

1 **IN RE: STORM PROTECTION PLAN COST RECOVERY CLAUSE**

2
3 **FPSC DOCKET NO. 20210010-EI**

4 **DIRECT TESTIMONY OF SHARON BAUER**
5 **ON BEHALF OF DUKE ENERGY FLORIDA, LLC**
6

7 **MAY 3, 2021**
8

9 **I. INTRODUCTION AND QUALIFICATIONS.**

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

11 **A.**My name is Sharon K. Bauer. My current business address is 3300 Exchange
12 Place, Lake Mary, FL 32746.
13

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

15 **A.**I am employed by Duke Energy Florida, LLC (“DEF”) as General Manager,
16 Transmission Resources and Project Management.
17

18 **Q. What are your responsibilities as General Manager, Transmission Resources**
19 **and Project Management?**

20 **A.**My duties and responsibilities include the execution of capital projects for grid
21 upgrades, system planning, and Transmission asset management across Duke
22 Energy Florida.
23

1 **Q. Please summarize your educational background and work experience.**

2 **A.** I have a Bachelor of Science degree in Mechanical Engineering from Michigan
3 Technological University and a master's degree in Business Administration from
4 the University of Central Florida. I am a certified Project Management
5 Professional (“PMP”) from the Project Management Institute. Throughout my
6 21 years at Duke Energy, I have held various positions within distribution and
7 transmission ranging from Manager, Sr. Project Manager, Engineering
8 Manager, Director, and General Manager focusing on the planning and execution
9 of transmission capital projects. My current position as General Manager
10 of Transmission Projects began in November 2019.

11
12 **II. PURPOSE AND SUMMARY OF TESTIMONY.**

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

14 **A.** The purpose of my direct testimony is to support the Company’s request for
15 recovery of Transmission-related costs associated with DEF’s Storm Protection
16 Plan (“SPP”) through the Storm Protection Plan Cost Recovery Clause
17 (“SPPCRC”). My testimony supports the Company’s SPP costs incurred in 2020
18 and year to date 2021, details the Company’s 2020 through 2022 SPP
19 implementation activities along with projected costs through the remainder of
20 2021 and calendar year 2022, and explains how those activities and costs are
21 consistent with DEF’s SPP approved by the Commission in Docket No.
22 20200069-EI.

1 **Q. Do you have any exhibits to your testimony as it relates to January 2020**
2 **through December 2021 Transmission investments?**

3 **A.** No, but I am co-sponsoring portions of the schedules attached to Mr. Menendez's
4 direct testimony, included as part of Exhibit No. __ (CAM-1). Specifically, I am
5 sponsoring the 2021 Transmission-related project level information shown on
6 Schedule Form 5E (pages 6-7 of 49), the Transmission-related Projects on Form
7 7E (pages 10-11 of 49), the Program Description and Progress Report on Form 8E
8 (pages 45-48 of 49), and the cost portions of:

- 9 • Form 5E (Page 5 of 49, Lines 2 through 2b), and
- 10 • Form 7E (Pages 15-20 of 49, Lines 1a and 1b), which includes the 2020 spend
- 11 reflected in the Beginning Balance figures.

12
13 **Q. Do you have any exhibits to your testimony as it relates to January 2022**
14 **through December 2022 Transmission investments?**

15 **A.** No, but I am co-sponsoring portions of the schedules attached to Mr. Menendez's
16 direct testimony, included as part of Exhibit No. __ (CAM-2). Specifically, I am
17 sponsoring the Transmission-related project level information shown on Schedule
18 Form 2P (pages 20-22 of 84), the Projects on Form 3P (pages 13-15 of 84), and
19 the cost portions of:

- 20 • Form 2P (Page 2 of 84, Lines 2 through 2b), and
- 21 • Form 4P (Pages 50-58 and 78-79 of 84, Lines 1a and 1b).

22
23 **Q. Please summarize your testimony.**

1 A. In 2020, the Transmission Structure Hardening Program, specifically the wood to
2 non-wood pole replacement activities, incurred costs to procure material and
3 equipment and perform analytical and engineering work in preparation for the
4 work to be completed in 2021, these limited costs are consistent with paragraph
5 3(a) of the 2020 SPP/SPPCRC Agreement filed on July 17, 2020.¹ These
6 investments are shown in the beginning balances on Exhibit No. _ (CAM-1),
7 Schedule Forms 7E (pages 15-17 of 49) (Line 1a). DEF is not requesting recovery
8 of any of the 2020 revenue requirements associated with this spend and has
9 included these values in the SPPCRC rate base beginning in 2021 for
10 informational purposes only.

11 Additionally, I will present the transmission work presented in DEF's
12 Commission-approved SPP for years 2021 and 2022; the costs presented are
13 consistent with the estimates filed as part of DEF's SPP for these time periods.
14 These costs are also not being recovered through base rates or any other clause
15 mechanism, as such, they should be approved for recovery through the SPPCRC.

16
17 **III. OVERVIEW OF SPP PROGRAMS SOUGHT FOR CURRENT COST RECOVERY**

18 **Q. For what Transmission related SPP Programs and activities did DEF incur**
19 **costs during 2020?**

20 A. In 2020, the Transmisson Structure Hardening Program, specifically the wood to
21 non-wood pole replacement activity, incurred costs to procure materials (e.g.,
22 non-wood poles) and equipment and performed analytical and engineering work

¹ Document No. 03874-2020, Docket Nos. 20200069-EI and 20200092-EI.

1 in preparation for the work scheduled and planned to be undertaken in 2021.
2 DEF's SPP increases its investment in the wood pole replacement activities
3 associated with its Transmission Structure Hardening program to approximately
4 \$70.5M in 2021 and \$121.2M in 2022. In 2021 consistent with the 2020
5 SPP/SPPCRC Agreement paragraph 3(c), DEF will include an adjustment in the
6 SPPCRC to remove the revenue requirements associated with \$34.8 million of
7 pole replacement costs; any amount in excess of \$34.8 million will be eligible for
8 recovery through the SPPCRC.
9

10 **Q. How does DEF's 2020 actual spend amounts compare with the 2020**
11 **estimated spend for the Transmission Structure Hardening - Wood to Non-**
12 **wood pole replacement sub-program of the PSC-approved Storm Protection**
13 **Plan?**

14 **A.** Yes, DEF's actual 2020 spend was approximately \$2.2M for engineering and
15 materials related to projects planned to be completed in 2021, which is greater
16 than the estimated spend of \$1M; however, the difference represents a shifting of
17 expected 2021 costs into 2020. DEF had planned to receive the majority of the
18 materials needed for starting construction of first-quarter 2021 projects in January
19 of 2021. The Company was able to secure this material by December 2020, which
20 mitigated the risk of project delay. The \$2.2M of spend is shown in the beginning
21 balance on Exhibit No. _ (CAM-1), Schedule Form 7E, (pages 15-17 of 49) (Line
22 1a).

1 Consistent with the 2020 SPP/SPPCRC Agreement, these figures were included
2 for informational purposes only. DEF will not recover associated revenue
3 requirements on these particular 2020 investments through the SPPCRC and no
4 associated amount of O&M related to this Program was incurred nor requested for
5 recovery in 2020.

6
7 **Q. Describe the activities that will be performed for Transmission Structure**
8 **Hardening - Wood to Non-wood pole replacement activity and its related**
9 **costs?**

10 **A.** This activity will upgrade wood poles to non-wood material such as steel or
11 concrete. Wood pole failure has been the predominate structure damage to the
12 transmission system during extreme weather. This activity eliminates the potential
13 for damage from woodpeckers and wood rot. The new structures will be more
14 resistant to damage from extreme weather events. Other related hardware
15 upgrades will occur simultaneously, such as insulators, crossarms, switches, and
16 guys.

17 The 2021 O&M costs of \$1.3M are shown on Exhibit No. _ (CAM-1), Schedule
18 Form 5E (page 5 of 49), an amount of \$0.7M related to the \$34.8M of base work
19 has been removed from SPPCRC recovery. The Program's capital costs of
20 \$70.5M are shown on Exhibit No. _ (CAM-1), Form 7E (pages 15-17 of 49), and
21 an adjustment for the \$34.8M of base work has been removed from SPPCRC
22 recovery, shown on (Line 1c) of these pages. This adjustment is more fully
23 explained in Mr. Menendez's testimony, but only the amount in excess of what is

1 currently being recovered through base rates is included in the requested SPPCRC
2 recovery. This adjustment is not necessary after 2021.

3 The 2022 O&M costs of \$3.2M are shown on Exhibit No. _ (CAM-2), Schedule
4 Form 2P (page 2 of 84) (Line 2.1). The Program's capital costs of \$121.2M are
5 shown on Exhibit No. _ (CAM-2), Schedule Form 4P (pages 50-52 of 84). No
6 portion of this pole replacement activity is included in DEF's 2022 base rates.

7
8 **Q. Are there other Structure Hardening Transmission activities you expect to**
9 **incur costs for during 2021 and 2022?**

10 **A.** Yes. DEF will make additional Transmission related Structure Hardening
11 investments in the following activities: Tower Upgrade, Cathodic Protection,
12 Drone Inspections, Gang Operated Air Break ("GOAB"), Overhead Ground Wire
13 ("OHGW"), and Structure Inspections.

14
15 **Q. Please describe the Transmission Tower Upgrade activity and identify the**
16 **costs you expect to incur costs for during 2021 and 2022?**

17 **A.** The Tower Upgrade activities within the Structure Hardening Program will focus
18 on the replacement of towers identified through enhanced engineering
19 inspections; identified towers will be prioritized based on visual ground
20 inspections, aerial drone inspections, and data from cathodic protection
21 installations. This activity will improve the ability of the transmission grid to
22 sustain operations during extreme weather events by both reducing outages and
23 improving restoration times.

1 In 2021, DEF expects to incur approximately \$1.8M of total capital costs related
2 to this activity, as shown on Schedule Form 7E (pages 18 and 19 of 49) (Line 1a),
3 and an associated amount of O&M totaling approximately \$20K to this activity,
4 shown on Schedule Form 5E (page 5 of 49) (Line 2.2), in Exhibit No. __ (CAM-
5 1).

6 In 2022, DEF expects to incur approximately \$4.2M of total capital costs related
7 to this activity, as shown on Schedule Form 4P (pages 54 and 55 of 84) (Line 1a),
8 and an associated amount of O&M totaling approximately \$34K to this activity,
9 shown on Schedule Form 2P (page 2 of 84) (Line 2.2), in Exhibit No. __ (CAM-
10 2).

11
12 **Q. Please describe the Cathodic Protection activities and identify the costs you**
13 **expect to incur during 2021 and 2022?**

14 **A.** The Cathodic Protection activities included in the Structure Hardening Program
15 will mitigate active groundline corrosion on the lattice tower system and produce
16 site and soil corrosion classification. The site and soil classification will be used
17 to aid in condition-based maintenance and prioritization for proactive tower
18 replacements (as part of the Tower Upgrade activity). This activity installs passive
19 cathodic protection systems which are comprised of anodes on each leg of lattice
20 towers. The anodes serve as sacrificial assets that corrode in place of structural
21 steel, thereby preventing loss of structure strength to corrosion. This will help
22 reduce outages during extreme weather events by limiting the loss of base metal

1 and protecting leg strength on aged assets with protective zinc coatings that are
2 approaching their end of life.

3 In 2021, DEF expects to incur approximately \$1M of total capital costs related to
4 this activity, as shown on Schedule Form 7E (page 20 of 49) (Line 1a) and an
5 associated amount of O&M totaling approximately \$213K, shown on Schedule
6 Form 5E (page 5 of 49) (Line 2.3) in Exhibit No. __ (CAM-1).

7 In 2022, DEF expects to incur approximately \$1.6M of total capital costs related
8 to this activity, as shown on Schedule Form 4P (page 56 of 84) (Line 1a) and an
9 associated amount of O&M totaling approximately \$204K, shown on Schedule
10 Form 2P (page 2 of 84) (Line 2.3) in Exhibit No. __ (CAM-2).

11
12 **Q. Please describe the Gang Operated Air Break (“GOAB”) activities and**
13 **identify the costs you expect to incur during 2021 and 2022?**

14 **A.** The GOAB line switch automation activity will upgrade switch locations with
15 modern switches enabled with communication and remote-control capabilities
16 that will add resiliency to the transmission system. The GOAB upgrade increases
17 the number of remote-controlled switches to support faster isolation of trouble
18 spots on the transmission system and more rapid restoration following line faults.
19 The GOAB automation project will begin in 2022. DEF expects to incur
20 approximately \$2.5M of total capital costs related to this activity, as shown on
21 Schedule Form 4P (page 53 of 84) (Line 1a), and an associated amount of O&M
22 totaling approximately \$14K, shown on Schedule Form 2P (page 2 of 84) (Line
23 2.5) in Exhibit No. __ (CAM-2). The cash flow for this project will be straight-

lined for now until the projects flow through our normal process of Development, schedule refinement and construction scheduling.

Q. Please describe the Overhead Ground Wire (“OHGW”) activities and identify the costs you expect to incur costs for during 2021 and 2022?

A. Florida is known for a high concentration of lightning events, which continually stress the existing grid protection. Deteriorated overhead ground wire reduces the protection of the conductor and exposes the line to repeated lightning damage and risk of failure impacting the system. This initiative will also reduce the safety risk due to the required removal of OHGW prior to any restoration work on the system. By targeting deteriorated OHGW on lines with high lightning events, the benefit of this activity will be maximized.

The OHGW project will begin recovery through the SPPCRC in 2022. DEF expects to incur approximately \$4.5M of total capital costs related to this activity, as shown on Schedule Form 4P (pages 57 and 58 of 84) (Line 1a), and an associated amount of O&M totaling approximately \$0.1M to this activity, shown on Schedule Form 2P (page 2 of 84) (Line 2.6) in Exhibit No. __ (CAM-2). The cash flow for this project will be straight-lined for now until the projects flow through our normal process of development, schedule refinement, and construction scheduling.

Q. Please describe the Tower Drone Inspections activities and identify the costs you expect to incur during 2021 and 2022?

1 **A.** The Drone Inspection activities included in the Structure Hardening Program will
2 identify otherwise difficult to see structure, hardware, or insulation vulnerabilities
3 through high resolution imagery. DEF is incorporating drone patrols into the
4 inspections because drones have the unique ability to provide a close vantage
5 point with multiple angles on structures that is unattainable through aerial or
6 ground patrols with binoculars.

7 DEF does not expect to incur any capital costs related to this activity in 2021 or in
8 2022.

9 In 2021 an amount of O&M totaling approximately \$0.1M related to this activity
10 is shown on Schedule Form 5E (page 5 of 49) (Line 2.4) in Exhibit No. __ (CAM-
11 1).

12 In 2022, an amount of O&M totaling approximately \$0.1M related to this activity
13 is shown on Schedule Form 2P (page 2 of 84) (Line 2.4) in Exhibit No. __ (CAM-
14 2).

15
16 **Q.** **Please describe the non-drone Structure Inspections activities and identify**
17 **the costs you expect to incur during 2021 and 2022?**

18 **A.** The transmission system's inspection activities include all types of structures, line
19 hardware, guying, and anchoring systems. Inspections include:

- 20 • Aerial helicopter Transmission Line Inspections
- 21 • Wood Pole Line Patrols
- 22 • Wood Pole Sound and Bore Line Patrol – 8-year cycle
- 23 • Non-wood Structure Line Patrols – 6-year cycle

1 DEF does not expect to incur any capital costs related to this activity in 2021 or in
2 2022.

3 In 2021 the O&M related to this activity is not shown in Exhibit No. __ (CAM-1),
4 these costs are collected in base rates in 2021.

5 In 2022, an amount of O&M totaling approximately \$0.4M related to this activity
6 is included in the \$3.2M shown on Schedule Form 2P (page 2 of 84) (Line 2.1), in
7 Exhibit No. __ (CAM-2).

8
9 **Q. In addition to the Structure Hardening Programs, what other Transmission**
10 **related SPP Programs and activities you expect to incur costs for during 2021**
11 **and 2022?**

12 **A.** DEF will make other Transmission related investments in the Substation
13 Hardening and Vegetation Management Programs. The activities and costs related
14 to Transmission Vegetation Management, are addressed in the testimony of Mr.
15 Adams.

16
17 **Q. Please describe the Substation Hardening activities and identify the costs you**
18 **expect to incur during 2021 and 2022?**

19 **A.** The Substation Hardening Program started as part of DEF's Grid Investment Plan
20 which was partially funded through the 2017 Revised and Restated Stipulated
21 Settlement Agreement. DEF plans to continue this program through the SPP. The
22 Substation Hardening program will focus on replacing oil breakers with state-of
23 the-art gas or vacuum breakers to mitigate the risk of catastrophic failure and

1 extended outages during extreme weather events and upgrading electromechanical
2 relays to digital relays which will provide communications and enable DEF to
3 respond and restore service more quickly after extreme weather events.

4 In 2021, DEF will continue its Substation Hardening activities under the 2017
5 Revised and Restated Stipulated Settlement Agreement and collect the 2021 costs
6 through base rates.

7 In 2022, DEF expects to incur approximately \$7.5M of total capital costs related
8 to this activity, as shown on Schedule Form 4P (pages 78 and 79 of 84) (Line 1a)
9 in Exhibit No. __ (CAM-2). The cash flow for this program will be straight-lined
10 for now until the projects flow through our normal process of Development,
11 schedule refinement and construction scheduling.

12 No O&M is expected to be incurred for this program.

13
14 **Q. Are the Programs and activities discussed above consistent with DEF's SPP?**

15 **A.** Yes, the activities are consistent with the Programs described in detail in DEF's
16 SPP, specifically Exhibit No. __ (JWO-2) in Docket No. 20200069-EI, filed on
17 April 10, 2020, subsequently updated on June 24, 2020.

18
19 **Q. Would you please provide a summary of the costs associated with the**
20 **Programs and activities discussed above?**

21 **A.** Yes, please refer to the table below that represents the SPP investments made in
22 2020 through February 2021 and projected for the remainder of 2021 and 2022.

<i>(\$ Millions)</i>	2020	2020	2020
SPP Program	Capital	O&M	Total
Structure Hardening	\$2.2	\$0.0	\$2.2

<i>(\$ Millions)</i>	2021	2021	2021
SPP Program	Capital	O&M	Total
Structure Hardening	\$73.3	\$1.7	\$75.0

<i>(\$ Millions)</i>	2022	2022	2022
SPP Program	Capital	O&M	Total
Structure Hardening	\$134.0	\$3.7	\$137.7
Substation Hardening	\$7.5	\$0.0	\$7.5
T -Vegetation Management	\$10.9	\$11.5	\$22.4
Total	\$152.4	\$15.2	\$167.6

Q. Would you please provide a summary of any observed true-up variances including changes in the utility's prices of services and/or equipment, changes in the scope of work relative to the estimates provided pursuant to implementation of the approved Storm Protection Plan?

A. Through February 2021, the projected Capital and O&M costs for services and equipment associated with the Pole Replacement activity within the Structure Hardening Program has shown lower costs per pole than was originally submitted in the approved SPP. Therefore, DEF expects to be able to replace more poles in 2021 while maintaining the same Capital budget. The lower costs are a result of a refinement of estimates, increased use of internal Duke Energy crews, and a lower cost of materials than estimated in the initial filing. DEF has also identified efficiencies associated with O&M cost originally submitted for this activity.

DEF has developed a 2022 workplan in line with the criteria outlined in Exhibit Nos. (JWO-1) and (JWO-2) filed in Docket No. 20200069-EI. DEF has budgeted

1 to replace more units in 2022 while maintaining the same Capital spend and
2 decreasing O&M funding projections originally submitted under the Pole
3 Replacement activity within the Structure Hardening Program. This projection is
4 a result of the lower costs per pole shown through February 2021.

5 DEF is projecting a revised number of units to be replaced under the Substation
6 Hardening Program in 2022. The revised unit count is a result of a refinement of
7 specific locations, scope and estimates.

8
9 **Q. Describe steps or programs DEF has taken during SPP initiation to ensure**
10 **timely work completion and efficiency.**

11 **A.** DEF selects locations with the greatest opportunity for reliability improvement
12 using the priority methodology previously outlined in Exhibit No. (JWO-2) in
13 Docket No. 20200069-EI. DEF also targets opportunities for efficiencies by
14 assigning projects to internal crews and contractors located strategically allowing
15 crews to relocate to adjacent work locations, when impediments like maintenance
16 of traffic, permitting, or outage scheduling impacts their ability to complete a
17 specific scope.

18
19 **Q. Does this conclude your testimony?**

20 **A.** Yes, it does.