BEFORE THE

GEORGIA PUBLIC SERVICE COMMISSION

In Re:

GEORGIA POWER COMPANY'S 2023	**)**	**DOCKET NO. 55378**
INTEGRATED RESOURCE PLAN UPDATE	**)**	

DIRECT TESTIMONY
OF
JOHN L. KADUK

On Behalf of the

Georgia Public Service Commission

Public Interest Advocacy Staff

February 15, 2024

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IN THE MATTER OF GEORGIA POWER COMPANY'S 2023 INTEGRATED RESOURCE PLAN UPDATE

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I. INTRODUCTION

Q. MR. KADUK, PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS.

A. I am a Senior Public Utilities Engineer in the Energy Efficiency and Renewable Energy Unit with the Georgia Public Service Commission ("Commission"). My business address is 244 Washington Street SW, Atlanta, GA 30334.

Q. PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND WORK EXPERIENCE.

A. My educational background and work experience are provided in my resume, which is attached as Staff Exhibit_JLK-1.

Q. HAVE YOU EVER TESTIFIED BEFORE THIS COMMISSION?

A. Yes. I testified in Docket No. 31081, Georgia Power Company's 2010 Integrated Resource Plan; Docket No. 36498, Georgia Power Company's 2013 Integrated Resource Plan; Docket No. 38877, Georgia Power Company's Application for the Certification of the 2015 and 2016 Advanced Solar Initiative Prime Power Purchase Agreements and Request for Approval of the 2015 Advanced Solar Initiative Power Purchase Agreements; Docket No. 40161, Georgia Power Company's 2016 Integrated Resource Plan; Docket No. 41596,

Georgia Power Company's Application for the Certification of the 2018/2019 Renewable Energy Development Initiative Utility Scale Power Purchase Agreements; Docket No. 41734, Georgia Power Company's Application for the Certification of the 2018/2019 Renewable Energy Development Initiative Utility Scale Power Purchase Agreements for the Commercial and Industrial Program; Docket No. 42310, Georgia Power Company's 2019 Integrated Resource Plan; Docket No. 42625, Georgia Power Company's Application for the Certification of the 2020/2021 Renewable Energy Development Initiative Utility Scale Power Purchase Agreements; Docket Nos. 4822, 16573 and 19279, Georgia Power Company's Avoided Cost Dockets; and Docket No. 43814, Georgia Power Company's Application for the Certification of the 2022/2023 Utility Scale Renewable Power Purchase Agreements.

Q. ON WHOSE BEHALF ARE YOU APPEARING?

A. I am testifying on behalf of the Commission Public Interest Advocacy Staff ("Staff").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to address Georgia Power Company's ("Georgia Power" or "Company") request for new customer-sited programs, customer demand response program, the Company's request to amend its Certificate of Public Convenience and Necessity ("Certificate") for the Thermostat Demand Response ("TSTAT DR" or "Temp Check") Demand Side Management ("DSM") Program, and the reasonable capacity equivalence of a current renewable plus battery storage procurement used by Georgia Power in its 2023 Integrated Resource Plan Update ("2023 IRP Update") proceeding.

II. PROGRAMS AND TARIFFS

Q. IN ITS 2023 IRP UPDATE, DID THE COMPANY PROPOSE ANY NEW CUSTOMER PROGRAMS?

A. Yes. Georgia Power is proposing several new programs to leverage customer-sited resiliency resources that can also provide system reliability for the benefit of all customers. The proposed programs are the distributed energy resource ("DER") Colocation Program, the DER Customer Owned Program, and the Curtailable Load Program.

Q. IN ITS IRP UPDATE, DID THE COMPANY PROPOSE MODIFICATIONS TO ANY OF ITS EXISITNG DSM PROGRAMS?

A. Yes. Georgia Power is proposing to expand its currently certified Residential Thermostat DR Program.

Q. PLEASE DESCRIBE GEORGIA POWER'S PROPOSED DER PROGRAMS.

A. The proposed DER programs are designed to add capacity to the system, although the Company has not provided an estimate of such capacity in its resource ledger. When asked during cross examination, if these programs have a defined capacity contribution on the resource ledger, Company witnesses responded with "No, not yet." (Transcript ("Tr.") at 329). Company witnesses stated that it would be difficult to estimate how to reflect the capacity contribution of the proposed DER programs due to uncertainty around the timeline for construction of the resources, and if it is a new facility, when that facility would come online (Tr. at 330). The proposed DER Colocation Program ("DCL-1 tariff") is designed for qualifying commercial and industrial customers, whereby Georgia Power will own,

operate, maintain, and control dispatchable DER at customer premises, and economically dispatch the resources to provide energy and capacity benefits to all customers. The proposed DER Customer Owned Program ("DCO-1 tariff") is designed for qualifying commercial and industrial customers whereby Georgia Power will operate and control customer-owned, new dispatchable DER located at customer premises and economically dispatch the resources to provide energy and capacity benefits to all customers.

Q. PLEASE DESCRIBE GEORGIA POWER'S PROPOSED CURTAILABLE LOAD PROGRAM.

A. The Curtailable Load Program ("CL-1 tariff") is proposed to enable demand response of commercial and industrial customer loads during extreme supply and demand conditions thereby providing system capacity and reliability benefits to all customers. As proposed, the CL-1 tariff will be available to qualifying commercial and industrial customers for long-term commitments to reduce their load.

Q. DID THE COMPANY PROVIDE TARIFFS FOR ITS PROPOSED DER PROGRAMS?

A. Yes. Although the Company did not provide tariffs in its original IRP Update, proposed tariffs were filed on January 11, 2024.

Q. HAS THE COMPANY PROVIDED TARIFFS FOR PROPOSED DER PROGRAMS IN PREVIOUS IRPS?

A. No. The Company usually files new and modified tariffs as part of its Rate Case proceedings. In the 2022 IRP proceeding, the Company proposed a DER Customer

Program to be implemented through a Demand Response Credit Tariff ("DRC-1") and the Resilience Asset Service Tariff ("RAS-1") on a pilot basis with an overall cap of 250 megawatts ("MW"). The tariffs and associated contract terms and conditions were not provided during the IRP proceedings; however, the Company was ordered by the Commission to design the tariffs in a manner that will eliminate, to the extent reasonably possible, any potential that non-participating customers will be harmed. Within four months following the issuance of the Commission's 2022 IRP Order Adopting Stipulation, the Company was to collaborate with the Commercial Group and Staff on the development of the elements in the DER pilot program tariffs. Following this collaboration, the Company filed the DRC-1 and RAS-1 tariffs for Commission approval.

Q. DID GEORGIA POWER DESIGN OR MODEL ITS PROPOSED DER PROGRAMS AFTER ANY OTHER UTILITY PROGRAMS?

A. No. During the Direct Hearing, the Company's witnesses stated that the proposed DER programs were not modeled after any other utility (Tr. at 248). Staff is aware that similar programs exist such as Power Through for Entergy Arkansas.

Q. DOES STAFF HAVE ANY CONCERNS REGARDING THE DER COLOCATION PROGRAM?

A. Yes. Staff is concerned that costs for participating customers may be paid for by non-participating customers. As proposed, the program is designed for participants to be able to lower their resiliency costs and at the same time provide capacity at a lower capacity cost for all customers. The Company's witnesses in the Direct Hearing were asked about whether the Company anticipates any situation in which nonparticipating customers would

be responsible for paying for the cost of this program, where a customer fails to make a payment. Company witnesses responded that they do not foresee such costs being at risk to non-participating customers. Specifically, "unlike our current DER programs, those aren't going to be paid for over a period of time over the contract. Those are going to be paid for up front." (Tr. at 250). However, Staff would like assurances from the Company that the DCL-1 tariff will not assign any participating customer program costs to non-participating customers. The current proposed limitations on the size of DERs to be deployed for the DCL-1 tariff is set at a minimum nameplate capacity of 10 MW, which is different from the similarly designed DCO-1 tariff. There are also no proposed maximum or corresponding customer load requirements in the tariff.

Q. WHAT IS STAFF'S RECOMMENDATION FOR THE DER COLOCATION PROGRAM?

A. Staff recommends approval of the DER Colocation Program and associated tariff with a few modifications. Since this program is similar to the Company's proposed DER Customer Owned Program, Staff recommends that the two programs have similar structure regarding the size of the DER. Georgia Power's proposed DCO-1 tariff DER size limits are proposed to be no less than 1 MW, but no greater than 10 MW. Staff recommends mirroring this limitation in the DCL-1 tariff. The DCL-1 tariff is similar to Georgia Power's RAS-1 tariff which was approved in the Company's 2022 IRP docket. The RAS-1 tariff put a limit on the size of the Company-installed DER at the participating customer's annual peak load at the premises served under the schedule. Staff recommends setting the limit on the installed DER to match the customer's annual peak load at the premises, up to, but not exceeding the program maximum DER size limit.

Q. DOES STAFF HAVE ANY CONCERNS REGARDING THE DER CUSTOMER OWNED PROGRAM?

A. Yes. As proposed, the program is similar to the DER Colocation Program in that it is designed for participants to be able to lower their resiliency costs and at the same time provide capacity at a lower capacity cost for all customers. Georgia Power's witnesses stated during cross examination, "Unlike the current program where those payments are done over a contract period, for the -- for the co-location, not the customer-owned, because the customer-owned, there is no -- there is no payment from the customer; right? They are buying their own asset and participating in our program." (Tr. at 249). However, Staff would like assurances from the Company that the DCO-1 tariff will not assign any participating customer program costs to non-participating customers. There are also no proposed maximum or corresponding customer load requirements in the tariff.

Q. WHAT IS STAFF'S RECOMMENDATION FOR THE DER CUSTOMER OWNED PROGRAM?

A. Staff recommends approval of the DER Customer Owned Program and associated tariff with one modification. Staff recommends that the size of the DER be capped at the participating customer's annual peak load at the premises served as opposed to the Company's proposed uncapped amount.

Q. WHAT IS STAFF'S RECOMMENDATION FOR THE CURTAILABLE LOAD PROGRAM?

A. Staff recommends approval of the CL-1 tariff with one modification. Building upon the Company's Demand Plus Energy Credit ("DPEC") Program's design, the CL-1 tariff

lengthens a participating customer's commitment to the program. Both programs credit customers that provide demand reduction of at least 200 kilowatts ("kW"), upon request by Georgia Power during extreme supply and demand conditions. The DPEC-4 tariff currently has a 1-year term. The CL-1 establishes a rolling term of 6 years that is automatically renewed each year unless it is declined by either party. Staff recommends that the CL-1 tariff be modified to change all instances of the word "Customer" to "customer", where appropriate, for consistency of defined terms.

Q. PLEASE DESCRIBE THE COMPANY'S PROPOSED REVISIONS TO THE TSTAT DR PROGRAM.

A. The Company requested to amend its Certificate for the Residential TSTAT DR Program pursuant to O.C.G.A. § 46-3A-6 and Commission Rule 515-3-4-.10. The Commission certified the program in the 2022 DSM Plan in Docket No. 44161. The Company requested to expand the current program enrollment from 25,000 participants to 50,000 participants. Additionally, the Company stated that the program now reflects a positive Total Resource Cost value and therefore no longer requires a waiver of Commission Rule 515-3-4-.04(4)(a)(3) as was approved in the 2022 IRP Order Adopting Stipulation.

Q. PLEASE DESCRIBE THE CURRENT TSTAT DR PROGRAM PERFORMANCE AND SAVINGS.

A. The TSTAT DR Program was originally certified in the 2019 IRP to serve residential customers of both single-family and multi-family buildings with central heating, ventilation, and air conditioning ("HVAC") systems. This program allows the Company to make event calls that adjust participating customers' thermostat behavior during a

limited period. The Company pays participating customers an incentive for this ability. Participants can either bring their own thermostat ("BYOT") or purchase a new thermostat through the Georgia Power Marketplace. The program was certified in the 2022 IRP with 25,000 participants with a projected demand savings of up to 18,000 kW. The program provides a one-time $50 incentive for new BYOT participants, and all other existing enrolled customers receive up to an annual $25 incentive to continue participation. The TSTAT DR Program has been called by the Company between four and eight times per year since 2020. The demand savings for 2023 in the summer months averaged 21,186 kW per event, while the winter demand savings averaged 18,302 kW per event. Program participation in 2023 for summer months averaged 21,988 customers and in winter months participation averaged 15,048 customers.

Q. WHAT ARE THE EXPECTED ANNUAL DEMAND SAVINGS IF THE COMPANY'S REQUEST TO DOUBLE CUSTOMER PARTICAPTION IS APPROVED?

A. The Company's request to double participants to 50,000 would increase the projected annual demand reduction for this program to 37,000 kW.

Q. WHAT IS STAFF'S RECOMMENDATION REGARDING THE PROPOSED CHANGE TO THE THERMOSTAT DEMAND RESPONSE PROGRAM?

A. Staff recommends approval of the Company's request to amend the Certificate for the Residential TSTAT DR Program. Staff anticipates robust participation in the program and that the increase in projected demand reduction for this program will be realized. As the Company stated in its Direct Testimony on Page 49, lines 3-7, further residential load

flexibility exists. Staff agrees that further expansion of this program is very likely. Staff further recommends that the Company continue to evaluate the potential of this program for the upcoming IRP to identify the optimal participation level for the program to cost effectively meet future demand reductions.

Q. DOES STAFF HAVE ANY RECOMMENDATIONS REGARDING OTHER DER PROGRAMS THAT COULD BE OFFERED TO GEORGIA POWER'S CUSTOMERS IN A FUTURE IRP?

A. Yes. Staff recommends that the Company research a residential and small commercial battery program to be considered by the Commission in the 2025 IRP. A pilot for residential and small commercial customers could help increase the number of customers eligible for the Company's DER program offerings while providing grid reliability and capacity benefits. The Company should research opportunities for a new pilot that can help provide reliability benefits to customers through the use of new dispatchable DER located on customers' premises while also providing capacity and energy benefits to all customers. Utilities in other jurisdictions have begun implementing such programs. Examples include Green Mountain Power's Tesla Powerwall and Bring Your Own Device programs, Duke Energy's PowerPair program, and Xcel Energy's Renewable Battery Connect program.

II. CAPACITY EQUIVALENCE OF PROJECTS WITH BATTERY STORAGE

Q. HOW DOES THE COMPANY VALUE CAPACITY IN MEETING ITS TARGET RESERVE MARGINS?

A. The Company's current target reserve margin is based on meeting its summer system peaking needs. The Company also has a planning reserve margin to meet its winter peaking needs. The timing of the resources Georgia Power is proposing to add in this IRP Update are primarily driven by capacity needs of its forecasted winter peaks. Georgia Power's planning resource ledger contains a capacity equivalence for all of its Company-Owned and contracted supply-side and demand-side resources. The Commission's 2022 IRP Order Adopting Stipulation directed Georgia Power to begin valuing intermittent supply-side resources, such as solar and wind technologies, using an effective load carrying capability ("ELCC") method when determining capacity value for procurement activities.

Q. HAS THE COMPANY USED THE ELCC METHOD FOR CALCULATING THE CAPACITY VALUE OF RENEWABLE RESOURCES AND/OR BATTERIES IN ITS 2023 IRP UPDATE FILING?

A. Yes. The Company used results from its ELCC study to value projects with solar, wind, or battery energy storage systems ("BESS").

Q. DID THE COMPANY ACCOUNT FOR RENEWABLE RESOURCES TO BE PROCURED IN FUTURE REQUEST FOR PROPOSALS ("RFP") IN ITS RESOURCE LEDGER?

A. Yes. The Company included ELCC capacity equivalence values for the projects that will be procured in the Company's 2023 Clean and Renewable Energy Subscription ("CARES") RFP and the Company's BESS RFP.

Q. PLEASE DESCRIBE THE CARES AND BESS RFPS.

A. The goal of the CARES RFP is to procure 3,350 MW of renewable resources with or without 2-hour minimum duration energy storage systems, including up to 650 MW of Carbon Free Energy-Around the Clock Resources. The first phase of the CARES RFP is for the procurement of up to 2,875 MW of resources with in-service dates in the 2026-2028 timeframe. The remaining MW not procured during the first phase will be targeted during the second phase of the CARES RFP. The Company's upcoming BESS RFP will seek to procure up to 500 MW of 2-hour minimum duration standalone energy storage systems with in-service dates to meet the Company's 2029 winter need but will also have an early commencement option.

Q. WHAT CAPACITY EQUIVALENCE DID THE COMPANY INCLUDE IN ITS RESOURCE LEDGER FOR THE TARGETED RESOURCES FOR BOTH RFPS?

A. The Company's capacity equivalence estimate for the first phase of the CARES RFP assumes that standalone solar projects will be awarded half of the 3,350 MW CARES target procurement amount. Standalone solar projects are given a 5% capacity equivalence in GPC's ELCC study from the 2022 IRP which equates to only 83.75 MW for the first phase of CARES. The Company's capacity equivalence estimate for the BESS RFP for standalone batteries is 95% which equates to 475 MW for the BESS RFP.

Q. HAVE PREVIOUS GEORGIA POWER RFPS PROCURED SOLAR PLUS BESS PROJECTS?

A. Yes. Previous utility scale RFPs have procured solar plus storage bids. The Company's 2020/2021 Renewable Energy Development Initiative RFP certified 408.5 MW of solar plus storage projects, out of a total procurement of 558.5 MW. The Company's 2022/2023

Utility Scale Renewable RFP certified 830 MW of solar plus storage projects, out of a total procurement of 970 MW. However, the certified 2022/2023 Utility Scale Renewable RFP projects that included storage were ultimately amended to allow the counterparties to perform in accordance with the performance metrics included in the certified power purchase agreements ("PPA") without installing a physical energy storage device on the project site. This was approved by the Commission due to the effects of Covid-19 and supply chain issues and to help preserve the low-priced PPA's for Georgia Power's customers. Prior RFPs have included different storage usage cases (e.g. smoothing, firming, shifting, scheduling) with a relatively small ratio of batteries to solar panels. The 2023 CARES RFP only allows a full Company controlled usage case of scheduling, with a higher ratio of batteries to solar panels (50% of the nameplate capacity of the solar resource).

Q. DOES STAFF RECOMMEND A CHANGE TO THE COMPANY'S CAPACITY EQUIVALENCE ASSUMPTIONS FOR EITHER RFP?

A. Yes. Staff estimates that 500 MW of solar paired with storage could be selected for procurement as part of the 2023 CARES RFP. These projects are required to be 2-hour minimum duration battery with solar projects, which are given a 100% capacity equivalence by the Company. In response to STF-PIA-9-14, the Company stated that if any bids with BESS are selected in the 2023 CARES RFP, with "batteries sized exactly at the minimum requirement of 50% of the nominal output of the attached solar, the site capacity equivalence will be 0.5 MW per 1 MW of solar."

At a 50% ratio, 500 MW of BESS would be paired with 1,000 MW of solar, for the first phase procurement target of 2,875 MW. Staff notes that the higher cost of including

storage as part of its bid may not be worth the additional evaluation credit provided to bidders. However, a conservative amount of solar plus storage projects is a reasonable expectation based on previous utility scale renewable RFP results and improving storage market conditions. The Staff Panel of Newsome/Hayet/Wellborn describe how the Company's modified load forecast and approval of only a subset of the Company's requested capacity additions is sufficient to meet its short-term capacity needs. Any additional MW recognized in the Company's resource ledger for the 2023 CARES RFP will reduce future capacity needs and/or move such needs to future years. The Company's resource ledger should reasonably account for 500 MW of winter capacity equivalence resulting from the first phase of the CARES RFP. The requested in-service date for the winning projects from the first phase is no later than 2028 but could be as early as 2026. This additional capacity could reduce the need for future capacity procurements. If such resources are not ultimately certified in the 2023 CARES RFP, the second phase of CARES should provide additional information to developers regarding the value of solar paired with storage to encourage bids for projects that provide a higher capacity equivalence value.

Q. DOES THIS COMPLETE YOUR TESTIMONY?

A. Yes.