70

DEF’s Response to OPC's Third Set of Interrogatories Nos. 66-84

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 FILED: May 17, 2022

DUKE ENERGY FLORIDA, LLC'S RESPONSE TO CITIZENS' THIRD SET OF INTERROGATORIES (NOS. 66-84)

Duke Energy Florida, LLC ("DEF") responds to the Citizens of the State of Florida, through the Office of Public Counsel's ("Citizens" or "OPC") Second Set of Interrogatories to DEF (Nos. 66-84) as follows:

INTERROGATORIES

66. Please describe the historical evolution of DEF's investment in the "Self– Optimizing Grid."

Response:
DEF's evolution to SOG started with the installation of simple Self-Healing Teams in 2015 and continued through to the installation of the first Self-Optimizing Grid team in 2017; cost for this work was recovered through base rates. This installation in 2017 was the first to utilize the Self-Optimizing Grid Criteria which allows the system to locate and isolate faults in smaller sections of the grid before automatically reconfiguring the system to reduce impact from an outage. The program continued under the 2017 Settlement Agreement from 2018-2021. As approved in DEF's 2020 to 2029 Storm Protection Plan in Docket No. 20200069-EI, DEF transitioned the Self-Optimizing Grid program to the Storm Protection Plan as the program meets the criteria of rule 25-6.030, F.A.C. and costs from the program were transitioned to the SPPCRC in 2022.

67. Please describe the historical evolution of Duke Energy Corporation's (NTSE:DUK) investment in the "Self– Optimizing Grid."

Response:
In 2009, self-healing teams were introduced in Duke Energy Ohio (DEO). The concept of the simple self-healing team was to help reduce the number of customers experiencing an outage on a circuit by restoring power to customers on the un-faulted section of a circuit. The simple self-healing team installations expanded to Duke Energy Carolinas (DEC) and Duke Energy Indiana

(DEI) in 2012, Duke Energy Kentucky (DEK) in 2013, and Duke Energy Progress (DEP) in 2014, and then to Duke Energy Florida (DEF) in 2015. Self-healing teams were being installed across the enterprise but the number of customers that experienced an outage still tended to be high due to the number of customers on a faulted line segment. The simple self-healing teams also had limited ability to reroute and rapidly restore power to customers. In 2016, Duke Energy Corp. (Duke Energy) determined that the enterprise as a whole needed to do more to deliver on customer expectations to deliver greater reliability improvements. Duke Energy determined that it would be necessary to make the appropriate investments to transform the grid, making strategic improvements to power an improved smart-thinking grid that would be more reliable, more resilient, and built to meet the energy needs of customers today and into the future. These transformational characteristics were turned into actionable guidance across the Duke Energy enterprise. Duke Energy developed application guidance for the Self-Optimizing Grid (SOG) to transition legacy circuits into switchable feeder segments. In 2017, the first SOG team was installed as a pilot in Duke Energy Florida (DEF). Duke Energy scaled up the deployments of SOG in all jurisdictions and plans to continue deploying SOG across the enterprise into the future.

68. Please identify all documents developed by you or for you describing the "Self– Optimizing Grid" for the purpose of gaining management and Duke Energy Corporation's Board of Directors approval. This request includes documents pertaining to DEF's affiliated electric utilities if such documents(s) discuss, evaluate, or recommend any level of a Duke Energy Corporation company– wide effort or proposal to deploy the "Self–Optimizing Grid" in multiple jurisdictions.

Response:

1. Self-Optimizing Grid Application Guide
2. The Road Ahead - Shaping the Future: SOG Grid of the Future
3. The Smart Thinking Grid 1-Pager Explanation and Benefits by Jurisdiction
4. DEF Storm Protection Plan 2020-2029, Docket No. 20200069-EI, Exhibits JWO-1 and JWO-2

69. Please describe all instances where you recommended or proposed that a "Self– Optimizing Grid" should be implemented solely because it would be eligible for recovery through the SPPCRC. Please identify all documents supporting each such instance of recommendation or approval, if any.

Response:

DEF has no instances where a "Self-Optimizing Grid" would solely be implemented based upon recovery through the SPPCRC. In fact, the Self-Optimizing Grid program was initiated in 2017 under other recovery mechanisms, base rates in 2017 and the 2017 Settlement Agreement from 2018 to 2021. DEF transitioned the Self-Optimizing Grid program to the Storm Protection Plan following the creation of the rule as the program meets the criteria of a program under rule 25-6.030.

70. Please identify each instance where you recommended or proposed to increase the scope of or the investment in the "Self–Optimizing Grid" solely because of the proposal for or establishment of the SPPCRC.

Response:
DEF has not recommended or proposed to increase the scope of investment in the "Self-Optimizing Grid" above any previous established plans based solely on the establishment of the SPPCRC. DEF's Self-Optimizing Grid program began as a pre-scale deployment in 2016 and had full scale deployment beginning in 2017. The plan for the Self-Optimizing Grid program since its inception has been to have approximately 80% of the distribution feeders on the DEF system with the ability to automatically reroute power around damaged line sections and 100% of the distribution feeders will have automated switching capability.

71. In preparing your SPP, what measures have you implemented, or do you intend to implement in order to drive efficiencies in the costs to be incurred under the SPPCRC.

Response:

As described in Witness Lloyd's direct testimony in Docket No. 20210010-EI, DEF's distribution team has implemented measures that allow it to have "greater engineering oversight, more efficient design, and better project controls which will allow for streamlined customer communications, reduced service disruptions and mitigate repeat site visits. DEF construction resources will be more efficient and effective by concentrating work in a targeted area, allowing crews to move to nearby or adjacent work locations when impediments like maintenance of traffic or outage scheduling impact their ability to complete a specific scope."

As described in Witness Howe's direct testimony in Docket No. 20210010-EI, DEF's transmission team has implemented measures that allow it to implement targeted optimization which "provides synergies to minimize disruptions to DEF's communities and customers, improve resource utilization and efficiency, and reduce the cost of execution. DEF continuously works to identify efficiencies and other available means to lower costs related to all Programs. If efficiencies can be identified and costs lowered, those lower costs may allow for DEF to identify and complete additional Program scope within the Planning horizon."

72. Describe how the O&M efficiency measures you announced or discussed in public or private to investors or to analysts apply to O&M expenditures that you intend expect to make under the SPP. Please identify the documents describing such measures and explaining how they apply to SPP programs and projects.

Response:
DEF addressed efficiency measures in response to Q71 and in the direct testimonies of DEF Witnesses Lloyd and Howe. All parts of the Company are watching key economic indicators such as moderating GDP growth, rising inflation and supply chain constraints. Duke Energy will activate agility measures and leverage size and scale to counteract rising costs and secure necessary materials through vendor relationships, advanced ordering, and other measures. This work will continue for all aspects of the business to control O&M costs, to secure the materials and services DEF needs to execute the plan.

73. Are the O&M expenditures you make that are subject to pass-through clause recovery in Florida included in, or subject to, any company-wide cost control or efficiency measure that you have publicly announced or discussed in public or private to investors or to analysts? If the answer is yes, describe the cost control or efficiency measure.

Response:
Yes, all company-wide cost control measures are used on all work regardless of pass-through eligibility. For example, Duke Energy has a company-wide policy that competitive bids are required for all purchases equal to or greater than $250,000. By requiring competitive bids on projects larger than $250,000, Duke Energy ensures that it is paying fair, open market pricing for all work and material.

74. Are the type of storm restoration costs that are included in or considered in your cost and benefit comparisons required by Rule 25-6.030, F.A.C. subject to your company-wide cost control or efficiency measure(s)? If yes, please identify all documents describing how such measures apply to storm restoration costs.

Response:

DEF maintains a primary focus of restoration during a major storm event, but is always mindful of attempting to mitigate customer costs; however, as described in DEF's storm recovery filings, safe and timely restoration takes precedence. In Order No. PSC-2019-0232-AS-EI, DEF agreed to a set of principles and process changes intended to promote cost effective and timely storm damage recovery and service restoration, DEF filed "2021 Annual Service Reliability Report" (available at 2021 Duke Energy Florida, Inc. Distribution Reliability Report.pdf (floridapsc.com) and DEF filed "2020 Storm Protection Plan Annual Status Report" (*available*

at 2020 Duke Energy Florida, Inc. SPP Annual Status Report.pdf (state.fl.us).

75. How do you reconcile representations to investors about growth in capital spending relatedto SPP programs and projects with the rate impacts of such programs and projects?

Response:
The Florida legislature found in section 366.96(1)(c), Florida Statutes, 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." Further, "Each public utility shall file, pursuant to commission rule, a transmission and distribution storm protection plan that covers the immediate 10-year planning period. Each plan must explain 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." *See id.* at (3). In compliance with this legislative directive and Commission Rule 25.6030, F.A.C., DEF has developed the Storm Protection Plans ("SPP" or collectively "SPPs"), which include capital expenditure plans to achieve the goals set forth in the legislation. The capital expenditures in DEF's 2023 Storm Protection Plan ("SPP") are consistent with those previously filed in DEF's 2020 SPP, which was approved in Order No. PSC-2020-0293-AS-EI. Discussions with investors regarding SPP capital expenditures are based on DEF's filed SPPs. Additionally, rate impacts for the first three years of each SPP are also included in the filing, as required in Rule 25-6.030, and available to investors to review.

76. How are projected rate impacts from SPP projects and programs factored into the projected SPP spending plans that you share with investors?

Response:
DEF develops its SPP to meet the requirements of section 366.96 and Commission Rule 25-6.030. DEF believes its SPP 2023 plan represents the proper balance between SPP program work, necessary to achieve the improved storm restoration and enhanced reliability called for in the legislation, and the impact to customers. DEF notes that reductions or delays to the SPP would result in slower or delayed benefits to customers from the implementation of these programs and projects.

77. In determining how to deploy capital investment in your pending SPP please describe the steps that were taken to consider customer rate impacts. As a part of any description you undertook, please describe the role that customer rate impacts play compared to your investor-driven financial goals such as the increasing adjusted earnings per share expectations at your publicly traded corporate entity level and yearly expected growth in dividend per share.

Response:
DEF's SPP 2023 was developed to meet the requirement set forth in section 366.96 and Commission Rule 25-6.030. As noted in DEF's response to Q76, DEF believes its SPP 2023 plan represents the proper balance of SPP program work necessary to achieve the improved storm restoration and enhanced reliability called for in the legislation and the impact to customers. Further, DEF notes that its SPP 2023 is consistent with the SPP 2020 plan previously approved by the Commission. As part of the SPP process, DEF evaluated different program spend levels that were both higher and lower than the levels ultimately included in DEF's SPP 2023. DEF also reviewed the customer impacts for each SPP case. DEF determined that the SPP 2023 plan was the proper plan to balance program cost with the benefits customers are projected to receive from the implementation of these programs.

78. Since you began developing your SPP in 2020 (or 2019, if before 2020) please identify each instance where you expressly decided not to deploy capital for an SPP Program or project because it would have had too great an impact on your customers' rates in any single year.

Response:

DEF has maintained consistent capital expenditures in its submitted Storm Protection Plan 2023 to 2032 as the previously approved DEF Storm Protection Plan 2020 to 2029, approved in Docket No. 20200069-EI. DEF establishes its overall SPP program spend, including capital expenditures, with consideration of the impact to customer rates as a key consideration, but must also balance this impact with the goals and requirements of the Storm Protection Plan statute and rule and the outage risk a non-hardened grid creates during extreme weather events. The establishment of SPP program spend is accomplished at the outset of the plan development process and therefore represents an express decision not to expend greater amounts which would have a greater impact on customer rates. Thus, the entirety of the plan represents a balancing of the goals of the SPP with impact on customers' rates.

79. Please describe the methodology for developing the cost savings listed in your SPP Exhibit BML-1, including each factor or input that was used to develop this calculation.

Response:
The cost savings referred to in Exhibit No. _ (BML-1) reflects the equipment replacement benefit stream that would accrue due to fewer equipment replacements after MEDs. These cost savings were determined utilizing DEF's annual average storm data and do not include any customer outage reduction benefits or blue-sky replacements. They include both Capital and O&M. The basic equation is: (Baseline failures * Baseline equipment replacement costs) - (Fully hardened failures * Hardened equipment costs).

80. Is there a dollar value that DEF attributes to CMI? If so, provide the dollar value and describe the methodology for developing that value.

Response:

The Guidehouse analysis uses the following values (in dollars per unserved kWh) from the DOE Interruption Cost Estimate (ICE) Calculator.

	Outage Duration					
Customer Class	0 to 0.5 hrs	0.5 to 1 hrs	1 to 4 hrs	4 to 8 hrs	8 to 16 hrs	16+ hrs
Residential	7.49	4.13	1.74	1.47	1.33	1.33
Small C&I	578.52	361.46	265.69	331.41	319.1	319.1
Large C&I	139.56	83.74	50.97	54.97	46.29	46.29

The above interruption cost values were developed using the DOE ICE calculator (https://icecalculator.com/interruption-cost) with the following inputs:

- State: Florida
- SAIFI: 1
- SAIDI or CAIDI: 30, 60, 240, 480, 960

The ICE calculator was funded by the DOE under Lawrence Berkeley National Laboratory Contract No. DE-AC02-05CH11231 and is derived from 34 customer value of service studies[1,2]. It is a widely used tool in the industry. The DOE ICE Calculator, as designed, is limited to estimating customer interruption costs for outages less than 16 hours, because it does not account for additional societal and economic benefits associated with avoiding longer outages. However, in the absence of additional data and due to the inherent difficulty in measuring the additional customer value of lengthy interruptions during major events, DEF considers it appropriate to apply the DOE ICE Calculator's values of a 16-hour outage to outages longer than 16 hours.

81. Please refer to Exhibit BML-1, page 16 of 56. You cite the NESC 250C extreme wind loading standard as the goal the company intends to meet with respect to structure strengthening. Is there any state or federal rule, regulation, or order which requires electric companies to meet this standard? If no, explain how and why DEF determined this was the appropriate standard to use for structure strengthening and identify any documents discussing or analyzing this determination.

Response:

The Company is required by the FPSC to construct lines according to the current edition of the National Electrical Safety Code (NESC). Prior to the Storm Protection Plan and FAC 25-6.030, the Company designed and constructed to the NESC 250B Grade C construction and utilized the NESC 250C exemption for Distribution facilities under 60 feet.

[1] https://emp.lbl.gov/sites/default/files/lbnl-2132e.pdf
[2] https://emp.lbl.gov/sites/all/files/lbnl-6941e.pdf

The Storm Protection Plan, as outlined in FAC 25-6.030(3)(a), states that utilities shall "strengthen electric utility infrastructure to withstand extreme weather conditions by promoting the overhead hardening of electrical transmission and distribution facilities." In order to meet the intent of the rule, DEF had to utilize the 250C extreme wind standards to "strengthen" its facilities over the previously utilized 250B.

Prior to the Storm Protection Plan, DEF completed pilot storm hardening projects that utilized the NESC 250C extreme wind loading criteria. Experience with the pilot projects showed that they performed well during extreme weather events.

82. Does DEF consider the yearly "savings" vs. the yearly expense calculated in the cost-benefit comparison in determining whether a program or project is reasonable and prudent? For example, in BML-1 page 47 of 56, the substation flood mitigation program is projected to cost $38 million and take 15 years to complete, if costs were spread evenly over the life of the project this would result in a yearly spend of about $2.53 million. DEF projects a yearly savings of $0.6-$0.7 million.

Response:
To determine whether a program or project is prudent, DEF considers the cost effectiveness of each project and program from a net present value perspective. To use the Substation Flood Mitigation program as an example, as used in the question, the noted yearly savings of $0.6-$0.7 million represents the equipment outage restoration benefits but does not include the customer benefits from outage reduction attributable to the program assuming that the state continues to experience the typical frequency and intensity of extreme weather events. The full deployment of the program is projected to result in yearly reduction of approximately 5.7M customer minutes of interruption (CMI). This CMI benefit stream alone has a net present value of approximately $259M.

83. What role, if any, does customer rate impact have on your decision to undertake any program or project contained in the SPP which you have submitted for approval in this docket?

Response:

DEF's SPP 2023 is consistent with the previously approved SPP 2020, in Order No. PSC-2020-0293-AS-EI. DEF is mindful of impact to customer rates and balances this impact with the requirements of the Storm Protection Plan rule 25-6.030 and the outage risk and impacts to DEF's customers that a non-hardened grid creates during extreme weather events. DEF believes its SPP 2023 plan represents the proper balance between SPP program work, necessary to achieve the improved storm restoration and enhanced reliability called for in the legislation, and the impact to customers. Please also see DEF's response to Interrogatory 78.

84. What role, if any, does the customer rate impact have on your determination of the total level of: (a) capital and (b) O&M expense contained in each of the first three years of your pending SPP? Please identify each document discussing, analyzing, and describing such determination in each year.

Response:

As noted in DEF's responses to questions 75, 76, 77, 78 and 83, DEF's SPP 2023 was developed to meet the requirement set forth in section 366.96 and Commission Rule 25-6.030, and furthermore DEF's SPP 2023 is consistent with the previously approved SPP 2020, approved in Order No. PSC-2020-0293-AS-EI. DEF also notes that some current SPP program work was previously being performed and recovered through base rates. This includes the O&M expenses for vegetation management, which represents the majority of SPP O&M expenditures. As explained in the response to question 77, DEF reviewed alternative spend plans that included both higher and lower overall program spend that DEF's SPP 2023. As a result, DEF believes its SPP 2023 plan represents the proper balance between SPP program work, necessary to achieve the improved storm restoration and enhanced reliability called for in the legislation, and the impact to customers