**STATE OF GEORGIA**

**BEFORE THE**

**GEORGIA PUBLIC SERVICE COMMISSION**

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| **In Re: Georgia Power Company’s  2022 Rate Case Filing** | )  )  )  ) | **Docket No. 44280** |

**DIRECT TESTIMONY OF**

**KENNETH SERCY**

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Presented on behalf

of the Georgia Solar Energy Association, (“GA Solar”)

November 18, 2022

# **INTRODUCTION**

Q: PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS.

A: My name is Kenneth Sercy. I am an Energy Analyst at Greenlink Analytics, Inc, a scientific energy research non-profit organization located at 252 Carlyle Park Drive NE, Atlanta, GA 30307.

Q: PLEASE SUMMARIZE YOUR EDUCATIONAL AND PROFESSIONAL EXPERIENCE.

A: I have a Bachelor of Science degree from Clemson University and a Master of Environmental Management degree from Duke University, and ten years of experience in electricity markets, policy, and regulation focused on engineering-economic modeling and cost-of-service ratemaking. I have designed, run, and evaluated a variety of electric power modeling analyses including production cost, capacity expansion, and avoided cost and related cost-effectiveness tests, and have evaluated cost recovery, resource planning, asset certification, program and tariff design in more than sixty regulated utility proceedings, primarily in South Carolina. My professional experience also includes modeling renewable energy project economics and supporting state-level distributed energy resource policy and regulatory efforts.

While studying at Duke University, I worked for two years at the Nicholas Institute for Environmental Policy Solutions supporting energy modeling research using the US Department of Energy’s National Energy Modeling System. After graduating from Duke in 2012, I served as the South Carolina Coastal Conservation League’s Utility Regulation Specialist for five years, where I managed the organization’s work before the South Carolina Public Service Commission and supported a variety of electric sector policy objectives. From 2018 to 2021, I worked as an independent clean energy consultant providing expert witness testimony, regulatory analysis and guidance, energy modeling services, and market research relating to renewable energy and energy storage development, in both traditionally regulated and competitive wholesale regions of the United States. I joined Greenlink Analytics in 2022 where I work across teams to provide quantitative analyses, research, and decision-making support at the city, state, and institutional level. I have co-authored technical papers published by Clemson University’s Strom Thurmond Institute, the North Carolina Sustainable Energy Association, and the journal *Energy Policy*. A copy of my curriculum vitae is included as Exhibit 1 to my testimony.

Q: HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE GEORGIA PUBLIC SERVICE COMMISSION?

A: No, I have not.

Q: ON WHOSE BEHALF ARE YOU TESTIFYING?

A: I am testifying on behalf of the Georgia Solar Energy Association, known locally as Georgia Solar. Georgia Solar is a 501(c)(3) organization and the oldest solar education and advocacy organization in the State of Georgia.

Q: WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A: The purpose of my testimony is to provide analysis and recommendations relating to the structure and pricing of the RNR-10 tariff and its customer impact, in order to contribute to the considerations raised in the 2022 Georgia Power Company (“GPC”) Integrated Resource Plan order.[[1]](#footnote-2)

Q: PLEASE SUMMARIZE YOUR CONCLUSIONS.

A: Net metering is a proven rate design approach for enabling customer-sited solar PV. A modest increase in monthly netting participation across GPC territory would have widespread benefits, including creation of 2,400 jobs and $75 million in annual bill savings, as well as enhanced customer choice, a variety of system-wide benefits, and a maturing local rooftop solar market with further reduced PV prices. All GPC customers would benefit, with increasing distributed generation participation providing a range of direct and indirect benefits to customers.

Expanding net metering would promote equity across Georgia as well. Low- and moderate-income (LMI) and disadvantaged communities have been adopters of rooftop solar nationally and in Georgia. And with intentional programming, additional shares of the benefits of an expanded monthly netting program could flow into these communities and provide a much-needed financial boost. A dedicated working group could coordinate financial support from sources such as IRA programs and LIHEAP, ensure streamlined program administration, provide for workforce training, and help to educate and enroll customers, all as part of a place-based approach. This working group could also develop a rooftop PV consumer protections framework.

Q: PLEASE SUMMARIZE YOUR RECOMMENDATIONS.

A: I’m making three recommendations. First, I recommend that the customer and capacity limits on the RNR tariff’s monthly netting provisions be lifted. Second, I recommend that GPC’s request to force rooftop solar PV adopters onto a 3-part rate be rejected and that customers adopting rooftop solar continue to be permitted to choose their own service tariff. And third, I recommend that a rooftop solar working group be formed to coordinate efforts to ensure that all customers, including those in LMI communities, benefit from the market growth under an expanded monthly netting program, and I recommend that the same or similar working group be tasked with collaboratively developing reasonable rooftop PV consumer protections.

# **NET METERING BENEFITS**

Q: WHAT IS NET METERING?

A: Net metering is a policy that allows energy produced behind the customer’s meter and exported onto the grid to offset the customer’s energy consumption for billing purposes, thus crediting the customer’s energy production at the retail rate.

Q: WHY IS NET METERING IMPORTANT?

A: Net metering is the most widely used approach across the United States for enabling customers to choose to meet a portion of their electricity consumption with on-site solar photovoltaic renewable energy.[[2]](#footnote-3) It has been a foundational policy that has led to job creation, customer bill savings, and energy resource diversification in dozens of states.[[3]](#footnote-4) Based on the wide gap between the amount of net metered capacity and the amount of distributed PV capacity under compensation approaches other than net metering, no other compensation approach comes close to net metering in terms of proven success at enabling customer-sited renewable energy.

The US National Renewable Energy Laboratory (“NREL”) summarizes several advantages of net metering[[4]](#footnote-5) that have driven this success:

* Straightforward billing concept for customers and utilities
* Customer compensation for excess generation improves their financial return
* Can be implemented with existing retail rates and often with existing metering infrastructure

Q: HAS GEORGIA SEEN BENEFITS FROM NET METERING?

A: Yes. The existing GPC “monthly netting” program available to up to 5,000 customers has driven installation of approximately 36.79 MW of customer-sited solar PV.[[5]](#footnote-6) This rooftop solar market activity has provided electric bill savings to thousands of GPC customers, helped drive local economic growth, and diversified the state’s power grid.

It’s also worth noting that more rooftop solar was installed in GPC territory since the monthly netting pilot began than in multiple decades before the pilot. Based on the data reported to the US Energy Information Administration (“EIA”), GPC had 5.4 MW of residential solar PV through 2019, which had grown to 21.5 MW of residential solar PV by 2021.[[6]](#footnote-7)

Even with the market growth under the monthly netting pilot, Georgia has among the lowest shares of rooftop solar in the country, including substantially trailing other Southeastern states like Florida, Louisiana, South Carolina, Virginia, North Carolina, and Arkansas. This is shown below in Table 1.

**Table 1: Distributed Generation Relative to Customer Base by State[[7]](#footnote-8), 2021**



Q: HAVE YOU QUANTIFIED ANY POTENTIAL BENEFITS GEORGIA COULD EXPERIENCE IF THE MONTHLY NETTING PROGRAM WERE EXPANDED?

A: Yes, I’ve analyzed the benefits of additional monthly netting in two areas: economic development impacts and bill savings. While these analyses are not intended as comprehensive benefits assessments, I also discuss several additional monthly netting benefits in a qualitative manner.

In my quantitative analysis, I evaluated the impact of monthly netting at several participation levels for illustrative purposes: 1%, 2%, and 3% of GPC’s customer base. These participation levels represent market growth that could be expected over the next 3 to 5 years under an uncapped monthly netting program.

Q: PLEASE SHARE YOUR APPROACH AND FINDINGS ON ECONOMIC DEVELOPMENT IMPACTS OF AN EXPANDED MONTHLY NETTING PROGRAM.

A: I used the IMPLAN macroeconomic model[[8]](#footnote-9) to estimate net job creation, gross state product, and income impacts in Georgia at different retail monthly netting program participation levels. IMPLAN is widely used to analyze the effects of changes in an area’s economy – for example, the construction and operation of a new factory. I deployed the IMPLAN model to evaluate the impacts of investment in rooftop solar PV, along with the associated bill savings impacts.

Table 2 shows direct, indirect, and induced economic impacts of a monthly netting program reaching 80,000 residential GPC customers (3% of the Company’s total customer base). I assume an average PV system size of 6 kW, for a total capacity of 478 MW. Exhibit 2 shows the same figures for 1% and 2% participation levels.

**Table 2: Net Economic Development Impacts of 3% Monthly Netting**



For context, the jobs growth figure at 3% participation amounts to approximately half of the workforce at Coca-Cola’s Atlanta headquarters.[[9]](#footnote-10) These are important jobs and economic development considerations that have informed past Georgia Public Service Commission actions – for example, earlier this year the Commission approved a motion on a biomass RFP in recognition of “…the benefits of biomass as a renewable resource, and in order to support Georgia’s forest industry and rural job and economic development growth…”[[10]](#footnote-11)

Q: CAN YOU ELABORATE ON THE FINDINGS OF THE ECONOMIC DEVELOPMENT IMPACTS ANALYSIS?

A: Absolutely. First, I’ll discuss the definitions of direct, indirect, and induced effects.

1. Direct effects are those occurring directly from the economic activity in question – in this case, rooftop solar PV installations. For example, direct employment effects would be the jobs created for technicians to install the PV systems onto customer rooftops as well as the management, administrative, and other jobs within the solar businesses that deliver rooftop solar to customers.
2. Indirect effects are supply chain impacts occurring from the direct effects. For example, solar businesses source products and services from a variety of other firms, some of which are Georgia businesses that then employ more workers to meet additional demand.
3. Induced effects are further ripple effects in the economy that stem from direct and indirect effects. For example, induced employment effects occur because of the income earned by workers employed due to direct and indirect effects, which the workers then spend on a variety of local goods and services, such as housing, food, and entertainment, thereby creating demand in those economic sectors that leads to employment gains to meet the elevated demand.

Second, I’ll describe the output metrics themselves. The employment data in Table 2 refer to full-time employees under an assumption that an average job lasts 4 years. Income is the salary compensation received by the workers in the jobs created. And gross state product is the value-add of the goods produced by the economic activity.

Third, I’d like to emphasize that this is a net economic impacts analysis, meaning that the analysis accounts not only for positive economic development but also for any economic losses that may occur. For example, I assume that reduced consumption of utility power has a negative effect on jobs, income, and GSP from the electric utility sector in Georgia, and the figures in Table 2 have netted out these losses.

Q: PLEASE SHARE YOUR APPROACH AND FINDINGS ON BILL SAVINGS IMPACTS OF AN EXPANDED MONTHLY NETTING PROGRAM.

A: I modeled electric bill costs for a household consuming 1,000 kWh per month on the current GPC R-25 tariff, along with a second case where the household adds a PV system to offset approximately 50% of its grid consumption. Because households installing rooftop solar vary in their before-solar electricity consumption and in the size of the PV system installed, I also modeled a higher consumption household with a larger PV system and confirmed that on a per-kWh basis the bill savings were virtually the same.

I extrapolated the bill savings calculated for the household described above across the same program size assumed for the economic development analysis above; that is, 3% of GPC customers. I estimate approximately $75 million in annual bill savings from monthly netting under the current residential rates, which equates to an average household savings of $937 over the course of a year. Exhibit 2 shows the bill savings estimates for 1% and 2% participation levels.

While these bill savings benefit customers installing rooftop solar, the entire GPC system benefits as well from reduced strain on the transmission and distribution grids, increased fuel diversity, and lower environmental and public health impacts (and thus lower utility regulatory risk) from the power system as more electricity is generated from small, distributed renewable systems.[[11]](#footnote-12)

Q: HOW WOULD YOU EXPECT THESE ECONOMIC DEVELOPMENT AND BILL SAVINGS BENEFITS TO BE DISTRIBUTED ACROSS GEORGIA?

A: That depends on how the program is designed and implemented. Generally, the economic development and bill savings benefits I’ve estimated would flow to a wide range of Georgians, in different parts of the state and at different income levels. A Lawrence Berkeley National Laboratory report released this month on residential solar adopter trends found that solar adopters are heterogeneous in income and demographics, with solar adoption becoming more widespread over time and reaching more low-income households.[[12]](#footnote-13) In Georgia, 30% of recent residential solar adopters were households below 300% of FPL, with about 15% below 200% FPL and about 8% below 150% FPL.[[13]](#footnote-14) About 6% of Georgia solar adopters were in disadvantaged communities, compared to 18% of all Georgia households being in disadvantaged communities.[[14]](#footnote-15) As noted above, all customers experience benefits from rooftop solar additions to the grid via the value of multiple system-wide factors such as deferred grid investment and risk reduction.

However, intentionally designing an inclusive monthly netting program that reaches larger numbers of low- and moderate-income customers would enhance the level of program benefits accruing to those communities and further promote equity in Georgia. This is discussed in more detail later in my testimony.

Q: BESIDES ECONOMIC DEVELOPMENT, BILL SAVINGS, AND THE SYSTEM-WIDE BENEFITS YOU’VE NOTED, ARE THERE OTHER BENEFITS OF AN EXPANDED MONTHLY NETTING PROGRAM?

A: Yes. An expanded monthly netting program enhances customer choice within GPC territory. Additionally, the market growth that would be supported by greater access to monthly netting would aid in the maturation of the local renewable energy market, which would in turn yield industry learning and lower installed costs for customers.[[15]](#footnote-16)

Q: WOULD YOU EXPECT TO SEE THESE BENEFITS WITHOUT AN EXPANDED MONTHLY NETTING PROGRAM?

A: No. Alternative compensation approaches generally lose either the financial benefits or the simplicity of net metering, or both. As a result, I would expect customer adoption without monthly netting to be comparatively muted.

An NREL analysis of the impact of rate design alternatives on solar PV customer electric bills found that both demand charges and increased fixed charges could result in substantially higher bills than under the standard net metering approach, and also described and illustrated the complexity of the demand charge from a customer perspective.[[16]](#footnote-17)

This aligns with the EIA Form 861 data that I cited previously, showing that across the US, relatively little distributed PV has been installed outside of net metering programs. It’s also consistent with the GPC experience whereby residential rooftop solar expanded considerably under monthly netting compared to pre-net metering installations.

Thus, given diminished financial benefits to solar adopters and muted market growth without monthly netting in place, the benefits I’ve described – from economic development to customer bill savings to system benefits and enhanced customer choice – would be unlikely to materialize.

Q: PLEASE PROVIDE YOUR CONCLUSIONS RELATED TO NET METERING BENEFITS.

A: My conclusions on net metering benefits are as follows:

* Net metering is unique as a compensation approach in its proven track record of success, both in Georgia and nationally
* A modest increase in residential rooftop solar under an expanded monthly netting program, to 3% of GPC’s customer base, would add approximately 2,400 jobs and save $75 million on participating customer bills, while also providing additional grid benefits, enhancing customer choice, and driving rooftop solar prices down
* A diverse cross-section of Georgians would be expected to adopt rooftop solar PV with expanded monthly netting, including low- and moderate-income customers and households in disadvantaged communities, and
* This array of benefits is unlikely to materialize without monthly netting in place.

1. **LOW- AND MODERATE-INCOME COMMUNITY BENEFITS**

Q: HAS THE GEOGIA PUBLIC SERVICE COMMISSION TAKEN ACTIONS TO PRIORITIZE LOW- AND MODERATE-INCOME COMMUNITIES?

A: Yes. For example, this year the Commission approved significant funding for demand-side management programs designed to reach low- and moderate-income customers. The HopeWorks Program is aimed at “senior income qualified customers who have been underserved by previous DSM offerings.”[[17]](#footnote-18) The Commission extended the Residential Investment to Save Energy pilot, which is “designed to serve income qualified customers that could not otherwise participate in DSM programs…”[[18]](#footnote-19) The Commission also approved a new Manufactured Homes Program “to serve homes that historically have been underserved by the Company’s current DSM programs” and found that “customers living in manufactured homes often have significant energy burdens and thereby could greatly benefit from energy efficiency upgrades…”[[19]](#footnote-20)

Further, the Commission approved an Income-Qualified Community Solar pilot.[[20]](#footnote-21) GPC proposed the program in alignment with its “commitment to the communities it serves and recognizing barriers that may prevent income-qualified customers from accessing renewable energy….” The pilot will offer community solar subscriptions at discounted prices and will be marketed “through established relationships with community partners, including housing authorities and customer education and awareness organizations.”[[21]](#footnote-22)

These efforts to reach LMI communities are in line with actions by peer utilities authorized by regulators across the Southeast. For example, the Mississippi Public Service Commission recently approved a net metering program that provides additional compensation to income-qualified customers for exported energy and also offers a $3,000 rebate to LMI customers to help defray upfront solar PV installation costs.[[22]](#footnote-23) A recent review by the Southeast Energy Efficiency Alliance found 28 ratepayer-funded low-income programs in 8 Southeastern states, and noted that “southeastern utilities and policy makers have moved to address the dual issues of poverty and energy burden. This has been reflected in both the volume of policy directives surrounding this issue and the significant expansion of low-income energy efficiency programs.”[[23]](#footnote-24)

Q: HOW WOULD AN INCLUSIVE EXPANDED MONTHLY NETTING PROGRAM REACHING LMI COMMUNITIES MESH WITH THESE ACTIONS?

A: An expanded monthly netting program designed to reach LMI communities would further build on past Georgia Public Service Commission actions to support LMI customers as the cost of energy continues to rise. In other words, net metering is one tool among many that can provide targeted benefits to communities that need them most. Giving customers a variety of options for bill relief helps ensure that customers with different needs and in different circumstances have access to programs that work for them, while also increasing the total numbers of customers and communities that can benefit.

Q: IS THERE A NEED FOR ADDITIONAL PROGRAMMING AIMED AT BRINGING BENEFITS TO LMI COMMUNITIES?

A: Across Georgia, there are more than 1 million households with an electricity burden greater than 6%, and more than 600,000 households with an electricity burden greater than 10%.[[24]](#footnote-25) The median electricity burden in Georgia (currently 3.6%) is likely to rise as GPC rates continue to increase – the Company is requesting a $1 billion increase, a 12% increase to retail rates that would “result in an increase of approximately $16.29 to the monthly bill of a typical residential customer using an average of 1,000 kWh per month.”[[25]](#footnote-26) And while many initiatives are in place and even poised to grow as a result of Commission orders, an increasingly-large portion of GPC’s customer base is expected to continue to live with above average, high (6-10%) or severe electricity burden (greater than 10%). Additional options that can deliver benefits to these households can have a transformative positive impact on communities across the state.

Q: COULD YOU PROVIDE AN ILLUSTRATION OF HOW AN LMI CUSTOMER COULD BENEFIT FROM MONTHLY NETTING?

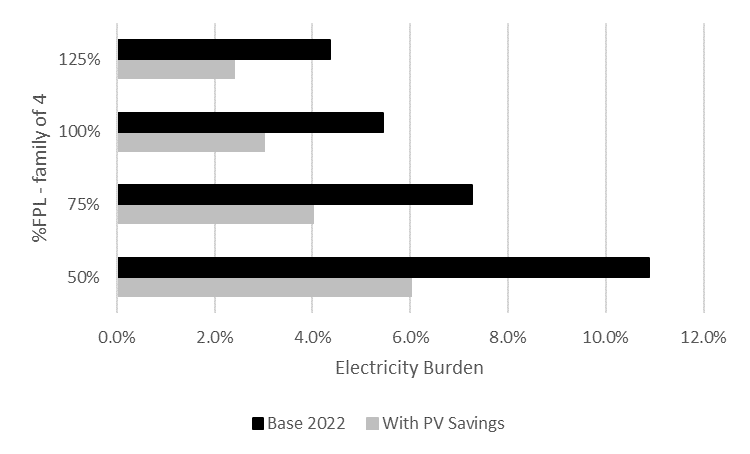
A: Yes. Table 3 illustrates how net metering bill savings can reduce energy burden. Energy burden is the percentage of household income spent on energy bills, including electric and other fuels such as natural gas or propane. In Table 3 I focus specifically on electricity burden, which is the portion of income spent on the electric bill. The table shows how an example home consuming 1,000 kWh per month (under GPC’s current residential tariff) and with income equal to 100% of the Federal Poverty Level for a family of four would benefit from monthly netting with a solar PV system sized to produce about half of the amount of electricity consumed by the family.

**Table 3. Electricity burden with and without monthly netting for a 4-person HH at 100% FPL**



In this example, adding a PV system has the potential to pull this family from nearly high electricity burden to below-average. Further, in Figure 1, I show how households at different income levels could benefit from the same bill savings from Table 3. The effects shown in the figure are similarly transformative, moving households from severe to high, high to above-average, and above-average to below-average electricity burden.

**Figure 1. Electricity burden impacts of monthly netting at 4 income levels**



Q: WOULD LMI COMMUNITIES EXPERIENCE BENEFITS FROM THE ECONOMIC DEVELOPMENT IMPACTS YOU DESCRIBED ABOVE?

A: Yes. Job creation and the additional income flowing into Georgia communities would also benefit LMI communities. And because income is part of the energy burden metric, these economic development benefits can further reduce energy burden.

The average salary for solar industry jobs in the analysis I present above is $59,000, with indirect jobs earning $53,000 on average and induced jobs earning an average of $42,000. For a household at or below the FPL, obtaining a job in the local solar industry could increase household income considerably, and for many of these households would pull them out of high or even severe energy burden.

For example, most of the census tracts in Ware and Clinch counties served by GPC have high electricity burdens, and several have severe electricity burdens. Thousands of households in these example counties have incomes at or below the federal poverty level. A Ware County family of four at the FPL spending $2,600 annually on electricity with an income of $27,750 would have an electricity burden of 9.4%. If the household’s income was provided by an average solar industry job paying $59,000, the family’s electricity burden would be reduced to 4.4%.[[26]](#footnote-27)

Q: WHAT OTHER BENEFITS COULD GEORGIA’S LMI COMMUNITIES SEE FROM EXPANDED MONTHLY NETTING?

A: A monthly netting program broadly available to GPC customers would leverage the market growth and cost-reducing impacts of non-LMI adopters of rooftop solar PV. Non-LMI customers generally find it easier to access renewable energy financing and take advantage of federal tax credits. The lower barriers faced by these customers can lend stability and geographic diversity to rooftop solar market growth, thus helping to push down costs more consistently across counties and over time. These effects facilitate LMI customer adoption and support their access to the benefits of rooftop solar PV. Further, non-LMI adoption deepens the economic development impacts that could benefit LMI communities and helps spread those impacts more widely across Georgia.

Q: OVERALL, WHAT IMPACT COULD GEORGIA’S LMI COMMUNITIES SEE FROM EXPANDED MONTHLY NETTING?

A: Considering both the bill savings opportunities and the job creation that would be driven by the growing local solar market, tens of thousands of households across the state could see significant improvements in their energy burden, thus driving significant equity gains within GPC territory. As discussed above, at a 3% participation level, about 80,000 customers could experience considerable bill savings from rooftop PV, while creating 2,400 full-time jobs with salaries averaging much higher than the annual income of many lower income households. Even at this very modest participation level, large numbers of Georgians could experience a dramatic improvement in their financial status. LMI customer choice will have been increased through additional program offerings. And the bill savings that LMI communities would ultimately realize would be enhanced through the cost-reducing impacts of wider Georgia adoption of rooftop solar PV. Similarly, a broadly available monthly netting program would support elevated economic development impacts that would widen the potential for LMI communities to obtain jobs and increase household income through solar market growth.

Q: PLEASE PROVIDE YOUR CONCLUSIONS RELATED TO LMI CUSTOMER MONTHLY NETTING BENEFITS.

A: My conclusions on LMI customer monthly netting benefits are as follows:

* While the Georgia Public Service Commission has provided for substantial programming aimed at benefiting LMI customers, a large need remains, and expanded monthly netting is an appropriate addition to the suite of program choices available to these customers
* Both the economic development impacts and the bill savings potentials from a monthly netting expansion would have dramatically positive impacts on household finances for lower income customers, in many cases pulling them out of severe or high energy burden
* The geographic and volumetric solar market boosts achieved by broad participation in a monthly netting program would increase the numbers of new jobs that could be obtained within LMI communities and would drive down rooftop solar prices, thereby enhancing the net bill savings LMI customers realize.

# **DESIGNING AN INCLUSIVE MONTHLY NETTING PROGRAM**

Q: HOW CAN A MONTHLY NETTING PROGRAM BE DESIGNED TO BE INCLUSIVE OF LMI COMMUNITIES, AS DISCUSSED ABOVE?

A: I recommend considering three factors that can guide program design toward extending the benefits of an expanded monthly netting program to a broad and diverse cross-section of GPC customers. Importantly, this encompasses promoting inclusion of LMI communities and thus driving equity gains in Georgia:

* Place-based approach to programming,
* Forging partnerships, and
* Leveraging financial support

Q: PLEASE ELABORATE ON CONSIDERATION OF A PLACE-BASED APPROACH TO PROGRAMMING.

A: Income and other economic and social indicators vary greatly by geography. Figure 2 below illustrates this point with the wide variation of electricity burden across Georgia counties, from a low of under 2% to a high of over 10%.[[27]](#footnote-28) Indeed, electricity burden and other metrics also vary at a finer level of granularity, as shown in Figure 3, which zooms in on Savannah, Georgia as an example.[[28]](#footnote-29) In 2019, electricity burden in individual census tracts ranged from a low of under 2% to a high of over 16% in Savannah.

**Figure 2: Electricity burden in Georgia, by county.**

Graphical user interface, website, map

Description automatically generated

**Figure 3: Electricity burden in Savannah, GA by census tract.**

Graphical user interface, application, website, map

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A place-based approach to programming considers such data on income, demographics, electricity burden, and other factors to strategically determine where and how to focus program resources and efforts. LMI communities will receive greater shares of program benefits if such location-specific considerations guide program implementation.

Q: PLEASE ELABORATE ON FORGING PARTNERSHIPS.

A: Effective partnerships can serve numerous critical functions in the process of developing and implementing a program intended to reach a wide audience, including increasing shares of LMI participation. These include:

* + 1. Coordinating program administration
    2. Successfully combining services and incentives from multiple organizations and programs
    3. Achieving trust and educating and marketing within communities

A recent NRRI report notes that “project experience demonstrates that special attention is needed to effectively combine and coordinate multiple low-income programs and implement ideas about how best to deliver solar benefits to low-income customers.”[[29]](#footnote-30) The report further spotlights several tested strategies for coordinating administration and combining multiple programs, including a “one-stop shop” platform, use of trained navigators to help customers understand offerings, and use of working groups to guide program development.

The Low-Income Solar Policy Guide emphasizes the importance of community engagement throughout the process of program development and implementation, noting that “Engagement should include partnerships with trusted local community-based organizations, which can help educate and enroll customers.”[[30]](#footnote-31)

Workforce training is another key objective to emphasize in a program aiming to include LMI communities in the positive economic development impacts that would accrue with expanded monthly netting. Partnerships with organizations that provide such training can prepare community members with the knowledge and skills to obtain employment in the solar industry and in firms expanding due to indirect and induced economic impacts.

In sum, partnerships among entities such as community-based organizations, solar installers, Georgia Power, and state and local officials could be a powerful means of coordinating various financial support mechanisms, engaging with communities, and streamlining enrollment processes, all of which would support GPC customer access to an expanded monthly netting program, with potential to substantially boost LMI customer adoption of rooftop solar PV. One potential venue for forging such partnerships could be a working group analogous to the Distributed Generation Working Group (“DGWG”) created under the 2022 IRP order[[31]](#footnote-32), except in this case focused on rooftop solar PV.

Q: PLEASE ELABORATE ON LEVERAGING FINANCIAL SUPPORT.

A: A Lawrence Berkeley National Laboratory study released in 2022 found that while rooftop solar financial incentives have generally been phased down over time in the US by policy design, financial incentives still drive PV adoption by LMI households that would not have otherwise happened.[[32]](#footnote-33)

NREL’s Low- and Moderate-Income Solar Policy Basics web publication discusses the importance of financial support for extending solar access to LMI populations.[[33]](#footnote-34) NREL lists both direct incentives such as rebates towards the cost of PV systems and supplemental bill credits, as well as credit- and financing-related mechanisms such as loan loss reserves, on-bill financing, and revised underwriting criteria. Potential funding sources listed include the Low-Income Home Energy Assistance Program (“LIHEAP”), the Weatherization Assistance Program (“WAP”), and Community Development Financial Institutions (“CDFIs”).

The Inflation Reduction Act (“IRA”) represents another opportunity to leverage federal funding in support of LMI customers realizing benefits from customer-sited solar PV. Several programs created by the IRA are viable sources of funds, including the Greenhouse Gas Reduction Fund[[34]](#footnote-35), the Climate Pollution Reduction Grants program[[35]](#footnote-36), and the Environmental and Climate Justice Block Grants program[[36]](#footnote-37). These three programs represent approximately $35 billion of funding, including grants and financing, that are not dependent on a household’s ability to benefit from tax credits. Multiple programs could be layered on top of one another to provide both direct incentives and financing to a wide range of low-income and disadvantaged communities.

Q: WHAT MIGHT A SUCCESSFUL PROGRAM DESIGN LOOK LIKE, CONSIDERING THE THREE FACTORS?

A: An alliance of Georgia stakeholders could form that would provide for coordinated action to greatly enhance the level of net metering benefits realized by LMI communities. Trusted local organizations could serve as community liaisons and support community participation in development and implementation of an LMI rooftop solar program, ensuring that LMI communities are at the center of these efforts. State and local officials could work with communities and Georgia Power to use a data-driven approach to focus on specific geographies across Georgia, achieving an appropriate place-based program rollout. All parties would collaborate on applying for funding under the IRA as well as leveraging existing funding under LIHEAP, WAP, and other sources. Through a combination of IRA and existing LMI-targeted funding, rebates and/or other financial support would be provided to LMI households in order to offset costs and maximize their bill savings from net metering. And parties would develop a one-stop-shop or similar mechanism for administering the financial support, place-based programming, workforce training, and other key functions.

Q. PLEASE PROVIDE YOUR CONCLUSIONS ON DESIGNING AN INCLUSIVE MONTHLY NETTING PROGRAM.

A: My conclusions on program design are as follows:

* A greater share of the benefits of net metering can be channeled into LMI communities through place-based programming, effective partnerships, and leveraging financial support from the IRA and other sources
* A working group similar to the DGWG but dedicated to rooftop PV issues could be a means to forging partnerships and coordinating financial support mechanisms and program administration.

# **RNR TARIFF PROPOSAL AND RESPONSES TO GPC WITNESSES**

Q: WHAT CHANGES DO YOU PROPOSE TO THE RNR TARIFF MOVING FORWARD?

A: I propose that the existing limitations on customer access to the retail rate monthly netting provisions of the RNR-10 tariff be removed. In other words, I recommend lifting the customer count and capacity limits on monthly netting participation.

This would enable Georgia Power customers to participate more widely in the successful monthly netting program, paving the way for the economic development and bill savings benefits presented in my testimony to be attained.

Q: DO YOU HAVE ANY COMMENTS ON THE SUPPLEMENTAL RNR-10 TESTIMONY OF COMPANY WITNESSES EVANS AND LEGG?

A: Yes, I’d like to comment on the cost shift claims, the recommended 3-part rate, and consumer protections.

First, Witnesses Evans and Legg state that “…the Company has made an adjustment of approximately $1.4 million to rates related to the projected cost shift from the monthly netting pilot.”[[37]](#footnote-38) My testimony does not include analysis of the Company's alleged cost shift claims or methodology; however, taking it at face value, it’s important to recognize how tiny this figure is in relation to the Georgia Power system. The Company’s 2021 revenues totaled $8.48 billion,[[38]](#footnote-39) meaning less than 0.02% of the Company’s revenues would account for the alleged monthly netting cost shift.[[39]](#footnote-40) Again taking this figure at face value, under a modest expansion, as envisioned in my testimony and calculations, the level of revenue implicated in monthly netting would remain minimal. This conclusion is in line with recent research and analysis finding that at low participation levels, the impact of rooftop solar PV on retail rates is negligible.[[40]](#footnote-41)

Second, GPC is proposing to require “all customers who enroll in RNR on or after January 1, 2023 to take service under a three-part rate”[[41]](#footnote-42) consisting of a customer charge, a demand charge, and an energy charge. However, the Company hasn’t provided evidence that RNR customers have a distinctive usage pattern that warrants grouping them together as a separate customer class and forcing them to take service under a particular rate tariff. Other customers continue to have options as to which tariff they take service under, including customers who adopt technologies or behaviors that impact their usage patterns. In the absence of such evidence, taking away these customers’ ability to choose their rate tariff is discriminatory and should be rejected.

Third, Witnesses Evans and Legg support “…the development of a more formal framework…” for consumer protections related to rooftop solar.[[42]](#footnote-43) A reasonable, collaboratively developed approach to consumer protections for the rooftop solar industry aligns well with the goal of expanding the benefits of rooftop solar across Georgia. This could be an additional topic for development under a rooftop solar working group, as discussed above.

Q: DO YOU HAVE ANY COMMENT ON THE SUPPLEMENTAL RNR-10 TESTIMONY OF COMPANY WITNESS GATTIE?

A: Yes, I’d like to comment on Witness Gattie’s view of Georgia’s policy choices and on his assertions about the implications of the IRA.

First, Witness Gattie focuses on California and its evolving net metering policy. The Georgia rooftop solar market, unlike the market in California, is in relative infancy. What California regulators and policymakers are debating with respect to net metering and distributed generation has little relevance to Georgia at this stage. Witness Gattie fails to note that most states have implemented a net metering policy as I reference above, and many have embraced net metering as a means to grow a rooftop solar market that is far larger than the existing market in Georgia.[[43]](#footnote-44) States such as California and Arizona are adapting their policies only after capturing the benefits of years of robust growth in this sector, which Georgia has not experienced thus far.

Second, Witness Gattie claims that “As a result of the IRA, Georgia is likely to see considerable growth in the rooftop solar market in the coming years—without any modification to Georgia’s existing compensation structures for customer-owned generation.”[[44]](#footnote-45) Yet he offers no Georgia-specific analysis supporting this claim. As I’ve described, retail net metering is simple for customers to understand, creates a value proposition conducive to customer adoption of the technology, and has a tried-and-true track record of success. While the IRA extends tax credits that will be useful to some customers and provides funds that a variety of local and state entities may apply for, without net metering in place locally in Georgia, these incentives (even if they are available to customers) may not significantly impact Georgia’s rooftop solar market trajectory. As I noted previously, the creation of the monthly netting pilot resulted in a step-change in rooftop solar adoption in GPC territory even though tax credits have been available for many years before the pilot. Customers, especially in LMI communities, are likely to struggle with the value proposition of rooftop solar under the 3-part rate approach advocated by the Company or under instantaneous netting. To understand the financial implications of such tariff approaches, customers must consider the timing of their own demand, the timing of PV generation, how those overlap, and how the rate structure impacts their bills with and without rooftop solar. Such complexity is likely to pose a significant barrier to adoption, even with direct incentives and financing solutions in place. Retail net metering, by contrast, represents a simple and proven tariff approach both nationally and in Georgia, whereby IRA incentives may be leveraged to complement net metering policy and make rooftop solar a viable option with pronounced benefits for LMI communities.

# **CONCLUSIONS AND RECOMMENDATIONS**

Q: PLEASE SUMMARIZE THE CONCLUSIONS YOU’VE MADE THROUGHOUT YOUR TESTIMONY.

A: Net metering is a tried-and-true rate design approach to enabling customer-sited solar PV. A modest increase in monthly netting participation across GPC territory would have widespread benefits, including creation of 2,400 jobs and $75 million in annual bill savings, as well as enhanced customer choice, a variety of system-wide benefits, and a maturing local rooftop solar market with further reduced PV prices. All customers would benefit, with increasing distributed generation participation providing a range of direct and indirect benefits to customers.

Expanding net metering would promote equity across Georgia as well. LMI and disadvantaged communities have been adopters of rooftop solar nationally and in Georgia. And with intentional programming, even more of the benefits of an expanded monthly netting program could flow into these communities and provide a much-needed financial boost. A dedicated working group could coordinate financial support from sources such as IRA programs and LIHEAP, ensure streamlined program administration, provide for workforce training, and help to educate and enroll customers, all in a place-based approach. This working group could also develop a rooftop PV consumer protections framework.

Q: WHAT RECOMMENDATIONS ARE YOU MAKING RELATED TO THE RNR-10 TARIFF?

A: First, I recommend that the customer and capacity limits on the RNR tariff’s monthly netting provisions be lifted.

Second, I recommend that GPC’s request to force rooftop solar PV adopters onto a 3-part rate be rejected, and that customers adopting rooftop solar continue to be permitted to choose their own service tariff.

Third, I recommend that a rooftop solar working group be formed to include GPC, PIA Staff, rooftop solar installers, community-based organizations, city officials, and others with the capacity to contribute to defining and executing financial support, partnership actions discussed in my testimony, and place-based programming. Further, I recommend that the same or similar working group be tasked with collaboratively developing reasonable rooftop PV consumer protections.

Q: DOES THIS CONCLUDE YOUR TESTIMONY?

A: Yes.

**Table 4: Economic Development Impacts of 1% Monthly Netting**



**Table 5: Economic Development Impacts of 2% Monthly Netting**



**Table 6: Bill Savings by Participation**



1. Georgia Public Service Commission Docket Nos. 44160 and 44161, Order Adopting Stipulation at 44. [↑](#footnote-ref-2)
2. The most recent US Energy Information Administration Form 861 data, from 2021, shows 31.4 GW of net metered PV capacity and only 2.4 GW of non-net metered distributed PV capacity in the United States. [↑](#footnote-ref-3)
3. NREL’s Net Metering Basics webpage (<https://www.nrel.gov/state-local-tribal/basics-net-metering.html>, accessed 11/15/22) notes that 41 states, plus Washington, D.C., American Samoa, U.S. Virgin Islands, and Puerto Rico, have mandatory net metering policies, while some utilities in additional states such as Texas and Idaho voluntarily offer net metering arrangements to customers. Further, NREL states that “Net metering has been consistently recognized as a foundational policy to support the growth of a distributed solar marketplace.” [↑](#footnote-ref-4)
4. Id. [↑](#footnote-ref-5)
5. [https://www.georgiapower.com/company/energy-industry/energy-sources/solar-energy/solar/solar-buy-back.html](about:blank), accessed 11/7/22. [↑](#footnote-ref-6)
6. US Energy Information Administration Form 861, data for 2019 and 2021. [↑](#footnote-ref-7)
7. Source: EIA 861, 2021 data. “NM” represents net-metered PV installations; “DG” represents the sum of net metered PV installations and all non-net-metered distributed generation (Form 861 does not provide installation counts by technology). [↑](#footnote-ref-8)
8. [www.implan.com](http://www.implan.com) [↑](#footnote-ref-9)
9. <https://www.coca-colacompany.com/au/news/explore-cutting-edge-coca-cola-offices-around-the-world> [↑](#footnote-ref-10)
10. Georgia Public Service Commission Docket Nos. 44160 and 44161, Order Adopting Stipulation at 43. [↑](#footnote-ref-11)
11. Numerous studies have estimated system-wide grid, financial, and social benefits of rooftop solar PV. For examples see Hansen, Lacy & Glick. A Review OF Solar PV Benefit & Cost Studies, 2nd Edition (Rocky Mountain Institute, 2013). <https://rmi.org/wp-content/uploads/2017/05/RMI_Document_Repository_Public-Reprts_eLab-DER-Benefit-Cost-Deck_2nd_Edition131015.pdf> Many of the studies reviewed found rooftop PV benefits equal to or exceeding the local retail rate. [↑](#footnote-ref-12)
12. Sydney Forrester, Galen Barbose, Eric O'Shaughnessy, Naïm Darghouth, and Cristina Crespo Montañés. Residential Solar-Adopter Income and Demographic Trends. LBNL (November 2022) at 5 and 42. [https://eta-publications.lbl.gov/sites/default/files/solar-adopter\_income\_trends\_nov\_2022.pdf](about:blank) [↑](#footnote-ref-13)
13. Id at 19. [↑](#footnote-ref-14)
14. Id at 21. [↑](#footnote-ref-15)
15. Solar PV soft costs have been found to be lower for larger systems (economies of scale could be accessed via customer aggregation approaches like Solarize campaigns), as well as for systems installed by more experienced installers, and systems installed in more concentrated and more competitive markets. Eric O'Shaughnessy, Gregory F. Nemet, Jacquelyn Pless, Robert Margolis. Addressing the Soft Cost Challenge in U.S. Small-Scale Solar PV System Pricing. *Energy Policy* **134** (November 2019). <https://www.osti.gov/servlets/purl/1566058> [↑](#footnote-ref-16)
16. Lori Bird, Carolyn Davidson, Joyce McLaren, and John Miller. Impact of Rate Design Alternatives on Residential Solar Customer Bills: Increased Fixed Charges, Minimum Bills and Demand-Based Rates (NREL, September 2015). [↑](#footnote-ref-17)
17. Georgia Public Service Commission Docket Nos. 44160 and 44161, Order Adopting Stipulation at 37. [↑](#footnote-ref-18)
18. Id at 38. [↑](#footnote-ref-19)
19. Id at 39. [↑](#footnote-ref-20)
20. Id at 27. [↑](#footnote-ref-21)
21. Georgia Power Company 2022 Integrated Resource Plan at 14-112 and 14-113. [↑](#footnote-ref-22)
22. Mississippi Public Service Commission Docket No. 2021-AD-19, Final Order Amending Rules (July 12, 2022; <https://www.psc.state.ms.us/InSiteConnect/InSiteView.aspx?model=INSITE_CONNECT&queue=CTS_ARCHIVEQ&docid=671390>) and Order Amending Rules Post-Rehearing (October 4, 2022; <https://www.psc.state.ms.us/InSiteConnect/InSiteView.aspx?model=INSITE_CONNECT&queue=CTS_ARCHIVEQ&docid=673045>). [↑](#footnote-ref-23)
23. Abby Fox. Utility-Administered Low-Income Programs in the Southeast (Southeast Energy Efficiency Alliance, 2016). <https://www.seealliance.org/wp-content/uploads/Low-Income-Landscape-Assessment-FINAL.pdf> [↑](#footnote-ref-24)
24. Greenlink Equity Map data, accessed November 2022. [↑](#footnote-ref-25)
25. Direct Testimony of Aaron P. Abramovitz, Sarah P. Adams, Adam D. Houston, and Michael B. Robinson at 11. [↑](#footnote-ref-26)
26. Clinch and Ware County electricity bill and income data referenced here from Greenlink Equity Map, accessed November 2022. [↑](#footnote-ref-27)
27. Greenlink Equity Map, electricity burden by county for the state of Georgia, accessed November 2022. [↑](#footnote-ref-28)
28. Greenlink Equity Map, electricity burden by census tract for the Savannah, GA area, accessed November 2022. [↑](#footnote-ref-29)
29. Tom Stanton. Solar Energy that Pays for Low-Income Customers and Communities (National Regulatory Research Institute (December 2020) at 3. https://pubs.naruc.org/pub/46965D7D-155D-0A36-315D-58319B591EB8 [↑](#footnote-ref-30)
30. Environmental Law and Policy Center et al. Low-Income Solar Policy Guide: Principles and Recommendations for Utility Participation in Solar Programs for Low-Income Customers (2020) at 15, [https://www.lowincomesolar.org/wp-content/uploads/2020/01/Utility-LMI-Solar-paper.pdf](about:blank) [↑](#footnote-ref-31)
31. Georgia Public Service Commission Docket Nos. 44160 and 44161, Order Adopting Stipulation at 44-45. [↑](#footnote-ref-32)
32. Eric O’Shaughnessy. Rooftop solar incentives remain effective for low- and moderate-income adoption (Lawrence Berkeley National Laboratory, April 2022). [↑](#footnote-ref-33)
33. [https://www.nrel.gov/state-local-tribal/lmi-solar.html](about:blank) [↑](#footnote-ref-34)
34. IRA Section 60103 [↑](#footnote-ref-35)
35. IRA Section 60114 [↑](#footnote-ref-36)
36. IRA Section 60201 [↑](#footnote-ref-37)
37. Supplemental Testimony of Evans and Legg at 11, lines 19-21. [↑](#footnote-ref-38)
38. US EIA Form 861 data. [↑](#footnote-ref-39)
39. Stated on a per-customer basis, the 5,000 customer limit on the current monthly netting pilot is less than 0.2% of GPC’s customer base. [↑](#footnote-ref-40)
40. Galen Barbose. Putting the Potential Rate Impacts of Distributed Solar into Context (Lawrence Berkeley National Laboratory, 2017). <https://eta-publications.lbl.gov/sites/default/files/lbnl-1007060.pdf> [↑](#footnote-ref-41)
41. Supplemental Testimony of Evans and Legg at 14, lines 4-5. [↑](#footnote-ref-42)
42. Supplemental Testimony of Evans and Legg at 16. [↑](#footnote-ref-43)
43. Table 1 above shows distributed generation relative to customer counts by state, with Georgia near the bottom nationally, and many Southeastern and other states with far more distributed generation than Georgia. [↑](#footnote-ref-44)
44. Supplemental Testimony of Gattie at 23, lines 15-17. [↑](#footnote-ref-45)