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DEF’s Response to Staff's First Set of Interrogatories Nos. 1-6

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Review of Storm Protection Plan, pursuant to Rule 25-6.030, F.A.C., Duke Energy Florida, LLC.	DOCKET NO. 20220050-EI DATED: MAY 25, 2022

DUKE ENERGY FLORIDA, LLC'S
RESPONSE TO STAFF'S FIRST INTERROGATORIES (NOS. 1-6)

Duke Energy Florida, LLC ("DEF") responds to the Staff of the Florida Public Service Commission's ("Staff") First Set of Interrogatories to DEF (Nos. 1-6) as follows:

INTERROGATORIES

Please refer to the direct testimony of DEF's witness Howe for the following question.

1. Please refer to page 7. Witness Howe testified that project execution experience had resulted in updates to the modelling used to identify and prioritize projects within Programs. The witness used the decrease in the number of projects for the Substation Hardening Program as an example. Please identify each program where updates to the modeling occurred and explain how that affected the prioritization or changed the number of projects.

Response:
DEF and Guidehouse performed holistic data and modeling updates, which supported all programs' prioritization and evaluation. The list of updates is as follows:

Data updates:
- Updated GIS snapshot
- Updated Maximo extract
- Updated Outage Management System data
- Updated asset inspection data
- Updated grid characteristics for circuits, substations, and transmission lines
- Updated TUG target branches based on outage history
- Revised program budgets
- Updated unit cost estimates
- Updated customer counts by class and location
- Historical weather data extended through 2021
- Updated storm surge frequencies

Modeling Updates:

- Improved data cleaning - e.g., remove duplicate entries from asset databases
- Improved incorporation of blue-sky outage history into the Benefit-Cost Analysis (BCA)
- For substations, Maximo TBIR 501 report used instead of GIS
- Already completed and 2022-proposed projects removed from eligible project list
- Normalized conductor failures to a per-length basis instead of per-asset
- Improved calculation for number of branches, which affects Lateral Hardening benefits
- Improved accounting for previously deployed Self-Healing Team reclosers within the SOG program
- Expanded SOG eligibility (inclusion of circuits with existing self-healing capability, but whose capability is less that of fully deployed SOG assets)
- Re-calibration of failure probabilities for Substation Flood Mitigation program
- Three priority levels (instead of two) for the Transmission Wood Pole Program
- GOAB unit costs specified by moderate vs. high complexity
- Improved GOABs benefits calculation.

Please refer to the direct testimony of DEF's witness Lloyd for the following questions.

2. Feeder Hardening Program. Please refer to Exhibit BML-2, page 9.
   a. Please explain why the total estimated operation and maintenance (O&M) cost decreased to $103 million for the program.

   Response:

   On July 29, 2021, FERC approved DEF's request for a limited duration (August 2021-December 2032) waiver of the accounting requirements of Account 593, Maintenance of Overhead Lines, for anticipated costs related to the transfer of existing plant to new storm-hardened distribution plant associated with DEF's Storm Protection Plan. Costs related to the transfer of conductor and other utility assets from existing poles to new, storm-hardened distribution poles will be capitalized. Therefore, this waiver decreased the Feeder Hardening program's O&M costs.

3. Lateral Hardening Program. Please refer to Exhibit BML-2, page 18.
   a. Please explain why the length of the Lateral Hardening Program was extended to 40 years to complete.
   b. Please explain the reason for the continual yearly increase in the lateral hardening costs and total units.

   Response:

   a. The estimated length of the Lateral Hardening Program was extended to approximately 40 years to complete due to a reduction in annual targets for the Lateral Hardening Underground portion of SPP 2023-2032 compared to SPP 2020-2029. As DEF has initiated projects in more customer dense areas, the projects have increased in complexity and duration due to a higher ratio of underground cable installed to overhead conductor removed and higher customer engagement needs. The increased complexity of these projects makes it more challenging to complete higher volumes each year and is the main

driver of the extension of the program. To a lesser extent, unit targets were lowered in 2024 and 2025 to allow for higher unit targets in the Self-Optimizing Grid program.

b. The continual increase in the Lateral Hardening costs and total units is driven by the steady increase in the number of projects that are targeted for completion to allow DEF to ramp up engineering, project management and construction resources to meet the requirements of Rule 25-6.030. However, this ramp up does level out in 2026.

4. Feeder Hardening Program/Lateral Hardening Program. Please refer to page 8 and Exhibit BML-2, pages 15-16. Taking into account the discussed shift in volume between the Feeder Hardening Program and the Lateral Hardening Program, please identify the updated projections for the number of SPP projects to be completed and the number of miles to be hardened for each program.

Response:
The shift in volume described in Mr. Lloyd's direct testimony currently only applies to 2023 as DEF has not yet selected specific projects for years 2024 or 2025. The table below represents 2023 information as filed in DEF's SPP 2023-2032.

Program	SPP Projects	Miles to be Hardened
Feeder Hardening	53	170
Lateral Hardening Overhead	61	70
Lateral Hardening Underground	54	92

5. Self-Optimizing Grid Program. Please refer to page 28.
   a. Please explain why the completion date for the Self-Optimizing Grid Program was moved forward to 2025.
   b. Please explain whether DEF will retire the Self-Optimizing Grid Program from its SPP following its completion in 2025.

Response:

a. The Self-Optimizing Grid program provides a high benefits-to-cost ratio, resulting in large overall reliability improvements to DEF customers per capital deployed. The completion date was moved forward from 2027 to 2025 to allow the expected benefits to be realized sooner.
b. Following the planned completion of the Self-Optimizing Grid program in 2025, DEF will have met the intent of the program of having the majority of DEF's customers on fully self-optimizing circuits and all DEF customers on circuits with automated switching

capabilities. Whether there are further hardening improvements that could be undertaken under the umbrella of the SOG program will be evaluated when DEF prepares its next SPP update (2026-2035).

Please refer to the direct testimony of DEF's witnesses Lloyd and Menendez, Exhibit BML-1 for the following question.

6. Please fill out the following table with the O&M and capital amounts of the revenue requirements for each of the respective SPP programs.

	Actual		Estimated										
Capital	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Distribution Feeder Hardening													
Distribution Lateral Hardening													
Distribution Self-Optimizing Grid													
Distribution Underground Flood Mitigation													
Transmission Structure Hardening													
Transmission Substation Flood Mitigation													
Transmission Loop Radially Fed Substations													
Transmission Substation Hardening													
Distribution Vegetation Management													
Transmission Vegetation Management													
O&M													
Distribution Feeder Hardening													
Distribution Lateral Hardening													
Distribution Self-Optimizing Grid													
Distribution Underground Flood Mitigation													
Transmission Structure Hardening													
Transmission Substation Flood Mitigation													
Transmission Loop Radially Fed Substations													
Transmission Substation Hardening													
Distribution Vegetation Management													
Transmission Vegetation Management													

Response:
Please see document "Staffs 1ST ROG DR 1-6" bearing bates numbers 20220050-DEF-006172
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	Actual		Estimated										
Capital	2020 (SPPASR)	2021 (SPPASR)	2022 (2022 SPPCRC)	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Distribution Feeder Hardening	$ -	$ 1,883,399	$ 7,401,806	$ 19,879,255	$ 40,228,874	$ 58,910,543	$ 80,430,774	$ 105,903,549	$ 130,592,859	$ 154,498,705	$ 177,621,085	$ 199,960,001	$ 221,515,452
Distribution Lateral Hardening	$ -	$ 275,392	$ 6,915,816	$ 30,649,321	$ 54,475,161	$ 81,019,824	$ 119,291,796	$ 154,604,937	$ 188,961,140	$ 222,360,404	$ 254,802,730	$ 286,288,118	$ 316,816,567
Distribution Self-Optimizing Grid	$ 3,604,991	$ 3,212,496	$ 2,902,222	$ 10,822,419	$ 20,649,878	$ 34,193,733	$ 44,363,111	$ 43,414,228	$ 42,465,345	$ 41,516,463	$ 40,567,580	$ 39,618,697	$ 38,669,815
Distribution Underground Flood Mitigation	$ -	$ -	$ 28,348	$ 98,539	$ 200,705	$ 353,365	$ 517,694	$ 678,315	$ 835,229	$ 988,434	$ 1,137,931	$ 1,283,720	$ 1,425,802
Transmission Structure Hardening	$ 1,564,056	$ 2,729,513	$ 7,382,403	$ 17,196,453	$ 28,667,673	$ 40,669,181	$ 52,955,922	$ 64,952,176	$ 76,660,420	$ 88,080,654	$ 99,212,877	$ 110,057,090	$ 120,613,292
Transmission Substation Flood Mitigation	$ -	$ -	$ -	$ 116,395	$ 422,294	$ 696,969	$ 967,075	$ 1,232,611	$ 1,493,578	$ 1,749,976	$ 2,001,804	$ 2,249,063	$ 2,491,752
Transmission Loop Radially Fed Substations	$ -	$ -	$ -	$ -	$ -	$ 377,351	$ 1,126,228	$ 1,863,453	$ 2,589,025	$ 3,302,946	$ 4,005,214	$ 4,695,830	$ 5,374,793
Transmission Substation Hardening	$ 189,219	$ 218,041	$ 138,691	$ 866,800	$ 1,602,787	$ 2,501,232	$ 3,494,437	$ 4,471,804	$ 5,433,333	$ 6,379,024	$ 7,308,877	$ 8,222,892	$ 9,121,069
Distribution Vegetation Management	$ 115,316	$ 94,919	$ 118,169	$ 321,747	$ 532,402	$ 748,773	$ 967,237	$ 1,187,857	$ 1,410,698	$ 1,635,826	$ 1,863,310	$ 2,093,220	$ 2,325,630
Transmission Vegetation Management	$ 330,945	$ 521,850	$ 375,897	$ 1,305,282	$ 1,968,681	$ 2,780,285	$ 3,605,725	$ 4,442,127	$ 5,292,619	$ 6,154,749	$ 7,031,811	$ 7,921,230	$ 8,826,467
O&M													
Distribution Feeder Hardening	$ -	$ 2,504,866	$ 2,633,726	$ 4,626,121	$ 3,754,865	$ 4,229,221	$ 5,285,847	$ 5,285,847	$ 5,285,847	$ 5,285,847	$ 5,285,847	$ 5,285,847	$ 5,285,847
Distribution Lateral Hardening	$ -	$ -	$ 6,288,273	$ 5,708,129	$ 6,473,074	$ 7,036,342	$ 7,725,591	$ 7,725,591	$ 7,725,591	$ 7,725,591	$ 7,725,591	$ 7,725,591	$ 7,725,591
Distribution Self-Optimizing Grid	$ 1,497,219	$ 1,678,596	$ 1,913,396	$ 2,339,715	$ 4,215,154	$ 4,215,488	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Distribution Underground Flood Mitigation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Structure Hardening	$ 915,776	$ 1,260,458	$ 2,621,793	$ 1,989,969	$ 2,417,557	$ 2,485,690	$ 2,477,115	$ 2,477,115	$ 2,477,115	$ 2,477,115	$ 2,477,115	$ 2,477,115	$ 2,477,115
Transmission Substation Flood Mitigation	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Loop Radially Fed Substations	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Transmission Substation Hardening	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Distribution Vegetation Management	$ 43,122,831	$ 42,478,762	$ 44,205,817	$ 45,129,849	$ 46,452,008	$ 47,805,621	$ 49,399,115	$ 50,871,648	$ 52,388,645	$ 53,591,462	$ 55,561,500	$ 57,220,201	$ 58,929,055
Transmission Vegetation Management	$ 5,284,022	$ 7,105,441	$ 8,683,539	$ 8,304,980	$ 9,251,986	$ 8,802,260	$ 8,825,693	$ 8,402,880	$ 9,354,263	$ 8,912,935	$ 9,914,604	$ 9,453,969	$ 10,508,516
Annual Revenue Requirements	$ 56,624,375	$ 63,963,735	$ 91,609,894	$ 149,354,975	$ 221,313,098	$ 296,825,879	$ 381,433,360	$ 457,514,138	$ 532,965,708	$ 604,660,130	$ 676,517,876	$ 744,552,585	$ 812,106,764

Notes:
2020 Actual amounts were derived from Capital and O&M and using same assumptions provided in 2020 SPP ASR filed on June 1, 2021 to estimate program revenue requirements
2021 Actual amounts were derived from Capital and O&M and using same assumptions provided in 2021 SPP ASR to be filed on June 1, 2022 to estimate program revenue requirements
2022 Estimated Figures provided from DEF's Estimated/Actual 2022 SPPCRC filed on May 2, 2022 in Docket No. 20220010-EI
2023-2032 Estimated Figures provided from DEF's 2023 SPP filed on April 11, 2022 in Docket No. 20220050-EI
Feeder Hardening engineering began in 2020 with construction beginning in 2021 and Lateral Hardening engineering began in 2021 with construction beginning in 2022