February 15, 2024

Ms. Sallie Tanner Executive Secretary Georgia Public Service Commission 244 Washington Street S.W. Atlanta, Georgia 30334

Re: Georgia Coalition of Local Governments' Expert Witness Testimony for 2024 Integrated Resource Plan Update Docket No. 55378

Dear. Ms. Tanner,

Enclosed for filing on behalf of the Georgia Coalition of Local Governments is the Direct Testimony of the Panel of Andrew Posner and Blake Richetta.

Please contact me at (912-324-1158) if you have any questions regarding this filing.

Sincerely,

Alicia Brown

STATE OF GEORGIA BEFORE THE GEORGIA PUBLIC SERVICE COMMISSION

In Re:)	
Georgia Power Company's 2023)	Docket No. 55378
Integrated Resource Plan Update)	

DIRECT TESTIMONY OF BLAKE F. RICHETTA AND ANDREW V. POSNER

IN SUPPORT OF THE GEORGIA COALITION OF LOCAL GOVERNMENTS

February 15, 2024

2	Q.	PLEASE STATE YOUR NAMES, TITLES AND BUSINESS ADDRESSES.	
3	A.	My name is Blake Richetta, and I am the Chairman and CEO of sonnen, Inc	
4		Americas. My business address is 1578 Litton Dr, Stone Mountain, GA 30083.	
5	A.	My name is Andrew "Andy" Posner, and I am the Founder and CEO of the Capital	
6		Good Fund. My business address is 333 Smith Street Providence, RI 02908.	
7	Q.	ON WHOSE BEHALF ARE YOU SUBMITTING TESTIMONY?	
8	A.	We are testifying on behalf of the Georgia Coalition of Local Governments.	
9 10	Q.	MR. RICHETTA, PLEASE SUMMARIZE YOUR EDUCATION AND	
11		PROFESSIONAL EXPERIENCE.	
12	A.	I began my career as a Sales Manager at Lutron Electronics, a leading manufacturer	
13		of energy-saving light, shade, and temperature controls. For the first eight years of	
14		my career, I was responsible for building the go-to-market strategy and business	
15		model for RadioRA, a lighting control system for residential applications. Over the	
16		next six years of my career, I assumed a National Sales Manager role focused on	
17		developing sales channels, installer programs, and training programs for a	
18		successor product, the RadioRA2.	
19			
20		After leaving Lutron in 2016, I joined Tesla as a North American Power Wall sales	
21		manager, where I worked for 9 months before becoming the Vice President of Sales	
22		for sonnen's US subsidiary. I was in this role for a short time before being promoted	
23		to Senior Vice President, then Chairman and CEO about two years later.	
24			
25		In my tenure at sonnen, I have become a recognized pioneer of the residential	
26		behind-the-meter energy storage based Virtual Power Plant business model in the	
27		United States. Under my leadership, sonnen co-developed the "2019 Utility Project	

I. INTRODUCTION

1	of the Year" Soleil Lofts apartment community VPP in Herriman Utah (12.6 MWh)	
2	with the Wasatch Group and Rocky Mountain Power. Following Soleil, sonnen	
3	worked under the leadership of Rocky Mountain Power to develop the national	
4	"Peak Load Management Association" award-winning Wattsmart residential and	
5	commercial Distributed Battery Grid Management System, currently deployed	
6	throughout Utah and Southern Idaho. Wattsmart and Soleil Lofts provide the	
7	electric grid with >31MWh of residential and C&I stored energy reservoir -	
8	including sonnen and non-sonnen batteries, firmly dispatchable under the direct	
9	control of RMP, yielding a full stack of grid services on a daily basis.	
10		
11	Some of my most recent accomplishments include launching the sonnenConnect	
12	California VPP, as well as becoming a founding member of the Consumer Battery	
13	Energy Sharing or "CBES" VPP program with LUMA in Puerto Rico. In	
14	California, sonnenConnect presents a legitimate solution to California's NEM3,	
15	featuring the deployment of sonnen's patented Optimized TOU Algorithm for	
16	proactive bill management services, as well as activating four CAISO and non-	
17	CAISO based grid service levers.	
18		
19	I have also led sonnen to co-develop other notable solar + battery master planned	
20	communities alongside innovative home builders, including DOE award-winning	
21	Mandalay Homes in Arizona, Residential LEED Platinum+ Pearl Homes in Florida,	
22	and recently, Living Community pioneer Thrive Collaborative in Michigan.	
23		
24	Finally, in the wake of Hurricane Maria, I led the sonnen organization alongside	
25	Pura Energia, while founding the 501(C)(3) del Sol Foundation for Energy	
26	Security, to build nine microgrids that provide lifesaving services for disadvantaged	
27	communities across the island of Puerto Rico.	
28		
29	I hold master's and bachelor's degrees in business administration from	
30	Pennsylvania Western University in Edinboro.	

1	Q.	MR. RICHETTA, HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS
2		COMMISSION?

3 A. No I have not.

A.

4 Q. MR. POSNER, PLEASE SUMMARIZE YOUR EDUCATION AND PROFESSIONAL EXPERIENCE.

I founded Capital Good Fund, a nonprofit, U.S. Treasury certified Community Development Financial Institution (CDFI) in 2009 while getting my master's degree in environmental studies at Brown University. I wrote my thesis on the potential to use financial services—loans, leases, financial coaching, other banking products—to create economic opportunity for underserved families and communities while also addressing environmental issues such as air pollution and climate change. Capital Good Fund's mission is to create pathways out of poverty and advance an inclusive green economy through financial services.

In my 15 years as Founder and CEO, Capital Good Fund has supported more than 16,000 families and financed more than \$42 million in loans and solar leases across eleven states, including Georgia. Roughly 2/3 of our clients are people of color, and 83.5% of our clients qualify as low-income (80% of Area Median Income or below). Our financial products fall into three categories—clean energy, immigration, and small dollar consumer loans that offer a low-interest alternative to credit cards and payday loans. These offerings come with industry-leading rates and are offered without consideration of a consumer's credit score. We also offer a robust financial coaching program.

Capital Good Fund first began offering clean energy loans in partnership with utilities in Rhode Island and Massachusetts through their "HEAT Loan" program. This program allows customers to make a wide variety of approved energy efficiency improvements—in particular heat pumps and insulation—and pay for them using a no interest loan, thanks to an interest buydown from the HEAT Loan

1		program. We were selected as the only non-bank participating lender, primarily to	
2		reach the Low- and Moderate-Income ("LMI") market which had previously been	
3		underserved. Through this program, we have originated 1,150 loans for \$14.7	
4		million, with a 99.4% cumulative repayment rate.	
5		Beginning in 2021, we launched our DoubleGreen Solar loan program to help LMI	
6		customers in Rhode Island, Massachusetts, and Texas access low-cost, long-term	
7		financing for rooftop solar and battery storage. Since then, we have originated 147	
8		Solar loans for \$6.86 million, with a 100% repayment rate and no delinquencies.	
9		In late September 2023, we once again expanded our clean energy offerings with	
10		the launch of the Georgia BRIGHT solar leasing program here in Georgia. This	
11		program is structured to help families earning under \$100,000 per year install solar	
12		and or / battery-storage at no upfront cost and save money on their electricity bills	
13		from day one. Already, more than two dozen households have closed leases, and	
14		our pipeline is growing daily as we add new community partners to the effort	
15		through our Solar Education and Outreach Program. We have also launched a	
16	variation of Georgia BRIGHT for nonprofits, which currently has a pipeline of one		
17		megawatt of scoped facilities, which we hope to turn into signed SEPAs in the	
18		coming months.	
19		In addition to my master's degree, I hold a bachelor's degree in Spanish Language	
20		and Culture from California State University, Northridge.	
21	Q.	MR. POSNER, HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS	
22		COMMISSION?	
23	A.	No, I have not.	

24 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

25 A. The purpose of the panel's testimony is to introduce the Commission to the concept 26 of a virtual power plant (VPP) and to demonstrate the value that a VPP can provide as a quick-to-deploy, low-cost resource for meeting the growing capacity needs identified in this docket. Our testimony will outline the proven track record of VPPs in other states and countries and the wide range of services that these resources can provide. Moreover, our testimony will speak to the ancillary benefits of VPPs, including resiliency, energy savings, and local economic development, among others. Finally, our testimony will outline the different programs and federal funding opportunities that are available to ensure sufficient customer interest in distributed energy resources to support a successful VPP.

Q. MR. RICHETTA, PLEASE TELL US ABOUT YOUR ORGANIZATION

A.

sonnen Inc. USA is a nationally renowned VPP based energy storage and software company, based in Stone Mountain, Georgia. Our parent company is the sonnenGroup, which was founded in Wildpoldsried Bavaria Germany in 2008. We are a global leader in energy storage and virtual power plant solutions, with more than 180,000 batteries installed worldwide and virtual power plants operating on three continents.

sonnen's value proposition and trajectory as a company are best understood in the context of Germany's ambitious and rapid clean energy transition, or "Energiewende." At the time of sonnen's founding, energy storage was basically still a research concept. Solar energy could only be consumed when it was produced or fed into the grid, and there was no demand from customers or grid operators for a different approach. In April 2001, the German Bundestag passed the Erneuerbare-Energien-Gasetz (EEG), providing a Feed-in-Tariff of effectively 200% of the retail price of electricity for injecting a kWh of solar energy into the grid from a rooftop solar array. This incentive structure led Germany to have one of the world's largest penetrations of solar energy, but it also presented several significant grid management challenges.

Our first battery, the sonnenBatterie, was a visionary solution to this problem before it emerged. At first, our home battery system was simply a means for maximizing

self-consumption and minimizing exports. However, we soon realized that in order to realize our vision of bringing safe, clean energy to everyone, we had to organize those resources on a larger scale to provide dynamic grid services. This journey began with small, distribution scale operations in retail energy markets through our sonnenCommunity and sonnenFlat offerings, which maximized solar self-consumption on a community scale, but our ambitions soon grew to offering an even larger range of services.

In 2017, we began a pilot with the German transmission grid to provide grid services using digitally networked sonnenBatteries. This early sonnenVPP was used to balance out frequency fluctuations and stabilize the grid, proving that VPPs could provide the same services as centralized, physical power plants. By 2018, the sonnenVPP was approved as a participant in the national power market. Today, this original VPP has eclipsed 250 MWh and is on track to reach 1 GWh in the next few years, making it the largest residential VPP in Europe. Now, we have VPPs operating in 5 countries, including the United States, and we are working to launch one in the United Kingdom very soon. Moreover, we are actively working to expand our battery manufacturing operations to meet the growing demand driven by our VPP business, particularly here in the United States.

19 Q. WHAT IS A VIRTUAL POWER PLANT?

A.

The fundamental components of a VPP are 1) behind-the-meter ("BTM") distributed energy resources or "DERs" and 2) software which enables behind-the-meter DERs to be controlled and networked with other similar devices in order to bring aggregated value to the larger energy system. Presently, these DERs fall into three broad categories: 1) renewable energy generators, predominantly rooftop solar; 2) battery energy storage systems; and 3) intelligent, digitalized loads, such as smart thermostats, electric vehicles and their charging equipment, and grid interactive water heaters, among others. Virtual power plants can provide a wide range of grid services, including capacity, energy, frequency response, demand

response, and spinning and non-spinning reserves. Virtual power plants can also support load shifting or act as load sinks, absorbing excess renewable energy that would normally be curtailed.

Q. HOW DO VIRTUAL POWER PLANTS WORK?

A.

For many utilities, customer-sited resources are largely unmanaged. Rooftop solar injects energy into the grid when it is produced, at roughly the same time that all other rooftop, community-scale, and utility-scale solar facilities are producing and injecting into the grid. Customers run their air conditioners or heat pumps essentially whenever they want to, trusting that there will always be enough electricity to achieve and maintain their desired temperature.

In some limited cases, such as cases of customers with EVs or customers with rooftop solar paired with storage, rate structures might exist to encourage customers to charge at a certain time or to store their excess generation and consume it during system peaks, but these price signals are static and are not responsive to current conditions. These rate structures also do nothing to coordinate resources, so that—for example—excess solar generation from one household can "pre-cool" the next house over ahead of the afternoon peak.

Virtual power plants take these unmanaged and largely uncontrolled generation systems, storage resources, and loads and orchestrate them to achieve grid harmonization and balance on a dynamic basis, in response to real time conditions. Resources are grouped into thoughtful, purposeful energy networks that can interact as a single firm dispatchable grid asset with the greater distribution system to provide specific "grid services." All of this is made possible by powerful VPP software that can remotely monitor and control compatible technologies via a simple internet connection.

O. HOW MUCH CAPACITY CAN VIRTUAL POWER PLANTS PROVIDE?

- 1 A. The beauty of virtual power plants is that they are highly scalable and modular. The
 2 maximum capacity of a virtual power plant is limited only by the technical,
 3 economic, and achievable potential of the distributed energy resources that it
 4 dispatches.
- For perspective, our WattSmart virtual power plant in Utah currently includes more than 20 MW of capacity, but our goal is to reach 40 MW by the end of 2024 and to continue to scale from there to 100 MW and beyond in the 2030s.

8 Q. HOW QUICKLY COULD A VIRTUAL POWER PLANT BE DEPLOYED?

At this point, there are several off-the-shelf software products and control systems that can integrate with a utility's energy management system in a matter of months. For example, for the WattSmart program, we utilized 100% in house sonnen VPP software, which we were able to integrate into Rocky Mountain Power's grid management system (OSI's Monarch System) in less than six months. It took an additional 6 months to add an IEEE2030.5 server to allow our VPP software to control non-sonnen batteries. In other words, even if some degree of customization is needed, a full-scale, brand-agnostic program can be rolled out in roughly a year, and certainly less than two years. More so than the platform integration, the driving factors for the timeline are the regulatory process, which was very supportive in Utah, and the speed with which new resources can be installed, interconnected, and enrolled.

Q. WHERE ARE VIRTUAL POWER PLANTS BEING USED?

A.

A. Virtual power plants are in use around the world, but they are particularly prevalent in Europe, Australia, North America, and Asia. Here in the United States, utilities and independent aggregators are operating virtual power plants in Utah, Vermont, New York, Hawaii, California, Texas, and in the ISO-NE market, just to name a few, and plans are in motion to deploy a VPP in the Carolinas. At a sub-utility scale, there are several examples of apartment buildings or planned communities that are

1		operating as virtual power plants, including projects that sonnen has supported in
2		Arizona, Florida, and Michigan.
3		
4	Q.	WHERE HAS SONNEN DEPLOYED VIRTUAL POWER PLANTS?
5		
6	A.	sonnen's first VPP in the United States was developed in 2017 at Mandalay Homes
7		in Arizona, a planned development that is expected to grow to more than 2,900
8		homes through 2040. This project, which received the US Department of Energy
9		Grand Award for Grid-Interactive Efficient Building Innovation in 2021, consists
10		of homes equipped with rooftop solar, battery storage, energy efficiency, and
11		advanced cloud-based control algorithms that respond to price signals within a
12		unique time of use rate.
13		
14		Our next big project in the United States was the WattSmart Batteries program,
15		which we launched in Utah with Rocky Mountain Power in 2019. This project
16		began at Soleil Lofts, a 600-unit apartment complex that is home to a first of its
17		kind, utility controlled Virtual Power Plant consisting of 4.5 MW of dispatchable
18		capacity with a 12.6 MWh energy reservoir. From the beginning, Rocky Mountain
19		Power dispatched this VPP on a daily basis, delivering genuine value to the grid.
20		Since then, the WattSmart Batteries program has opened to all customers in Rocky
21		Mountain Power's footprint across Utah and Idaho, where it continues to provide
22		daily services in terms of frequency regulation, load shaping, and peak shaving.
23		
24		In the past couple of years, we have launched VPPs in California and Puerto Rico,
25		and efforts are underway to launch VPPs in NYISO and ISO-NE. We are also
26		supporting VPPs at additional planned communities, like Pearl Homes' Hunter's
27		Point development in Florida and Veridian at the County Farm in Ann Arbor
28		Michigan, which is being built by the Thrive Collaborative.

29

30

Q. PLEASE DESCRIBE THE WATTSMART PROGRAM.

- 1 A. The WattSmart Batteries program is a fully operational (i.e. non-pilot) distributed 2 battery grid management program that is directly dispatched by the utility on a daily 3 basis. This program is first-of-its-kind in the USA and offers a wide and growing 4 range of grid services, including non-wires alternatives for local load pocket decongestion and T&D deferral; demand response; capacity planning; energy; 5 6 frequency response; mitigation of the "duck curve" effect; individual and system-7 level resiliency; and spinning and non-spinning reserves. In the near future, the 8 utility hopes to explore using the batteries for reverse demand response, using the 9 batteries as load sinks during times of low grid demand and high excess generation.
- 10 Under this program, participants receive upfront and ongoing incentives for purchasing batteries that the utility can access to support the grid. The initial 12 commitment is four years, with the opportunity to continue after that in exchange 13 for a larger participation incentive.

14 WHAT BATTERIES ARE ELIGIBLE TO PARTICIPATE IN THE Q. 15 WATTSMART PROGRAM?

- Right now, the WattSmart program is open to six battery models from four 16 A. 17 manufacturers—sonnen, Solar Edge, Fortress, and Torus. Rocky Mountain Power 18 is actively engaging other battery manufacturers in hopes of expanding this list.
- 19 Participation is open to any batteries that meet the following requirements:
- 20 Ability to integrate with Rocky Mountain Power's distributed battery grid 21 management program, including 30 second interval data.
- 22 Utility grade batteries with a minimum of 4 kW / 10 kWh.
- 23 Minimum of 10-year battery warranty. •

- 24 Minimum of 7,500 battery cycle life to accommodate daily load cycling.
- 25 Ability to charge/discharge multiple times a day.
- 26 Full dispatch control by PacifiCorp to meet the needs of the program.

1		• Proper UL or equivalent safety certifications for residential and commercial		
2		applications.		
3		Additional requirements must be met in terms of telemetry and communications		
4		protocols.		
5				
6	Q.	WHAT INCENTIVES DO CUSTOMERS RECEIVE FOR		
7		PARTICIPATING IN THE WATTSMART PROGRAM?		
8	A.	The Wattsmart Program offers customers an upfront incentive of \$400 per kW of		
9		storage capacity for a four-year commitment. Larger incentives of \$600 per kW are		
10		available to households that currently have photovoltaic systems and commercial		
11		customers.		
12		In addition to the upfront incentive, participants receive an ongoing incentive of		
13		\$15 per kW in years 2, 3, and 4. This ongoing incentive rises to \$50 per kW		
14		beginning in year 5. Participants who had batteries prior to the program begin at		
15		the \$50 per kW incentive.		
16	Q.	WHEN THE UTILITY DISPATCHES A CUSTOMER'S BATTERY, IS		
17		THAT ENERGY EXPORTED TO THE GRID OR CONSUMED BY THE		
18		CUSTOMER?		
19	A.	When Rocky Mountain Power dispatches a battery, it serves the customer's energy		
20		needs first before exporting to the grid. This ensures customers receive the full		
21		financial benefit of having solar and having a battery in terms of reducing their		
22		energy bills.		
23		As noted earlier, Rocky Mountain Power is planning to eventually use customer		
24		batteries to absorb excess solar energy that would otherwise be curtailed as a form		
25		of reverse demand response. When this occurs, that energy will be exported directly		
26		to this grid, since it was not produced by the customer.		

1	Q.	MANY CUSTOMERS USE BATTERY STORAGE FOR ENERGY		
2		ARBITRAGE UNDER A TIME OF USE RATE. DOES THE WATTSMART		
3		PROGRAM PREVENT CUSTOMERS FROM DOING THIS?		
4	A.	The Wattsmart Program includes daily load cycling as a feature. Batteries charge		
5		during solar producing hours from connected rooftop solar systems and discharge		
6		when energy prices are highest and solar is unavailable. For customers on a time of		
7		use rate, this automatic process is functionally and financially equivalent to		
8		customer-initiated arbitrage. For customers on a standard residential rate, this is the		
9		equivalent of optimizing your battery to maximize self-consumption.		
10		As noted in the prior question, the batteries will eventually be used to absorb excess		
11		energy from utility scale solar or wind facilities that would otherwise be curtailed.		
12		In that case, customers will not receive the arbitrage benefit for the energy they did		
13		not produce. However, this will not prevent customers from realizing significant		
14		financial benefits from the battery program through the upfront and ongoing		
15		participation incentives, as well as available tax credits and the savings they will		
16		receive through self-consumption of the energy they generate.		
17	Q.	WHAT PERCENTAGE OF THE BATTERY CAPACITY CAN ROCKY		
18		MOUNTAIN POWER USE?		
19 20	A.	The agreement allows for up to 90%. In practice, grid conditions rarely require that		
21		level of discharge.		
22				
23	Q.	DOES ROCKY MOUNTAIN POWER DISPATCH THE BATTERY IF		
24		WEATHER CONDITIONS ARE EXPECTED TO BE POOR?		
25				
26	A.	No. As you would expect, utilities have access to some of the best meteorological		
27		data available. If the utility expects severe weather that could cause outages, they		
28		do not dispatch customer batteries and reserve the full capacity for the use of the		

customer. The same is true for planned outages for maintenance.

Q.	WHAT IS YOUR UNDERSTANDING OF THE CUSTOMER RESPONSE
	TO THE WATTSMART PROGRAM?

A.

The customer response has been very positive. As of January 2024, more than 3,300 customers were involved in the program, and enrollment has only accelerated with time as more battery brands have been approved for the program and as more solar contractors have grown to understand and promote the rebate offering.

For context, full retail net metering ended in Utah in 2017 and was replaced with a net billing structure that credits exported generation at a much lower wholesale rate. The WattSmart program offers customers an accessible pathway to getting essentially the full retail value for their generation, plus the added bonus of backup power. Many customers have also expressed a sense of pride in being part of the solution for using locally produced, clean energy in a way that helps keep Rocky Mountain Power's rates among the lowest in the country.

Q. WHAT IS YOUR UNDERSTANDING OF THE UTILITY RESPONSE TO THE WATTSMART PROGRAM?

A.

Rocky Mountain Power has truly embraced this program. Shortly after rolling out this concept at Soleil Lofts Apartments, Rocky Mountain Power petitioned its regulators to adopt the program as a permanent offering across its Utah and Idaho service territories. Their commitment to the program is evident in continued innovations, including incorporation of additional battery brands and models, deep partnership with the solar industry and other trade allies, and ongoing evaluation of increasingly innovative use cases, like localized distribution investment deferrals.

- Rocky Mountain Power has cited several reasons for promoting and expanding the program, including:
 - The ability to keep rates low by maximizing use of solar energy

1		• Avoiding operational problems from unmanaged rooftop solar, including	
2		minimizing ramping requirements and alleviating congestion	
3		• Providing a path forward for the solar industry after net metering	
4		The wide range of use cases	
5		• The positive response from customers	
6		• The responsiveness and flexibility of the battery technology	
7		Already, other utilities are taking notice. Rocky Mountain Power recently hosted	
8		a summit that was attended by representatives from Duke Energy, Arizona Public	
9		Service, and other utilities that were looking to replicate their success in their	
10		territories. Rocky Mountain Power will also have representation at a wide variety	
11		of industry conferences, including NARUC's 2024 Winter Policy Summit and	
12		DistribuTECH International.	
13			
14	Q.	BESIDES INCENTIVES, WHAT OTHER COSTS DID ROCKY	
15		MOUNTAIN POWER INCUR IN ROLLING OUT THIS PROGRAM?	
16 17	A.	Non-incentive costs included program administration, marketing, and software.	
18		These costs were estimated to be \$226,000 for program year 2022, or just over 12%	
19		of the total program cost. 1 Critically, Rocky Mountain Power did not need to invest	
20		in a Distributed Energy Resource Management System (DERMS) for this program.	
21	Q.	HOW DOES THE WATTSMART PROGRAM PERFORM DURING THE	
22		WINTER?	
23	A.	In cold temperatures, all batteries experience some degradation in their	
24		performance. The chemical reactions in the battery slow, so batteries' ability to	
25		accept a charge and reach full capacity decrease. However, these challenges can	
		accept a charge and reach full capacity decrease. However, these challenges can	
26		be mitigated with thoughtful siting. I will note that sonnen batteries, which use a	

.

 $^{^1\} https://pscdocs.utah.gov/electric/20docs/20035T07/315314 Redacted Tariff9-3-2020.pdf$

use, so it is possible to prevent any temperature-related performance degradation through indoor siting. This is the case at our Soleil Lofts project, but even locating the battery in an unconditioned garage offers some advantages relative to a fully outdoor installation.

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Another consideration in winter is that there isn't as much solar generation overall, which could make it harder to fill the battery from connected solar alone. This has not been a significant problem in Utah, since net metering encouraged customers to size solar arrays to cover their entire annual usage, but even here in Georgia where systems tend to be smaller, a partially full battery can still be useful. As noted earlier, Rocky Mountain Power rarely discharges batteries to the 10% reserve limit. Plus, the batteries can grid charge using excess solar or wind energy from utility scale systems if needed.

13 Q. THE WATTSMART PROGRAM IS ONLY FOCUSED ON BATTERIES AT 14 THIS STAGE. DO OTHER SONNEN VPPS IN THE UNITED STATES 15 INCLUDE OTHER RESOURCES?

A. At this stage, our U.S. VPPs are only focused on batteries. Many of our utility partners already had demand response programs for thermostats and other controllable loads when we initiated our battery programs, so there was no need or desire to control those technologies with our VPP product. However, our European VPPs tend to have a much wider array of products than just batteries, so we certainly have the capability to support a multi-technology VPP.

Q. WHAT BENEFITS WOULD RESULT FROM DEPLOYING A VIRTUAL POWER PLANT AS PART OF THIS PROCEEDING?

A. A virtual power plant would offer several advantages. From an operational perspective, VPPs can be deployed quickly and at a low cost. They provide a pathway to greatly increasing integration and use of zero carbon, locally produced energy with no fuel cost. They offer a wide range of use cases, including the

potential to defer distribution and transmission system upgrades that can be a barrier to connecting lowest cost energy with load.

From an economic development and stakeholder relations perspective, VPPs can offer a new business model to the solar industry and a mutually beneficial investment opportunity to aspiring rooftop solar customers. They can reduce energy burdens, increase resilience at the individual and system level, and support the many manufacturers who are operating in this state or desire to with a new market opportunity.

I would be remiss if I did not point out that despite having our headquarters in Georgia, we have done no projects here.

Q. MR. POSNER, PLEASE TELL US ABOUT YOUR ORGANIZATION.

A. Capital Good Fund is a nonprofit, U.S. Treasury-certified nonprofit Community Development Financial Institution (CDFI) that operates in eleven states, including Georgia. Since our founding in 2009, we have been offering inclusive financial products and financial coaching to low-income and disadvantaged communities, with a particular emphasis on communities of color and communities that speak English as a second language. We offer financial products across three key verticals—clean energy, immigration, and small dollar consumer loans.

CDFIs exist primarily to provide financial services to communities excluded from mainstream products from banks, credit unions, and other low-cost lenders. Lack of access to affordable loans, checking and savings accounts, and financial coaching has resulted in a \$200 billion predatory loan industry nationwide, consisting of payday lenders, pawnshops, rent-to-own stores, auto-title lenders and other firms that charge high-double and even triple-digit interest rates. In other words, one of our many roles is to address market failures.

As the nation transitions to cleaner energy sources, an obvious market failure is the difficulty that lower-income families face in accessing rooftop solar and other forms of clean energy. This is particularly true here in Georgia, where there are few if any state incentives for rooftop solar, energy efficiency technologies, and battery storage.

Recognizing these challenges, Capital Good Fund teamed up with the cities in the Coalition of Local Governments to launch the Georgia BRIGHT program in the fall of 2023 and to pursue related federal funding opportunities.

Q. PLEASE TELL US ABOUT THE GEORGIA BRIGHT PROGRAM.

A.

Georgia BRIGHT is a solar and storage leasing program that was specifically designed for households earning under \$100,000 per year. The BRIGHT program is designed to offer households day one and ongoing energy savings, with all maintenance included for 25 years. This program was made possible through the Inflation Reduction Act, which made nonprofits eligible to receive the solar investment tax credit as a direct payment for the first time. This allows organizations like Capital Good Fund to claim the tax credit on behalf of residents who may not be able to claim the credit themselves due to insufficient tax appetite. Georgia BRIGHT also leverages bulk purchasing, monetization of renewable energy credits, additional tax credits (such as the low-income bonus credit and the Energy Community adder), and impact investments at a concessionary rate to offer participants the lowest possible lease payment and the greatest possible savings.

Currently, the BRIGHT program is available to income-qualified homeowners in Georgia who have a roof in good condition or space for a ground-mounted system. Approval is not based on credit score, but a holistic evaluation of a household's ability to repay the lease given the anticipated savings. For now, the program is operating as a pilot with enough capital to serve between 150 and 175 households, but the goal is to make the program a permanent offering with an even wider range

of eligibility (for example, expanding to serve renters) in the near future. We also wish to highlight that this is a first-of-its-kind program that we are proud to be piloting in Georgia.

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Q. WHAT PERCENTAGE OF CUSTOMERS TO DATE HAVE OPTED FOR STORAGE?

7 A. As of February 13, 2024, more than 56% of leases have included storage. This is 8 far above our initial expectations and would likely increase if additional incentives 9 were to become available as part of a virtual power plant program. This uptake has 10 been particularly noteworthy since, while a PV-only system can deliver at least 11 10% month-one bill savings, adding storage results in a "bill-swap", or even a slight 12 bill increase. Customers have been opting for storage because of how much the 13 value the benefit of resilience in the face of outages and the ability to up-size their 14 solar system to offset more of their consumption. Were there an incentive of 15 \$400/kW of storage, all customers would realize day-one bill savings even with a 16 battery, and uptake would undoubtedly be even higher, as some customers who 17 wanted storage decided to maximize savings with a PV-only system.

18 Q. WHAT HAS BEEN THE AVERAGE INCOME OF PARTICIPATING 19 CUSTOMERS?

A. The average annual household income of participating customers has been \$70,705.94, with a low of \$38,712 and a median of \$67,080.

22 Q. IS THE BRIGHT PROGRAM ONLY AVAILABLE TO HOMEOWNERS?

A. No, we also offer a BRIGHT program for nonprofit organizations, like houses of worship, shelters, food pantries, local governments, and other community-serving organizations. In this case, it is not a lease but rather a Solar Energy Procurement Agreement, or SEPA.

1	In the future, we are excited to develop mechanisms to serve renters, small
2	businesses, and any other groups facing barriers.

Q. IF A VIRTUAL POWER PLANT WERE APPROVED AS PART OF THIS PROCEEDING, HOW COULD CAPITAL GOOD FUND AND THE BRIGHT PROGRAM SUPPORT THOSE EFFORTS?

A. Capital Good Fund could support VPP deployment in several ways. First, we could support customer acquisition through our existing outreach around the BRIGHT program. In addition to the Coalition governments, our outreach is supported by a network of community organizations, such as Georgia Interfaith Power & Light, who receive a success fee for each lead they generate that results in a closed lease.

Second, we would contribute to a successful program by offering an affordable and accessible financing mechanism for solar and battery storage. In this period of high interest rates, most solar loan and lease products have interest rates, or effective interest rates, that make day one savings difficult, if not impossible. Moreover, most of these require high credit scores. By contrast, Capital Good Fund's approval process does not consider a participant's credit score, and the interest rate that is embedded in our lease is lower than the going rate for a 30-year mortgage. As discussed previously, more than half of the participants in the BRIGHT program have opted for storage, even though storage often comes at a modest premium. If incentives were available that would eliminate that premium and allow for savings, I feel quite confident in saying that nearly all of our participants would choose to include it.

Finally, Capital Good Fund would support a highly subscribed VPP program through our access to federal funding. As a CDFI, Capital Good Fund is eligible for and has pursued several federal funding opportunities, both as a lead applicant and as a subrecipient. The most notable of these is the Greenhouse Gas Reduction Fund Program, which includes three competitions—the National Clean Investment Fund, the Clean Communities Investment Accelerator, and the Solar for All program.

Decisions on all three competitions are due in March, and we are expecting to receive funding through all three programs, since we are involved in multiple applications for each program. These awards would greatly expand our pool of capital and allow us to offer even more favorable rates for our solar and storage products. Moreover, the Solar for All program should also provide critical resources for solar-enabling work, like roof replacements and electrical upgrades. Besides shading, this has been the biggest reason we have had to turn customers away from participating in BRIGHT.

Q. PLEASE DESCRIBE THE SOLAR FOR ALL PROGRAM

A.

Solar for All is a \$7 billion federal funding program that is being offered through the Environmental Protection Agency. Through this competition, the EPA will award up to 60 grants to states, territories, tribal governments, municipalities, and nonprofits to help low-income and disadvantaged communities access and benefit from solar energy.

Q. HOW LIKELY IS IT THAT GEORGIA WILL RECEIVE SOLAR FOR ALL FUNDING FOR PROJECTS IN GEORGIA POWER TERRITORY?

A. The EPA has indicated that sixty awards will be made, with the general intention of ensuring that each state and territory receives at least one award. Three of the four applications that proposed to do work in Georgia would make investments in Georgia Power territory, including applications by Capital Good Fund and the Georgia Environmental Finance Authority. We obviously can't know for sure which application the federal government will choose, but the guidance suggested that applications with a statewide focus would be viewed more favorably, so I think it is quite reasonable to assume that a significant amount of Solar for All funding will be spent in Georgia Power territory.

Q. WHAT WOULD BE THE SCALE OF THE SOLAR FOR ALL PROGRAM?

A. Statewide applications for the state of Georgia could be for up to \$250 million, and both Capital Good Fund and GEFA requested this amount. By our modeling, this could result in more than 300 MW of solar and nearly 110 MWh of battery storage. However, I will caveat that this battery storage projection is likely an underestimate, since actual adoption rates for storage through the BRIGHT program have been more than double our original assumption and would be much higher with the addition of a VPP incentive.

8 Q. WHAT WOULD BE THE PERFORMANCE PERIOD?

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9 A. Award notifications are expected in March of this year, and the funding is available for five years.

11 Q. WHAT STEPS COULD THE COMMISSION TAKE TO MAXIMIZE THE 12 IMPACT OF THIS HISTORIC INVESTMENT?

13 A. The biggest thing that the Commission could do to maximize the impact of Solar 14 for All funding would be to create a program structure, like a virtual power plant 15 program, that would simultaneously help more customers access batteries and 16 support grid stability by dispatching those batteries for grid services.

To put this in perspective, if the Commission were to adopt the \$400/kW incentive for residential customers and the \$600/kW incentive for commercial customers that Rocky Mountain Power offers through the WattSmart program, we would expect total storage deployment to increase by 10-15% relative to our projections, based solely on our ability to make the awarded capital go further. Specifically, between a VPP incentive and Solar for All Funding, we would expect to originate leases that include storage to 3,200 low-income households and 1,300 community facilities (nonprofits, houses of worship, schools, etc.) over five years, totaling 110 megawatt-hours of battery capacity. That value does not even consider the persuasive impact of the additional incentive in driving consumer interest.

1 Q. WHAT IMPACT WOULD THESE CHANGES HAVE ON LOWER 2 INCOME HOUSEHOLDS?

3 A. Three impacts that are particularly important to my organization are reductions in energy burden; resilience; and job creation.

All of the households we serve are low or moderate income, and many of those households are burdened with energy bills in excess of \$200/month. Solar, particularly with battery storage, is a critical tool for reducing these bills to a more manageable level. Any programs that can support our work to get these technologies into communities will have an amplifying effect. With Solar For All funding and a VPP incentive, we would expect households to save at least 20% on their electric bills in month one.

Another impact would be greater access to resilience. Our customer population has included seniors, individuals living with disabilities, and individuals with medical dependence on electricity. For each of these populations, backup power can have serious quality of life benefits, and in some cases even be a matter of life and death.

It is important to note as well that resilience can also have a financial impact—for most of the people involved in this proceeding, losing a refrigerator full of food to a power outage would be an inconvenience and a disappointment, but it would not prevent us from eating. However, for a family in need, losing a weeks' worth of groceries can take a family from having hot, nutritious meals to living on whatever shelf stable, processed alternatives they have on hand.

Finally, we prioritize working with smaller contractors, including woman- and minority-owned firms such as Be Smart Home Solutions and Better Tomorrow Solar. The BRIGHT program will create hundreds of good-paying local jobs in the coming years, and the addition of batteries to a system creates more revenue-generation opportunities for installers and other companies throughout the value chain.

1 Q. WHAT OTHER BENEFITS WOULD RESULT FROM THESE CHANGES?

A. There has been a lot of discussion in this proceeding about whether the massive load growth that is anticipated will ultimately raise costs for customers. A lot of this uncertainty depends on whether the projected loads actually materialize on time and at the level anticipated. By offering a modular solution to capacity expansion, VPPs offer a crucial safeguard against overbuilding or building too quickly, offering customers additional protection against price increases.

Moreover, investing in solar and storage is a future-proof investment. When restrictive climate regulations or carbon prices are ultimately put in place, as they are almost certain to be, solar and storage will be able to continue operating without interruption. Oil-, gas-, or coal-fired resources will not. At a minimum, these resources will require significant investments to become fully hydrogen capable or be retrofitted with carbon capture. At worst, they will become stranded assets that must be retired prematurely and replaced with alternative resources. And of course, solar plus storage does not result in the local air pollution or greenhouse gas emissions that stem from fossil fuel-based power generation, an issue of particular importance to lower-income ratepayers that tend to live in areas with worse air quality.

Q. WHAT ARE THE PANEL'S RECOMMENDATIONS FOR THE COMMISION?

21 A. Our panel has three key recommendations:

1. The Commission should direct Georgia Power to evaluate the Rocky Mountain Power program and similar program models and bring a VPP program proposal to the Commission for approval within 180 days of the conclusion of this proceeding. This proposal should include proposed upfront and participation incentives and their justifications, administrative cost estimates, estimated implementation timelines, and other relevant

- information. This process should include opportunities for stakeholder input
 from parties to this docket.
 - 2. The RNR tariff should be modified to eliminate system size limits for solar energy systems paired with storage. That is, residential customers should be allowed to have systems greater than 10 kW, and commercial customers should be allowed to have systems greater than the current limit of 125% of their peak demand or 250 kW. This change should be made to maximize the amount of solar energy and battery capacity that is available for utility control via the virtual power plant. Though not directly a concern for utility regulation, we must note that this more efficient use of rooftops, parking lots, and other previously developed or disturbed spaces will reduce the need to convert farm land and forested areas into large solar farms, which is an additional benefit for our environment, community character, and quality of life.
 - 3. The Commission should direct Georgia Power to develop and file a plan for expediting interconnection and witness testing of customer-sited solar energy and battery storage systems to support maximum resource availability to meet the capacity needs identified in this docket. These costs should be addressed in the 2025 rate case.

20 O. DOES THIS CONCLUDE YOUR TESTIMONY?

21 A. Yes it does.

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GEORGIA PUBLIC SERVICE COMMISSION

In Re:)	
Georgia Power Company's)	Docket No. 55378
2023 Integrated Resource Plan Update)	

CERTIFICATE OF SERVICE

I hereby certify that I have this 15th day of February, 2024, served the foregoing **DIRECT TESTIMONY AND EXHIBITS OF BLAKE RICHETTA AND ANDREW POSNER ON BEHALF OF THE GEORGIA COALITION OF LOCAL GOVERNMENTS** upon all parties listed below via electronic mail.

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