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April 29, 2024

VIA ELECTRONIC FILING

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

Re: *Duke Energy Florida, LLC's Demand Side Management Annual Report for
Calendar Year 2023*; Undocketed

Dear Mr. Teitzman:

Please find enclosed for electronic filing Duke Energy Florida, LLC's Response to Staff's First Data Request (Nos. 1-6).

Thank you for your assistance in this matter and if you have any questions, please feel free to contact me at (850) 521-1425.

Sincerely,

/s/ Stephanie A. Cuello

Stephanie A. Cuello

SAC/clg
Enclosure

Cc: Michael Barrett, Division of Economics, mbarrett@psc.state.fl.us; discovery-gcl@psc.state.fl.us

**Duke Energy Florida, LLC's (DEF) Response to Staff's First Data Request (1-6)
Regarding the 2023 DSM Annual Report**

Docket No. 20230013-EG

1. Please answer the following regarding federal energy efficiency standards and Florida Building Code requirements.
 - A. Please describe how Duke Energy Florida (DEF or company) monitors current federal energy efficiency standards and Florida Building Code requirements. If applicable, discuss any changes implemented in 2023, compared to the methods used in 2022.

Response:

DEF has not changed the method or the way it monitors current federal energy efficiency standards and Florida Building Code requirements.

- B. What impact, if any, did changes in federal or state standards that occurred in 2023 have on the cost effectiveness of conservation programs?

Response:

There is no impact due to changes in the federal or state standards on cost effectiveness in 2023.

- C. If applicable, what existing programs are under review for modification in 2024 to reflect changes to federal or state standards?

Response:

There are no existing programs under review for modifications in 2024 to reflect changes to federal or state standards.

2. Please answer the following regarding DEF's conservation research and development (CRD) initiatives that evaluate emerging DSM opportunities:

- A. Identify and describe any new CRD initiatives that were launched in 2023.

Response:

DEF launched a project to evaluate the energy efficiency and demand response capability of an energy storing, ultra-efficient, commercial packaged air conditioner technology that combines dew-point-style sensible cooling with liquid desiccant dehumidification. This technology implements indirect evaporative cooling using a liquid desiccant. This desiccant can be recharged and stored in a tank for use later. This stored energy can be used to make the peak power consumption very low. We are piloting this technology

compared to standard packaged units at a volunteer customer site. The energy consumption of this technology will be documented.

- B. Provide updates on the Vehicle to Grid Ford Lightning EV study and all on-going CRD initiatives that began before 2023, and if applicable, attach interim and/or final reports on work completed in 2023.

Response:

- DEF continued a project to evaluate the demand response capability of the Ford Lightning Electric Pickup Truck in a Vehicle-to-Grid (V2G) configuration. The pilot includes lab testing of the vehicle, electric vehicle charger and home integration system. We are also testing the system in 4 employee volunteer DEF customer homes. The testing has focused on the impact of home charging at full capability of the Ford Charge Station Pro (19.2 kW) and the capability of providing Vehicle-to-Home backup power during outages. Testing of interconnected Vehicle-to-Home and Vehicle-to-Grid operation for demand response will follow. These systems could be a valuable future potential resource as a component part of DEF's DR Portfolio.
- DEF continued a project with the University of Central Florida (UCF) to document the value of long-duration customer-side energy storage systems. This project is using the technology at UCF's Microgrid Control lab to directly test a long-duration energy storage system. Use cases to be investigated include study of battery performance during charging and discharging, documenting the effects of cycling on battery performance (battery degradation, efficiency, etc.), optimal operation of a battery energy storage system in a distribution system with high penetration of solar energy, control of behind-the-meter distributed energy resources to provide services including, peak capacity management, demand response (consuming or generating), frequency regulation, ramping capability and voltage management.
- DEF continued a pilot to develop software, firmware, and applications for a Smart Home Gateway to evaluate the potential for a future home energy management program and its ability to enhance the Company's future energy efficiency and DR programs. The Smart Home Gateway currently includes processing and communications capabilities to perform on-site operations including receiving energy data from the customer's AMI meter, communications using four radios and on-site processing. Capabilities that have been developed and tested include enabling appliance demand response using CTA-2045 (EcoPort) local control and enabling local control of Energy Management Circuit Breakers (EMCBs) for monitoring and demand response. Capabilities also include control of HVAC thermostats and Zigbee controlled plug loads. These technologies will allow automatic control of devices according to the customer's preference, and enabling open-source, utility-demand response using OpenADR. The Smart Home Gateway can also potentially be used engage customer awareness of how energy is being used in the home. These capabilities will be considered in development of future EE and DR programs.
- DEF continued a project with the University of South Florida (USF) to leverage customer-sited solar PV and energy storage at the USF 5th Avenue Garage Microgrid.

The system provides load smoothing, islanding, and demand response. A publicly available dashboard that shows live data, project specific facts and the capability of downloading data for further study is available for the site at <https://dashboards.epri.com/duke-usfsp-parking>. Results of this research may be used for design of a potential cost-effective, DR program. USF continued its research on the microgrid operation.

- DEF continued the Electric Power Research Institute (EPRI) Solar DPV project for data collection to document customer solar resources with a focus on larger PV arrays with and without energy storage. This project also provides the data stream for the dashboard mentioned above.
- DEF completed participation in an EPRI project to study the potential of using customer demand response to compensate for variable loads and intermittent renewable generation resources.
- DEF completed a project that will provide knowledge in methods to utilize customer Wi-Fi infrastructure to develop a dedicated, durable, and secure utility communication channel to connected devices. The project will also provide knowledge on the effectiveness of Wi-Fi-signal-strength-improvement technology. This technology could lead to lower costs and improved cost-effectiveness for existing and future DR and EE programs.
- DEF completed a project for a study to evaluate the demand response capability of internet-connected residential batteries. Residential batteries potentially offer the ability to provide power reduction for demand response while eliminating any discomfort to the customer (as compared to residential appliance demand response). Certain battery manufacturers have developed technologies that allow for the collection of capacity and charge data, communication protocols for external aggregator software providers, and the ability to dispatch stored energy to serve the needs of the customer or the grid. This project focused on the capabilities of a particular aggregator to collect data from two battery manufacturers, the feasibility of utilizing aggregation technology for dispatching demand response event commands, and the net impact of these events on shaping demand. Such an aggregation system enabled existing units that are already installed by residential customers in DEF territory to be used in this study. The results of this study could be used to develop future demand response programs utilizing customer energy storage.
- DEF partnered with EPRI and other research organizations to evaluate EE, energy storage, and alternative energy/innovative technologies.

3. Please answer the following regarding marketing and outreach efforts:

- A. Page 6 in the Report reflects that participation in the Neighborhood Energy Saver program grew from 4,771 in 2022 to 5,846 in 2023. Specifically describe the marketing and outreach

methods and techniques that were used to achieve these results. Address in your response why the company believes these efforts were successful.

Response:

There were a few methods and techniques that were used that contributed to the growth in participation for the Neighborhood Energy Saver program. DEF continued weekly production meetings to monitor workload, staffing and team deployment. There was also an increase in resources in 2023. Additionally, DEF identified demographic areas which allowed resources to work in neighborhoods within a 15-mile radius which provided minimal travel and easier response to customer appointments and rescheduled appointments.

The efforts were successful due to great collaboration between DEF, the local communities, local government, and our vendor.

- B. Page 7 in the Report reflects that participation in the Residential Load Management program grew from 767 in 2022 to 2,916 in 2023. Specifically describe the marketing and outreach methods and techniques that were used to achieve these results. Address in your response why the company believes these efforts were successful.

Response:

There were a few methods and techniques that contributed to the growth in the Residential Load Management program. In 2023, DEF increased marketing which included: newsletter ads, advertisements on the company's external website, bill inserts, business reply to postcards, outbound calling and emailing. These increased marketing efforts were successful in 2023.

- C. Page 8 in the Report reflects that participation in the Business Energy Check program grew from 146 in 2022 to 479 in 2023. Please explain why the company believes the marketing efforts promoting this program were successful in attracting participants.

Response:

DEF increased marketing in 2023 in preparation for the HVAC season typically from March through August of each year. HVAC measures are critical to the Business Energy Check program specifically during the summer months. The increased marketing resulted in customer inquiries on all other program measures and allowed customers to inquire about other cost-saving opportunities in the program.

4. On page 5 of the Report, DEF provides information about the Low-Income Weatherization Assistance program. Please answer the following:
- A. Describe how the company provides enrollment-related information to its customers about this program. Address in your response if any new marketing methods or tools were implemented in 2023.

Response:

DEF is not directly involved in program enrollment. LIWAP was designed to provide incentives or rebates through weatherization agencies so that they can bundle with other Department of Commerce funds for weatherization work completed in DEF customer homes. DEF does not directly enable program enrollment as customers apply with their local weatherization agency who will confirm income eligibility and then perform an audit of the home to determine the scope of work required.

B. Please refer to Schedule C-5, which was attached to the Direct Testimony of Karla Rodriguez, filed August 4, 2023, in Docket No. 20230002-EG. At Page 4 of 16, the company states, in part, “DEF recently added Pinellas County Housing Authority to the list of agencies participating in the [Low-Income Neighborhood Weatherization Assistance] program.”

1. Please provide the number of 2023 participants by agency for the Low-Income Neighborhood Weatherization Assistance program which add to the total of 184 enrollments for the year, as reported on Page 5 of the Report.

Response:

Agency	Participation
Central Florida Community Action Agency	8
Centro Campesino	1
Marion County Board of Community Services	4
Meals on Wheels Etc.	11
Mid Florida Community Services	69
Osceola Council on Aging	39
Pinellas County Urban League	52
Total	184

2. Other than Pinellas County Housing Authority, did the utility add any other entities to offer the Low-Income Neighborhood Weatherization Assistance program in 2023? Please explain your response.

Response:

There were no other agencies and/or entities added to LIWAP program in 2023.

3. At Page 4 of Schedule C-5, the company estimated that 244 participants would enroll in this program in 2023. What is DEF’s understanding of why this program’s 2023 participation (184) fell short of DEF’s enrollment projection despite DEF’s marketing and outreach methods and techniques?

Response:

During the 2nd Quarter of 2023 there were funding delays from the Department of Commerce, which impacted program participation. Many agencies were unable to operate their weatherization programs during that period. Agencies have limited funding for weatherization so any funding delay or decrease in funding negatively impacts program participation.

- C. Please explain why the per installation savings values for this program (the kilowatt values for summer and winter demand reduction and the kilowatt-hour value for annual energy savings “@ meter” and “@ generator”) all increased between 2022 and 2023.

Response:

The increase is due to program participation increasing from 2022 to 2023. Also, the difference between the @meter and @generator during the reporting period is factoring in the line loss percentage.

5. On page 11 of the Report, DEF provides information about the Commercial Energy Management program, which is a program that is closed to new participants. The utility states that its cost per installation increased from \$5,707 in 2022 to \$10,379 in 2023. Please explain why an installation cost would rise on a program that is closed to new participants.

Response:

This closed program maintains a grandfathered customer base which receives program incentives to reduce peak demand by controlling service to selected electric equipment through various devices and communication options installed on the customer’s premises. Typically, customer locations have several buildings each containing multiple control devices requiring operational review and maintenance costs.

6. In 2023, what was the company’s System Average Line Loss percentage?

Response:

DEF used the following line loss factor in our calculations:

- Residential programs – 4.99%
- Non-Residential programs – 4.29%