

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Review of 2022-2031 Storm
Protection Plan, pursuant to Rule 25-6.030,
F.A.C., Florida Public Utilities Company.

DOCKET NO.: 20220049-EI

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CONFIDENTIAL

DIRECT TESTIMONY

OF

KEVIN J. MARA, P.E.

ON BEHALF OF THE CITIZENS OF THE STATE OF FLORIDA

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2 **OF**

3 **KEVIN J. MARA**

4 On Behalf of the Office of Public Counsel

5 Before the

6 Florida Public Service Commission

7 Docket No. 20220049-EI

8
9 **I. INTRODUCTION**

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

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

16
17 **Q. PLEASE STATE YOUR PROFESSIONAL EXPERIENCE.**

18 A. I received a Bachelor of Science degree in Electrical Engineering from Georgia
19 Institute of Technology in 1982. Between 1983 and 1988, I worked at Savannah
20 Electric and Power as a distribution engineer designing new services to residential,
21 commercial, and industrial customers. From 1989-1998, I was employed by
22 Southern Engineering Company as a planning engineer providing planning, design,
23 and consulting services for electric cooperatives and publicly owned electric
24 utilities. In 1998, I, along with a partner, formed a new firm, Hi-Line Associates,

1 which specialized in the design and planning of electric distribution systems. In
2 2000, Hi-Line Associates became a wholly owned subsidiary of GDS Associates,
3 Inc. and the name of the firm was changed to Hi-Line Engineering, LLC. In 2001,
4 we merged our operations with GDS Associates, Inc., and Hi-Line Engineering
5 became a department within GDS. I serve as the Principal Engineer for Hi-Line
6 Engineering and am Executive Vice President of GDS Associates. I have field
7 experience in the operation, maintenance, and design of transmission and
8 distribution systems. I have performed numerous planning studies for electric
9 cooperatives and municipal systems. I have prepared short circuit models and
10 overcurrent protection schemes for numerous electric utilities. I have also provided
11 general consulting, underground distribution design, and territorial assistance.

12
13 **Q. PLEASE DESCRIBE GDS ASSOCIATES, INC.**

14 A. GDS is an engineering and consulting firm with offices in Marietta, Georgia;
15 Austin, Texas; Auburn, Alabama; Orlando, Florida; Manchester, New Hampshire;
16 Kirkland, Washington; Portland, Oregon; and Madison, Wisconsin. GDS has over
17 170 employees with backgrounds in engineering, accounting, management,
18 economics, finance, and statistics. GDS provides rate and regulatory consulting
19 services in the electric, natural gas, water, and telephone utility industries. GDS
20 also provides a variety of other services in the electric utility industry including
21 power supply planning, generation support services, financial analysis, load
22 forecasting, and statistical services. Our clients are primarily publicly owned
23 utilities, municipalities, customers of privately owned utilities, groups or

1 associations of customers, and government agencies.

2

3 **Q. HAVE YOU TESTIFIED BEFORE ANY REGULATORY COMMISSIONS?**

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

- 5 • Vermont Department of Public Service
- 6 • Florida Public Service Commission
- 7 • Federal Energy Regulatory Commission ("FERC")
- 8 • District of Columbia Public Service Commission
- 9 • Public Utility Commission of Texas
- 10 • Maryland Public Service Commission
- 11 • Corporation Commission of Oklahoma

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

14

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

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

19

20 **Q. ON WHOSE BEHALF ARE YOU APPEARING?**

21 A. GDS Associates, Inc., was retained by the Florida Office of Public Counsel
22 ("OPC") to review Florida Public Utilities Company's ("FPUC" or "Company")

1 proposed 2022-2031 Storm Protection Plan (“SPP” or “Plan”) on behalf of the
2 OPC. Accordingly, I am appearing on behalf of the Citizens of the State of Florida.

3

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

6 A. I am presenting my recommendations on behalf of OPC regarding FPUC’s
7 proposed 2022-2031 Storm Protection Plan. My testimony serves to refute the
8 testimony presented by Mr. P. Mark Cutshaw regarding the scope of the SPP
9 projects, and whether the programs and projects could qualify to be included in the
10 SPP.

11

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

14 A. I reviewed the Company’s filing, including the direct testimony and exhibits. I also
15 reviewed the Company’s responses to OPC’s and Staff’s discovery and other
16 materials pertaining to the SPP and its impacts on the Company. In addition, I
17 reviewed Section 366.96, Florida Statutes, which requires the filing of the SPP and
18 authorized the Commission to adopt the relevant rules, including Rule 25-6.030,
19 Florida Administrative Code ("F.A.C."), which addresses the Commission's
20 approval of a Transmission and Distribution SPP that covers a utility's immediate
21 10-year planning period, and Rule 25-6.031, F.A.C., which addresses the utilities
22 recovery of costs related to their SPPs.

23

1 **Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

2 A. I first discuss the purpose of storm hardening and a SPP as informed by Rule 25-
3 6.030, F.A.C., and criteria needed for storm hardening projects. I then discuss
4 principles to be applied when reviewing FPUC's proposed SPP. I also address the
5 level of spending by FPUC. Finally, I discuss my analysis of the new programs
6 proposed in the SPP, including principles that should be applied when reviewing
7 FPUC's proposed SPP. In the discussion of the principles I applied, I include
8 criteria that, in my expert opinion, the Commission must weigh to properly evaluate
9 the sufficiency of the SPP and each SPP program under the statutes and rules
10 governing the SPPs.

11 **I. THE REVIEW OF PURPOSE OF STORM HARDENING**

12 **Q. PLEASE DISCUSS SECTION 366.96, FLORIDA STATUTES.**

13 A. Section 366.96, Florida Statutes, addresses storm protection plan cost recovery for
14 investor-owned electric utilities. The purpose of storm hardening is to "effectively
15 reduce restoration costs and outage times to customers and improve overall service
16 reliability for customers."¹

17 The Florida Legislature has directed the Commission to consider "[t]he
18 estimated costs and benefits to the utility and its customers of making the
19 improvements proposed in the plan."² But there is no express ceiling or cap on the
20 magnitude of the upgrades or improvements contained in the SPP or on the rate
21 impact to the customers. Again, while the legislature left the ratemaking impact of
22 both of these considerations to the Commission's discretion it appears that they

¹ Section 366.96 (1)(d), Florida Statutes.

² Section 366.96 (4)(c), Florida Statutes.

1 gave the Commission direction and the tools to limit the utilities' spending in the
2 SPP and SPPCRC approvals. As part of my testimony, I will present some
3 recommended limits to the construction programs.

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

12
13 **Q. PURSUANT TO SECTION 366.96, FLORIDA STATUTES, THE**
14 **COMMISSION ADOPTED RULE 25-6.030, F.A.C. PLEASE DISCUSS**
15 **RULE 25-6.030, F.A.C., FROM YOUR PERSPECTIVE AS AN ELECTRIC**
16 **UTILITY DISTRIBUTION ENGINEER.**

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

³ Rule 25-6.030 (2)(a), F.A.C.

1 reducing restoration costs and reducing outage times associated with extreme
2 weather conditions . . . "4

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

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

12 Thus, there are two criteria that must be in each SPP project;

- 13 (1) Reduce restoration costs, and
14 (2) Reduce outage times.

15 Rule 25-6.030, F.A.C., requires utilities to provide budgets for programs
16 and to provide the estimated reduction in restoration costs.⁵ These amounts must
17 be balanced against the benefits to the utilities' customers. Further, the two amounts
18 will allow the Commission and stakeholders to understand the benefits of the
19 capital investments for storm hardening relative to the "reasonableness" of the
20 costs. Any program can claim to reduce outage costs and outage time; however,
21 the program must be cost effective for customers to benefit. To summarize, the

⁴ Rule 25-6.030 (2)(b), F.A.C.

⁵ Rule 25-6.030 (3)(d)(1), F.A.C.

1 Rules require a two-prong test for consideration of a program: reduction in outage
2 costs and reduction in outage time.

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

6 A. Yes. Hardening means to design and build components of the system to a strength
7 that would not normally be required. For instance, distribution poles per the
8 National Electrical Safety Code (“NESC”) need only be built based on loading
9 requirement of Rule 250B (60 MPH wind) and Grade C strength. Hardening would
10 specify poles to be built based on loading requirements of Rule 250C extreme wind
11 (120-140 MPH) and Grade B strength factors.⁶ By installing poles with greater
12 strength needed to meet this new design criteria, these hardened poles will reduce
13 restoration costs because there will be fewer pole failures and will reduce
14 restoration time because there will be fewer failed poles to repair.

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

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

1 due the superior ability of the non-wood poles to survive during extreme
2 windstorms.

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

7

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

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

19 While not proposed in FPUC's filing, the following is an example to
20 illustrate how utilities could expand the SPP programs if the Commission does not
21 adhere to the stringent the two-prong test for the program. For example, purchasing
22 a new replacement line truck which is more fuel efficient does not reduce outages.
23 It could be argued that it reduces outage costs by being more fuel efficient. Also,

1 since the truck is new one could argue that it is more reliable and therefore would
2 reduce outage times. However, this type of program does not reduce outages; it
3 does not strengthen or harden the system, and in my opinion would not meet the
4 requirements of the Statute.

5

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

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

18

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

22 A. Section 366.96, Florida Statutes, and Rule 25-6.030, F.A.C., provide no overt
23 governance regarding limitations to the costs of SPP programs. It is imperative that

1 the Commission consider guidelines to limit the magnitude of each program's costs
2 compared to its benefits. For this reason, and on behalf of the customers who must
3 bear these costs against the level of projected benefits, elsewhere in my testimony,
4 I propose my limits to projects for the Commission to consider in the public interest.
5

6 **Q. DID FPUC PROVIDE ANY SPECIFIC COST REDUCTION FOR THE**
7 **PROGRAMS PROPOSED IN THE 2022-2031 SPP?**

8 A. No. FPUC did not include any estimate of the cost reduction of the programs. Mr.
9 Cutshaw stated the FPUC's SPP included an estimate of the resulting reduction
10 outage times and restoration costs due to extreme weather conditions.⁷ This
11 information is specifically required by Rule 25-6.030(3)(d)1, F.A.C. The Rule
12 further requires a comparison of the costs of the programs and the benefits of the
13 programs.⁸ Without an estimate of the cost reduction for outages, it is impossible
14 for any party to make a judgment on prudence. FPUC acknowledged that the
15 Commission shall consider FPUC's SPP based on the estimated costs and benefits
16 to the utility and its customers of making improvements proposed in the plan.⁹ Mr.
17 Cutshaw states that the programs meet the statutory objective of reducing
18 restoration costs.¹⁰ Yet nowhere in the 2022-2031 SPP does FPUC provide
19 anything other than vague language about reducing restoration costs. In my
20 opinion, anyone can claim reduction in outage restoration costs, but in a regulatory
21 setting with the need to comply with specific statutes, it is necessary and expected

⁷ Direct Testimony of P. Mark Cutshaw, p. 8, lines 20-23.

⁸ Rule 25-6.030 (3)(d)3 and Rule 25-6.030 (3)(d)4, F.A.C.

⁹ FPUC's Petition for Approval of Storm Protection Plan, p. 4.

¹⁰ Direct Testimony of P. Mark Cutshaw, p. 4, lines 11-12.

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

3 **Q. DID FPUC PROVIDE ANY SPECIFIC REDUCTIONS IN OUTAGE TIMES**
4 **FOR THE PROGRAMS PROPOSED IN THE 2022-2031 SPP?**

5 A. No. FPUC did not include any estimate of the reduction in outage times. Even
6 though Rule 25-6.030 (3)(d)1, F.A.C., mandates “including an estimate of the
7 resulting reduction in outage times and restoration costs due to extreme weather
8 conditions.” I believe that the outage times should be monetized on a basis
9 consistent with the other utilities to help determine the benefits compared to the
10 costs of the proposed storm hardening programs. FPUC simply states in many of
11 the programs that “FPUC believes the Overhead Feeder Hardening program will
12 achieve the desired objectives outlined in Rule 25-6.030 of “reducing restoration
13 costs and outage times associated with extreme weather events and enhancing
14 reliability.”¹¹ This is inadequate for the Commission to make a proper
15 determination. There is no cost reduction estimate provided; only a statement of
16 belief by FPUC. In fact, FPUC used exactly the same statement for the Overhead
17 Feeder Hardening Program, Distribution Pole Inspection and Replacement
18 Program, Transmission Wood Pole Replacement Program, and T&D Vegetation
19 Management Program.

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

¹¹ See FPUC Storm Protection Plan, p. 26.

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1 A. I recommend that FPUC be required to amend their filing and provide the necessary
2 data for each program as required by Rule 25-6.030 F.A.C., with an opportunity for
3 intervenors to provide review and testimony.
4

5 **Q. DID YOU COMPARE THE 10-YEAR COSTS OF FPUC'S 2020-2029 SPP**
6 **AND ITS 2022-2031 SPP?**

7 A. No. FPUC's 2022-2031 SPP is the Company's first filing of an SPP so I was unable
8 to make a comparison to the budgets of a prior plan.
9

10 **Q. HAVE YOU COMPARED THE COSTS ON A PER RATEPAYER BASIS**
11 **FOR THE INVESTOR-OWNED UTILITIES WHO HAVE FILED SPP**
12 **PLANS?**

13 A. Yes. I looked at the ratio of capital spending to the number of customers for
14 FPUC's 2022-2031 SPP and the 10-year SPPs for the other electric utilities who
15 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		2023 SPP *	
		10-Year Capital \$Millions	2020 SPP \$/Customer	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

16
17 FPUC's spending per customer is extremely high when compared to the other
18 utilities in Florida. In fact, the spending on a per customer basis is more than 3.5

1 times higher than Tampa Electric, the next smallest utility. This higher cost per
2 customer will result in an excessive increase in rates for all FPUC customers.

3

4 **II. SUMMARY OF PROPOSED SPP REDUCTIONS**

5 **Q. CAN YOU SUMMARIZE YOUR PROPOSED REDUCTION IN FPUC'S**
6 **PROGRAMS?**

7 A. The table below summarizes my recommendations to reduce the 10-year SPP
8 capital budget by \$2.0 billion. These recommendations are detailed in the
9 testimony.

Capital	Total 2022-2031 SPP \$Millions	Reductions Proposed by Mara	Net 2022-2031 SPP \$Millions	Reason for Reduction
Distribution - OH Feeder Hardening	\$ 17.1	\$ -	\$ 17.1	
Distribution - OH Lateral Hardening	\$ 24.7	\$ (12.6)	\$ 12.1	Limit impact to customers
Distribution - OH Lateral Underground	\$ 63.3	\$ (31.1)	\$ 32.2	Limit impact to customers
Distribution - Pole Insp. & Replace	\$ 12.6	\$ -	\$ 12.6	
T&D - Vegetation Management	\$ -	\$ -	\$ -	
Future T&D Enhancements	\$ 30.0	\$ (30.0)	\$ -	Does not comply with Rule 25-6.030
Transmission / Substation Resiliency	\$ 86.1	\$ (86.1)	\$ -	Not prudent
Transmission - Inspection and Hardening	\$ 7.1	\$ -	\$ 7.1	
SPP Program Management	\$ 2.2	\$ -	\$ 2.2	
Total Capital	\$ 243.1	\$ (159.8)	\$ 83.4	

10

11 The reductions I am proposing will result in reducing the capital cost per customer
12 to \$2,528 which is still higher than most of the larger utilities in Florida.

1 **Q. IF LIMITS ARE PLACED ON THESE PROGRAMS, DOES THAT**
2 **REDUCE BENEFITS OF THE SPP?**

3 A. Yes, it does. However, the reduction in benefits must be balanced against the
4 impact to the rate payers. In fact, the United States is experiencing its worst
5 inflation in 40 years and consumers have seen steep increases in the price of gas
6 and groceries, as well as escalating electric bills specifically in Florida. Unless the
7 Commission acts to limit the expenditures, the unchecked spending on SPP
8 programs will result in an excessive burden on the ratepayers.

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

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

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

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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.							

1 **Q. YOU NOTE THAT EXPENSES RELATED TO HURRICANE DORIAN**
2 **ARE MOSTLY FOR PREPARATION AND STAGING. DOES FPUC**
3 **CLAIM THAT THEIR SPP WILL RESULT IN LESS PRE-STORM**
4 **STAGING THEREFORE REDUCING COSTS?**

5 A. No. I am not aware that any of the Florida utilities have committed to reducing the
6 number of contractors that the company pre-stages ahead of a storm due to
7 implementing its SPP programs. The SPP's do not claim to reduce costs in this
8 regard, but if the system is hardened, at some point a company should logically
9 spend less on pre-staging and would be expected to limit the amount of staging they
10 do ahead of a storm in conjunction with the SPP.

11 **III. THE REVIEW OF SPP PROJECTS**

12 **Q. CAN YOU DESCRIBE FPUC'S OVERHEAD LATERAL HARDENING**
13 **PROGRAM?**

14 A. Yes. This program is intended to upgrade certain laterals to NESC 250C Extreme
15 wind standards. The upgrades include replacement of deteriorated poles, relocation
16 of facilities to accessible areas, upgrade the conductor to one of higher tensile
17 strength, adequate BIL insulation, additional guying, environmental upgrades such
18 as avian protection and animal mitigation, and upgrading fuses to reclosers.¹² The
19 priority for laterals to be hardened is based on a Risk Resiliency Model.

20
21 **Q. CAN YOU DESCRIBE WHAT IS MEANT BY THE TERM LATERAL?**

¹² See FPUC Storm Protection Plan, p. 27.

1 A. Yes. The term lateral is critical to understanding the purpose of the Overhead
2 Lateral Hardening and Overhead Lateral Undergrounding. A distribution circuit
3 can be described as a combination of the mainline feeder with laterals stemming
4 off the mainline. The Overhead Feeder Hardening Program increases the strength
5 of the mainline feeder from the substation to some point along the circuit such as a
6 three-phase tie point with another circuit. Some describe the feeder as the first zone
7 of protection out of the substation, meaning the breaker in the substation will trip
8 for any fault in this zone of protection. Thus, hardening the first zone of protection
9 greatly reduces the chance of a structure failure during an extreme wind event. This
10 is important since failure of the mainline feeder results in all customers on the
11 feeder being without power. Laterals are taps off the mainline and FPUC has
12 approximately 575 miles of overhead lateral lines of which are 433 miles are single
13 phase lines.¹³ For FPUC's system a typical lateral can have upwards of 200 to 300
14 customers.¹⁴ These laterals can be single-phase taps or three-phase taps serving
15 residential neighborhoods or businesses. The Overhead Lateral Hardening
16 Program focuses on improving the condition of the laterals so they may withstand
17 an extreme wind event.

18
19 **Q. WHAT IS THE MAGNITUDE OF THE OVERHEAD LATERAL**
20 **HARDENING PROGRAM?**

¹³ See FPUC Storm Protection Plan, p. 27 and p. 28.

¹⁴ See FPUC Storm Protection Plan, p. 27.

1 A. The ten-year capital budget for the FPUC Overhead Lateral Hardening program is
2 \$24.75 million in the 2022-2031 SPP.¹⁵

3

4 **Q. DID FPUC PROVIDE ANY SPECIFIC VALUE FOR THE BENEFITS OF**
5 **THE OVERHEAD LATERAL HARDENING PROGRAM?**

6 A. No. Even though this data was required in the filing by Rule 25-6.030, F.A.C.,
7 FPUC failed to provide any estimates of cost reduction or estimates of outage
8 reduction times.¹⁶ FPUC referenced a report prepared by the Florida PSC entitled
9 *Review of Florida's Electric Utility Hurricane Preparedness and Restoration*
10 *Actions 2018*, dated July 2018. FPUC quoted the report as stating, "[h]ardened
11 overhead distribution facilities performed better than non-hardened facilities."¹⁷
12 However, there was no data presented in the Commission's report regarding lateral
13 hardening.¹⁸ The data demonstrating better performance was limited to feeder
14 hardening and therefore not directly applicable to this program for hardening
15 laterals.

16

17 **Q. DO YOU HAVE A RECOMMENDATION FOR THE OVERHEAD**
18 **LATERAL HARDENING PROGRAM?**

19 A. Yes. I recommend reducing the budget for the Overhead Lateral Hardening
20 program. I recommend a 10-year capital budget of roughly \$12.1 million.

¹⁵ See FPUC Storm Protection Plan, Appendix A, p. 44.

¹⁶ See FPUC Storm Protection Plan, p. 28.

¹⁷ See FPUC Storm Protection Plan, p. 28.

¹⁸ See Exhibit KJM-2, State of Florida Public Service Commission, *Review of Florida's Electric Utility Hurricane Preparedness and Restoration Actions 2018*, July 2018, p.29.

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1 Essentially my recommendation uses the same budgets proposed by FPUC for the
2 first 3 years (2022 to 2024) and then caps the annual spending for this program to
3 roughly \$1.5 million per year for the years 2025 to 2031. This recommended
4 budget is shown in the following table.

Overhead Lateral Hardening

Year	FPUC 2022 SPP \$millions	Recommended 2022 SPP \$millions
2022	0.06	0.06
2023	0.56	0.56
2024	0.98	0.98
2025	4.41	1.5
2026	1.80	1.5
2027	2.99	1.5
2028	3.17	1.5
2029	4.71	1.5
2030	3.46	1.5
2031	2.62	1.5
Total	24.76	12.1

5 The basis for the reduction is two-fold. First, FPUC has failed to
6 demonstrate that the benefits to FPUC’s customers outweighs the costs for
7 hardening overhead laterals. It is apparent from experiences in Florida that
8 hardened poles will reduce outage costs and outage times, but the extent that this is
9 true for this Overhead Lateral Hardening program is unknown. Second, the FPUC
10 overall 2022-2031 SPP has a very high cost per customer and will result in
11 excessive higher rates for ratepayers who are also experiencing high inflation
12 pressures. Accordingly, this FPUC proposal should be scaled back.

1 **Q. CAN YOU DESCRIBE FPUC’S OVERHEAD LATERAL**
2 **UNDERGROUNDING PROGRAM?**

3 A. Yes. This program is intended to address undergrounding of single phase overhead
4 electric facilities many of which are located in heavily vegetated areas,
5 environmentally sensitive areas, or in areas where hardening the overhead facilities
6 to NESC 250C Extreme wind standards is not practical.¹⁹ The priority for laterals
7 to be undergrounded is based on a Risk Resiliency Model, and specific priority will
8 be assigned to laterals on risk ranked feeders.²⁰

9

10 **Q. WHAT IS THE MAGNITUDE OF THE OVERHEAD LATERAL**
11 **UNDERGROUNDING PROGRAM?**

12 A. The 10-year capital budget for the Overhead Lateral undergrounding program is
13 \$63.35 million in the 2022-2031 SPP.²¹

14

15 **Q. DID FPUC PROVIDE ANY SPECIFIC VALUE FOR THE BENEFITS OF**
16 **THE OVERHEAD LATERAL UNDERGROUNDING PROGRAM?**

17 A. No. Even though this data was required in the filing by Rule 25-6.030, F.A.C.,
18 FPUC failed to provide any estimates of cost reduction or estimates of outage
19 reduction times.²² FPUC referenced a report prepared by the Florida PSC entitled
20 *Review of Florida’s Electric Utility Hurricane Preparedness and Restoration*
21 *Actions 2018*, dated July 2018. However, FPUC did not try to monetize the benefits

¹⁹ See FPUC Storm Protection Plan, p. 28.

²⁰ See FPUC Storm Protection Plan, p. 41.

²¹ See FPUC Storm Protection Plan, Appendix A, p. 44.

²² See FPUC Storm Protection Plan, p. 29.

of undergrounding laterals, thus it is not possible to compare the benefits to the cost of the program.

Q. DO YOU HAVE A RECOMMENDATION FOR THE OVERHEAD LATERAL UNDERGROUNDING PROGRAM?

A. Yes. I recommend reducing the budget for the Overhead Lateral Undergrounding program. I recommend a 10-year capital budget of roughly \$32.2 million. Essentially my recommendation uses the same budgets proposed by FPUC for the first 3 years (2022 to 2024) and then caps the annual spending for this program to roughly \$4.2 million per year for the years 2025 to 2031. This recommended budget is shown in the following table.

Overhead Lateral Undergrounding		
Year	FPUC 2022 SPP \$millions	Recommended 2022 SPP \$millions
2022	0.11	0.11
2023	1.09	1.09
2024	1.62	1.62
2025	6.23	4.2
2026	5.00	4.2
2027	8.52	4.2
2028	8.06	4.2
2029	6.44	4.2
2030	13.13	4.2
2031	13.13	4.2
Total	63.35	32.22

The basis for the reduction is two-fold. First, FPUC has failed to demonstrate the benefit to cost for overhead lateral undergrounding. It is apparent

1 from experiences in Florida that undergrounding laterals will reduce outage costs
2 and outage times but the extent this is true for this Overhead Lateral
3 Undergrounding program is unknown. Second, the FPUC overall 2022-2031 SPP
4 has a very high cost per customer and will result in excessive higher rates for
5 ratepayers who are also experiencing high inflation pressures.
6 Accordingly, this FPUC proposal should be scaled back.

7
8 **Q. CAN YOU DESCRIBE THE TRANSMISSION AND SUBSTATION**
9 **RESILIENCY PROGRAM?**

10 A. Yes. This program is intended to improve the electrical redundancy and resiliency
11 to Amelia Island through the construction of an additional 138 kV transmission
12 line, the upgrade of one of the 69kV transmission lines, and the construction of one
13 substation.²³ This work may include upgrades to existing substations.

14
15 **Q. WHAT IS THE PURPOSE OF THE NEW 138 KV TRANSMISSION LINE**
16 **CONTAINED IN THE TRANSMISSION AND SUBSTATION**
17 **RESILIENCY PROGRAM?**

18 A. Amelia Island is served by a 3.56-mile long FPUC owned double circuit 138 kV
19 transmission line. Approximately 1.1 miles is along a transmission right-of-way
20 and the remaining 2.46 miles is along a four-lane highway. FPUC is proposing a
21 new 138kV transmission line to provide redundancy to the existing double circuit
22 transmission line. The proposed new transmission line will be 8.72 miles of

²³ See FPUC Storm Protection Plan, p. 33.

1 overhead transmission line and 2.03 of 138kV submarine cable.²⁴ The majority of
2 the proposed route is not accessible by existing roads.²⁵

3 **Q. IS THIS NEW TRANSMISSION LINE NECESSARY FOR STORM**
4 **HARDENING?**

5 A. No. This new line is not necessary or prudent. The existing double circuit
6 transmission line is built on concrete poles with a few lattice steel towers at the
7 river crossing. FPUC states that the location of this transmission system makes
8 access to it very challenging.²⁶ However, the existing dual circuit transmission line
9 is adjacent to a four-lane highway providing better access than to most transmission
10 lines in Florida and the route has limited interference with trees along the majority
11 of the right-of-way. In addition, research by the Florida PSC found that very few
12 non-wood poles failed during hurricanes.²⁷ Thus by employing the good
13 maintenance practices as described in the FPUC 2022-2031 SPP, the existing
14 double circuit line will be hardened against extreme wind speeds of 120 mph with
15 Grade B strength factors.

16 **[BEGIN CONFIDENTIAL]** Based on the one-line diagram of the
17 transmission in the area, the two circuits feeding FPUC's substation on Amelia
18 Island extend from two different sources or have access to two different sources.
19 Thus, the need to build a third source to the island is not required.

²⁴ See FPUC Storm Protection Plan, p. 34.

²⁵ See FPUC's Response to OPC's First Request for Production of Documents.

²⁶ Direct Testimony of P. Mark Cutshaw, p. 11, line 15.

²⁷ See Exhibit KJM-2, State of Florida Public Service Commission, *Review of Florida's Electric Utility Hurricane Preparedness and Restoration Actions 2018*, July 2018, pp.29-30.

Further, the proposed new source is at Jacksonville Electric Authority's ("JEA") Yulee Substation. The existing configuration allows for Yulee Substation to be a source to FPUC's substation on Amelia Island via JEA's Nassauville Substation. So, a new transmission line only mitigates for failure of one of the dual circuit transmission poles and therefore adds little value since failure of these non-wood poles is very unlikely. **[END CONFIDENTIAL]**

Further, the proposed new 10.8 miles of new 138 kV transmission line and cable route is a very poor right-of-way which is why a submarine cable is proposed. The poles would be in low lying areas with no access roads currently in place. This line will access an alternate power source that is presently available to FPUC through JEA's transmission system and therefore adds no value under the standards of the SPP Statute and Rule.

Q. WHAT IS YOUR RECOMMENDATION FOR THIS PROJECT OF A NEW 138 KV TRANSMISSION LINE TO AMELIA ISLAND?

A. I recommend this project be excluded from the SPP because it is not a prudent investment. This recommendation is based on my review of the existing system configuration, access to the existing line, the fact that the existing line is relatively short with limited exposure and is built with 100% concrete poles and lattice steel tower specifically designed for extreme wind.

Q. WHAT IS THE PURPOSE OF THE UPGRADE OF THE 69 KV TRANSMISSION LINE AND THE UPGRADE TO AN EXISTING 69 KV

1 **SUBSTATION CONTAINED IN THE TRANSMISSION AND**
2 **SUBSTATION RESILIENCY PROGRAM?**

3 A. Specifically, FPUC proposes to upgrade 4.45 miles of 69 kV line including
4 reconductoring the line for increased capacity and construction of a new substation
5 interconnection to connect to a paper mill that has generation resources that could
6 be leveraged by FPUC during normal and emergency conditions.²⁸ Presently the
7 Eight Flags Energy CHP Plant, located at the Rayonier Advanced Materials plant
8 at Amelia Island, generates approximately 20 MW of base load power, producing
9 enough electricity to meet 50 percent of the island's demand. The plant operates
10 on natural gas provided by FPUC. The Rayonier Advanced Materials plant
11 purchases the steam and heated water from the CHP plant and FPUC purchases the
12 electricity for distribution to its retail electric customers in the area.²⁹ There is
13 another paper mill on the island with a CHP plant powered by coal,³⁰ although
14 based on limited scope of FPUC's filing and lack of time for discovery, it is unclear
15 if the proposed transmission line upgrade and new substation is for one or both of
16 these industrial sites.

17
18 **Q. ARE THE UPGRADED 69KV TRANSMISSION LINE AND NEW**
19 **SUBSTATION NECESSARY FOR STORM HARDENING?**

²⁸ See FPUC Storm Protection Plan p. 34.

²⁹ See Exhibit KJM-4, Fernandina Observer, *Eight Flags Energy combined heat and power plant (CHP) named best CHP project of 2016*, Suanne Thamm, December 22, 2016.

³⁰ See Exhibit KJM-5, U.S. Department of Energy Combined Heat and Power and Microgrid Installation Databases.

1 A. No. The 69 kV line already exists and is interconnected with an existing CHP plant.
2 This project will increase the capacity of the line to gain access to more electricity
3 from CHP generation. This type of power, which calls for increased investment to
4 access an alternate power source, is not a storm hardening issue. It is a power
5 supply hedging strategy which more appropriately belongs in a traditional rate case
6 in which the issues of the investment in capacity compared to the access of the
7 alternate power source can be vetted. I note that FPUC is not suggesting the paper
8 mill will contribute aid for the increase in capacity or storm hardening of the
9 substation. At no cost to it, the paper mill would enjoy access to a transmission
10 grid with more capacity to sell more electricity, a more robust transmission line for
11 the sale of electricity, and a new substation that meets FPUC storm hardening
12 measures.

13 Further, there is no analysis that suggests that the CHP will be operational
14 within 5-6 hours of a hurricane making landfall. For the CHP to aid in resiliency,
15 it must be viable with full capacity when needed. This is outside the control of
16 FPUC and outside the scope of the SPP Statute and Rule.

17

18 **Q. WHAT IS YOUR RECOMMENDATION FOR THIS UPGRADE OF THE**
19 **69KV TRANSMISSION AND SUBSTATION AT THE PAPER MILL?**

20 A. I recommend this project be excluded from the SPP. This project is not a storm
21 hardening project; it is an energy delivery/energy access project. The cost of the
22 transmission capacity increase and the new substation should have either
23 contribution-in-aid from the CHP owner or a clear analysis showing that the

1 investment in the new plant will be offset by the alternate energy resource. Further,
2 the cost of this plan as a storm hardening resource has not considered the fuel cost
3 and power purchase cost at critical times such within hours of a hurricane making
4 landfall.

5
6 **Q. WHAT IS YOUR RECOMMENDATION FOR THE TRANSMISSION AND**
7 **SUBSTATION RESILIENCY PROGRAM?**

8 A. The 10-year capital cost of this program is \$86.07 million, and I recommend that
9 two projects within the program be excluded from the SPP. The proposed 138 kV
10 transmission line through the low-lying area around Amelia Island is not a prudent
11 option when the existing transmission system is already hardened for extreme
12 weather. Also, the capacity increase for interconnection of a co-generation plant
13 needs to be analyzed from a power supply cost perspective and not based on storm
14 hardening, especially since there are no guarantees that the plant will be operational
15 when most needed by the FPUC.

16
17 **Q. CAN YOU DESCRIBE FPUC'S FUTURE TRANSMISSION AND**
18 **DISTRIBUTION ENHANCEMENTS PROGRAM?**

19 A. Yes, this program will, at some time in the future, include some kind of distribution
20 automation or smart grid technology which can create a self-healing system. A
21 Supervisory Control and Data Acquisition (SCADA) system will be part of these

1 future enhancements.³¹ Because this is a future program, specific costs and details
2 on the full deployment are not yet available.³²

3 **Q. DOES FPUC'S FUTURE TRANSMISSION AND DISTRIBUTION**
4 **ENHANCEMENTS PROGRAM REDUCE RESTORATION COSTS?**

5 A. No. This system does not reduce the number of outages. Instead, the system is
6 designed to limit the outage to the smallest segment of the system. For example, if
7 a fuse is added to a lateral and a tree falls on that lateral, the fuse opens and isolates
8 the failed portion of the system. Only a few customers are affected by the outage,
9 but the repair costs to remove the tree off the line and perhaps replace a pole are
10 the same whether a fuse is on the lateral or not. The smart grid as described by
11 FPUC is more complex but acts in a similar fashion except it uses automation to
12 switch and isolate outages to the smallest portion of the system. Thus, there is no
13 reduction in restoration costs for the smart grid system. In fact, FPUC failed to
14 provide any details of the proposed system and does not include any monetized
15 value for reduction in outage costs or reduction in outage times. Rather FPUC
16 provides flowery language that "[t]hese systems have been proven across the nation
17 at eliminating unnecessary outage impacts to unaffected customers ..." ³³ However,
18 FPUC has not determined what type of system they will install. If they install a
19 SCADA system only on Amelia Island, that system will not function as a fault
20 isolation system. Without any details about the type of system, or the actual

³¹ Direct Testimony of P. Mark Cutshaw, p. 12, lines 10-14.

³² See FPUC Storm Protection Plan, p. 35.

³³ See FPUC Storm Protection Plan, p. 36.

1 monetized benefits of the system, this program does not meet the requirements of
2 the Rule 25-6.030, F.A.C.

3 **Q. WHAT IS YOUR RECOMMENDATION REGARDING FPUC'S FUTURE**
4 **TRANSMISSION AND DISTRIBUTION ENHANCEMENTS PROGRAM?**

5 A. I recommend this program with a 10-year budget of \$30 million be eliminated from
6 FPUC's SPP because it fails to meet the two prong criteria established in Rule 25-
7 6.030(2)(a), F.A.C. Specifically, this program, which is ill-defined but generally
8 functions on a fault isolation system, does not reduce outage costs. The system
9 only reduces outage times.

10

11 **Q. DOES THIS COMPLETE YOUR PREFILED TESTIMONY?**

12 A. Yes, it does.

13