is high during cold temperatures and increases as the number of customers decreases. Consequently, equipment becomes less reliable as they become more heavily loaded.**



FPL DISTRIBUTION ENGINEERING REFERENCE MANUAL

DATE: October 1, 2005

PREPARED BY: Distribution Reliability Engineering

OVERHEAD LINE DESIGN
TRANSFORMERS, SECONDARY, SERVICES

SECTION PAGE 4.3.2: 14 of 28

AVERAGE CUSTOMER KWD

NUMBER OF CUSTOMERS	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	.50	.66	.78	.87	.93	.97	.98	.98	.98	.99	.99	.99	.99	.99	.99	.99	.99	.99
3	.47	.64	.74	.82	.87	.90	.93	.95	.97	.98	.98	.98	.98	.98	.98	.98	.98	.98
4	.44	.60	.69	.75	.80	.84	.86	.88	.90	.91	.93	.95	.95	.95	.96	.97	.97	.97
5	.40	.55	.64	.70	.74	.77	.80	.82	.83	.85	.86	.87	.88	.89	.89	.90	.90	.91
6	.36	.50	.59	.65	.69	.72	.75	.76	.78	.79	.80	.81	.82	.83	.83	.84	.85	.85
7	.32	.46	.55	.60	.64	.67	.70	.72	.73	.74	.75	.76	.77	.78	.79	.79	.80	.80
8	.31	.43	.51	.56	.60	.63	.66	.68	.69	.70	.71	.72	.73	.74	.74	.75	.75	.76
9	.28	.40	.48	.53	.57	.60	.62	.64	.65	.67	.68	.69	.69	.70	.71	.71	.72	.72
10	.25	.37	.45	.50	.54	.57	.59	.61	.62	.63	.64	.65	.66	.67	.68	.68	.68	.69
11	.23	.34	.42	.47	.51	.54	.56	.58	.59	.61	.62	.62	.63	.64	.64	.65	.65	.66
12	.22	.32	.40	.45	.49	.51	.54	.55	.57	.58	.59	.60	.61	.61	.62	.62	.62	.63
13	.21	.30	.38	.43	.46	.49	.51	.53	.55	.56	.57	.58	.58	.59	.59	.60	.60	.61
14	.21	.28	.36	.41	.45	.47	.49	.51	.52	.54	.55	.55	.56	.57	.57	.58	.58	.59
15	.20	.26	.34	.39	.43	.45	.48	.49	.51	.52	.53	.54	.54	.55	.56	.56	.56	.57
16	.20	.25	.32	.37	.41	.44	.46	.48	.49	.50	.51	.52	.53	.53	.54	.54	.55	.55
17	.20	.23	.31	.36	.40	.42	.44	.46	.47	.49	.50	.50	.51	.52	.52	.53	.53	.54
18	.19	.22	.30	.35	.38	.41	.43	.45	.46	.47	.48	.49	.50	.50	.51	.51	.52	.52
19	.19	.21	.28	.33	.37	.40	.42	.43	.45	.46	.47	.48	.48	.49	.49	.50	.50	.51
20	.19	.20	.27	.32	.36	.38	.41	.42	.43	.45	.46	.46	.47	.48	.48	.49	.49	.50

20 CUSTOMERS WITH AN AVERAGE LOAD OF 7 KWD

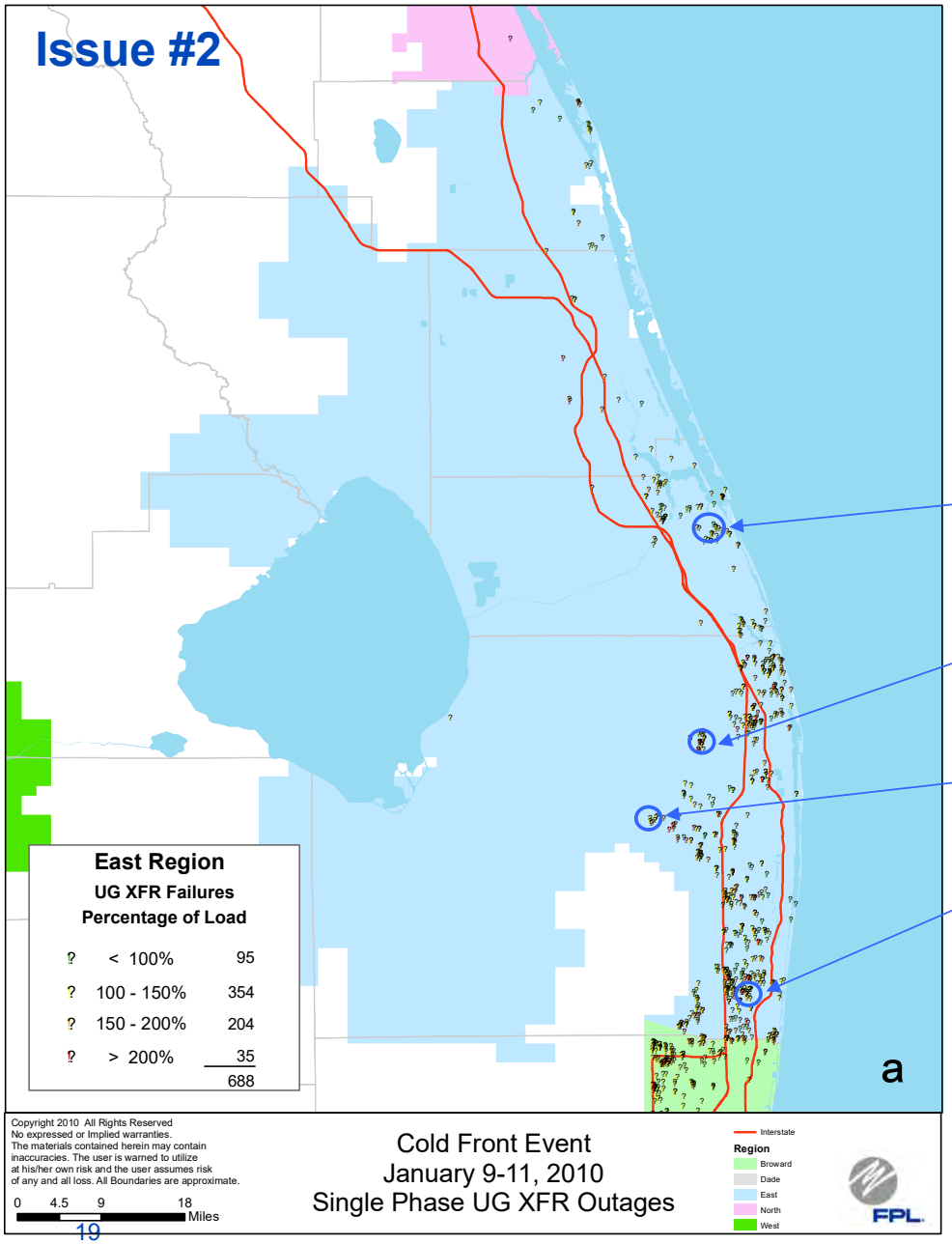
COINCIDENCE FACTOR CHART

kWh/kWD Conversion Chart (Residential) (cont'd)

- Coincidence factor example using 80 KVAD as the baseline shown below
- Depending on # of customers and size of load, proper TX size varies

Custs	Avg. KVAD	Total KVAD	Coinc. Factor	Adj KVAD	TX Size
4	20.0	80	0.97	77.6	100
5	16.0	80	0.89	71.2	75
6	13.3	80	0.80	64.0	75
7	11.4	80	0.73	58.4	75
8	10.0	80	0.68	54.4	75
9	8.9	80	0.62	49.6	50
10	8.0	80	0.57	45.6	50
11	7.3	80	0.51	40.8	50
12	6.7	80	0.49	39.2	50
13	6.2	80	0.43	34.4	50
14	5.7	80	0.41	32.8	50
15	5.3	80	0.34	27.2	50
16	5.0	80	0.32	25.6	50
17	4.7	80	0.31	24.8	25
18	4.4	80	0.22	17.6	25
19	4.2	80	0.21	16.8	25
20	4.0	80	0.20	16.0	25

Proper application of the Coincidence Factor is very important in selecting the correct transformer size



Subdivisions with more than 1 UG Transformer Interruptions

MARINER SAND

IBIS GOLF & COUNTRY CLUB

BINKS FOREST OF THE LANDINGS

BAY POINTE OF UNIVERSITY PARK

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20220051-EI

Issue #2

Transformer interruptions: Stuart – Martin County
(East Region)

Interrupted UG transformers
MARINER SANDS

FPL

FPL 000687
20220051-EI

Issue #2

Transformer interruptions: West Palm Beach – Palm Beach County (East Region)

Interrupted UG transformers

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FPL 000688
20220051-EI

Issue #2

Transformer interruptions: Wellington Area – Palm Beach County
(East Region)

Interrupted UG transformers

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20220051-EI

Issue #2

Transformer interruptions.: Boca Raton Area – Palm Beach County
(East Region)

Interrupted UG transformers

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FPL 000690
20220051-EI

Docket No. 20220051-EI
FPL Response to OPC 5th POD No. 33
Exhibit KJM-5
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Root Cause – Padmount Transformer Failures

Issue 2

- **East region had the highest interruption rate of all the regions.**

– Our findings show that pad mounted transformers between 50-100kva loaded at > 150% had the highest interruption rate.

-- Within this category the 50kva transformers loaded between 150-200% were the largest population.

– Analyzed population of 50kVA transformers loaded 150-200%. In the East, these transformers had:

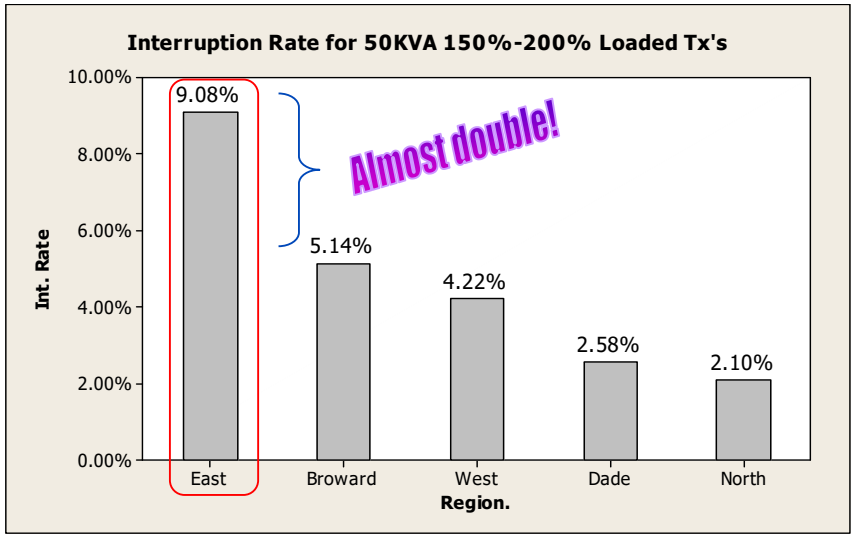
-- An interruption rate of 9.08%; approximately double that of the remaining regions

-- Fewer customers per transformer on average than each of the other regions

-- Customers with larger loads on average than each of the other regions

-- Based on mean square footage, the East and West regions tend to have larger homes.

– Due to these factors, the probability of multiple/all customers on a transformer simultaneously experiencing peak demand increases (coincidence factor)



Customers / TX

Kruskal-Wallis Test: Cust Served versus Region

Kruskal-Wallis Test on Cust Served

Region	N	Median	Ave Rank	Z
BRWD	2230	8.000	3836.4	-0.99
DADE	2151	9.000	4121.3	5.98
EAST	1609	8.000	3188.4	-13.85
NORTH	971	10.000	4671.3	11.84
WEST	790	8.000	3742.7	-1.77
Overall	7751		3876.0	

Fewer customers!

H = 303.93 DF = 4 P = 0.000
H = 308.75 DF = 4 P = 0.000 (adjusted for ties)

East Region had the highest interruption rate.

Actions - Summary

- **Developing prioritization list for East Region Transformers by using Load %, number of customers, average KVAD per customer, and KVA size and evaluate against risk. Expand to entire system.**
- **Investigate options to track and determine how long Transformers experience overloaded conditions.**
  - This characteristic can be included in the regression model to determine significance and impact to interruptions.
- **Revising AMS load calculations to incorporate available AMI data to improve accuracy of peak load calculations.**
- **Determining if Coincidence Factor is being properly applied by all Project Designers in all Regions.**
- **Confirmed auto-plat/automated engineering design applications provide correct transformer sizing in accordance to current standards.**
- **Researching comparison of original developer designs submitted versus actual homes built – determine if origination of under- or over-sizing transformers exist.**

APPENDIX

Replacement Cost Scenarios

Underground transformers **Loaded >200%**

Population	Load %	Tx Size	Cost per Tx	Capital %	O&M	Capital	Total Cost
40	>200%	75 kVA	$ 5,147	65%	$ 72,058	$ 133,822	**$ 205,880**
135	>200%	75-100 KVA	$ 5,147	65%	$ 243,196	$ 451,649	**$ 694,845**
381	>200%	50 kVA	$ 5,147	65%	$ 686,352	$ 1,274,655	**$ 1,961,007**
516	>200%	50-100 KVA	$ 5,147	65%	$ 929,548	$ 1,726,304	**$ 2,655,852**
2,669	>200%	All sizes	$ 5,147	65%	$ 4,808,070	$ 8,929,273	**$ 13,737,343**

Underground transformers **Loaded >150%**

Population	Load %	Tx Size	Cost per Tx	Capital %	O&M	Capital	Total Cost
315	>150%	75 kVA	$ 5,147	65%	$ 567,457	$ 1,053,848	**$ 1,621,305**
793	>150%	75-100 KVA	$ 5,147	65%	$ 1,428,550	$ 2,653,021	**$ 4,081,571**
8,132	>150%	50 kVA	$ 5,147	65%	$ 14,649,391	$ 27,206,013	**$ 41,855,404**
8,925	>150%	50-100 KVA	$ 5,147	65%	$ 16,077,941	$ 29,859,034	**$ 45,936,975**
21,432	>150%	All sizes	$ 5,147	65%	$ 38,608,676	$ 71,701,828	**$ 110,310,504**

Average costs based on upgrading a 50 kVA transformer with a 75 kVA