May 2, 2025

VIA ELECTRONIC DELIVERY

Ms. Sallie Tanner
Executive Secretary
Georgia Public Service Commission
244 Washington St. SW
Atlanta, Georgia 30334

RE: DIRECT TESTIMONY OF RUSS BATES ON BEHALF OF CAPITAL GOOD FUND IN DOCKET 56002

Dear Ms. Tanner:

Please find enclosed an electronic version of the Direct Testimony of Russ Bates to be filed in Docket 56002 on behalf of the Capital Good Fund.

Respectfully Submitted,

Alicia Brown
Director of Georgia BRIGHT
Capital Good Fund
912-604-4870
aliciab@capitalgoodfund.org

STATE OF GEORGIA

BEFORE THE

GEORGIA PUBLIC SERVICE COMMISSION

In Re:

Georgia Power Company's	**)**	**Docket No. 56002**
2025 Integrated Resource Plan	**)**	

DIRECT TESTIMONY OF

RUSS BATES

May 2, 2025

DIRECT TESTIMONY OF

RUSS BATES

I. INTRODUCTION

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

A. My name is Russ Bates. I am the Founder and CEO of NXTGEN Clean Energy Solutions. My business address is 9435 Woodchip Lane, Broadview Heights, Ohio 44147.

Q. MR. BATES, PLEASE SUMMARIZE YOUR EDUCATION AND PROFESSIONAL EXPERIENCE.

A. I have more than 30 years of experience in the power generation industry, spanning both fossil fuel and renewable energy. I began my career by completing a five-year apprenticeship through the NECA/IBEW Joint Apprenticeship Training Program, which provided a strong foundation in electrical systems and large-scale energy project execution.

I've held senior leadership and project management roles throughout my career, including serving as Vice President of a joint venture with Bechtel for the full development, construction, and execution of the $1 billion, 750 MW Carroll County Energy Facility in Ohio.

Currently, I'm the Founder and CEO of NXTGEN Clean Energy Solutions, where I support clients across the U.S. in planning, designing, and implementing clean energy solutions — including solar, battery storage, EV infrastructure, and broader sustainability initiatives. My clients include municipalities, private companies, and federal and state agencies. I also host a podcast focused on clean energy transition, policy, and innovation.

Q. MR. BATES, HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE GEORGIA PUBLIC SERVICE COMMISSION?

A. No, I have not.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to recommend a few targeted improvements to the proposed Solar Plus Storage Pilot to make it more effective for participants and the grid, and to outline how Georgia Power can use the Georgia Solar for All program to expand community solar access, especially for low- and moderate-income customers.

II. SOLAR+BATTERY STORAGE PROGRAM

Q. PLEASE SUMMARIZE YOUR CONCERNS WITH THE SOLAR PLUS STORAGE PILOT PROGRAM

A. My main concern is that the 20 kW system size limit for residential customers is too low. It restricts customer options and could hold back the program from delivering on one of its core goals — providing valuable capacity to the grid. The limit applies to total export from both solar and battery, and in many cases, larger systems could be safely and effectively integrated with the right controls in place.

Q. WHY DID THE COMPANY PROPOSE THIS LIMIT?

A. In its response to STF-PIA-3-8, the Company said the 20 kW limit for residential systems was intended to avoid the need for distribution or service upgrades, which they believe would simplify implementation and keep costs down for customers. They also stated the cap would help "right-size" solar and storage systems based on what's allowed in their current behind-the-meter programs. I understand that rationale, but as I'll explain, the tools we have today — like export-limiting inverters, DERMS, and site-specific interconnection review — allow us to manage those concerns without needing to cap every system at 20 kW.

Q. IS THE PROPOSED LIMIT REASONABLE?

I get the Company's intent to avoid unnecessary distribution upgrades, but I don't think a blanket 20 kW limit is the right way to do it.

First, the 20 kW cap is already conservative. Most residential transformers are rated at 25 kVA, so even a full 20 kW export would still be under 80% of that capacity — and that's before considering diversity of load across the transformer.

Second, it's extremely rare for a system to actually export 20 kW. That would only happen if the battery is discharging at full power, solar is producing at its peak, there's no load at the home or neighboring homes, and the conditions are near perfect — clear skies, cool temperatures, clean panels. That just doesn't happen in the real world.

And even if it did, we already have the tools to manage it — like export-limiting inverters, DERMS, and real-time controls. Those options should be used before imposing an across-the-board size limit that could restrict the program's value and customer participation.

Q. PLEASE GIVE SOME EXAMPLES OF TECHNOLOGY SOLUTIONS THAT COULD BE CONSIDERED

A. The Company has selected a vendor to build out its DERMS platform and is seeking Commission approval to invest further in enhanced DER control. That's a big step forward — and once deployed, it'll give Georgia Power the ability to monitor and dynamically control customer solar and storage systems. Whether the DERMS is controlling resources via a direct API connection or through an aggregator's platform, the utility will have real-time tools to manage exports at the individual system level.

If there are concerns about specific transformers, the DERMS could enforce dynamic export limits based on what the transformer can handle at any given time.

And if multiple homes are connected to the same transformer, the DERMS can stagger when systems export so that all participants can stay active without overloading the local equipment.

In the meantime, while DERMS is being built out, there are simpler solutions already available. Most major inverter manufacturers — like Enphase — have hardware and software controls that allow you to set fixed export limits today. For example, Enphase provides clear instructions for how to cap exports using its IQ7 and IQ8 microinverters through either software settings or additional control hardware.

So whether through DERMS or through current inverter capabilities, there are plenty of ways to manage export and avoid stressing the grid without capping system sizes unnecessarily.

Q. HAVE YOU CONDUCTED ANY MODELING OR ANALYSIS TO BETTER UNDERSTAND REAL_WORLD SYTEM EXPORT BEHAVIOR?

A. Yes. I modeled several residential solar + battery storage scenarios using Aurora Solar, with the largest being a 15.2 kW solar array paired with three Enphase IQ 5P batteries (15 kWh/11.52 kW of storage). The analysis was based on a 1,500 square foot, 3-bedroom, 2-bath home using just under 1,000 kWh per month on Georgia Power's TOU-EV residential rate.

As shown in the attached exhibit[1], the solar generation would be expected to serve on-site energy needs and charge the battery in the morning, then begin to export to the grid in the afternoon once the battery is full. Even with relatively low midday energy usage (typical for a working family), export to the grid peaks at ~7 kW. This means that even if the Company discharged the battery at its maximum rate while

[1] Exhibit REB-1

solar exports were peaking, the overall maximum export would still be below the 20 kW limit (7 kW + 11.52 kW = 18.52 kW).

I'm sympathetic to concerns about transformer overloading, especially when looking at combined inverter capacities. That said, the real-world behavior shows that export is far lower than nameplate ratings might suggest.

Q: IS THERE ANY SITUATION WHERE A SYSTEM COULD STILL OVERLOAD A 25 KVA TRANSFORMER?

A. In theory, yes. But in practice, that's extremely unlikely, and DERMS or export-limiting inverters can easily manage that risk. It's kind of like saying a satellite might fall out of orbit and hit someone — technically possible, but not something we plan policy around.

Q. WHAT ARE THE HARMS OF THE SYSTEM SIZE LIMIT?

A. The 20 kW limit creates a few problems — both for customers and for the utility.

On the customer side, it limits system design flexibility, especially in retrofit scenarios. If someone already has solar and wants to add a battery, the system is likely to be AC-coupled — meaning the solar and battery have separate inverters. That setup is more likely to hit the 20 kW cap, even though it's technically safe and manageable.

It also limits backup power. In the Company-Directed model, the battery could be drained down to 20% before an outage. To maintain critical loads during an outage, customers benefit from having both a larger battery and more solar capacity to recharge it. Yes, you could use a compliant-size inverter and a bigger energy bank, but that still limits how much power you can push at any given time — which matters when you're trying to keep larger loads running.

From a grid perspective, the limit doesn't make much sense either. These resources don't have fuel costs, and they're only called on when it's financially beneficial. If

that's true, there's no reason to cap the system size or the total program capacity arbitrarily.

Also, if Georgia Power is concerned about reliability — especially in winter — then limiting a program that's meant to deliver dispatchable, on-demand energy makes even less sense. Storage paired with solar can help in those moments. So capping it undermines one of the very things the program is trying to solve.

Q. WHAT IS YOUR RECOMMENDATION TO THE COMMISSION?

A. I recommend that the Commission remove the 20 kW system size limit, or at the very least raise it to 25 kW. In reality, system sizes are already limited by roof space, panel capacity, and other site-specific factors. And if Georgia Power has concerns during interconnection — and DERMS isn't fully operational yet — they can still require export limits as a condition of participation. I don't believe a blanket cap is needed when there are better tools already available to manage risk.

III. COMMUNITY SOLAR

Q. PLEASE SUMMARIZE THE SOLAR FOR ALL PROGRAM

A. Solar for All is a federal grant program created under the Inflation Reduction Act to expand access to solar — or the benefits of solar — for low-income and disadvantaged communities. Capital Good Fund was selected to run the program in Georgia as one of 60 awardees nationwide.

Their plan includes four solar programs designed to fit different housing types and utility service areas. One of those is a Utility-Led Community Solar Program, which is meant to help utilities create or improve community solar offerings that deliver meaningful bill savings for participating households.

Q. HOW MUCH FUNDING IS AVAILABLE FOR COMMUNITY SOLAR THROUGH THE SOLAR FOR ALL PROGRAM?

A. $25 million is available for community solar across the entire state.

Q. WHAT ARE THE REQUIREMENTS TO ACCESS THIS FUNDING?

A. The primary requirement for this funding is ensuring that eligible households save 20% on their energy bills net of any payments. Beyond that, there are requirements related to the construction including a requirement to pay prevailing wages according to the Davis Bacon Act and to use construction materials and manufactured products that were made in America in accordance with the Build America Buy America Act.

Q. WHAT PATHWAYS DO YOU SEE IN THIS IRP PROCESS FOR THE COMPANY TO LEVERAGE SOLAR FOR ALL FUNDING FOR COMMUNITY SOLAR?

A. This IRP presents two options for residential-serving community solar, neither of which is a perfect fit for the Solar for All program. The first pathway is through the original or legacy community solar program, which currently has about 6,000 blocks available for subscription. The second pathway is through the proposed Distributed Generation Community Solar program.

Q. PLEASE DESCRIBE THE FIRST PATHWAY

A. The first option is to work within Georgia Power's existing community solar framework. Under this approach, Good Fund would provide a grant to support a new community solar project that's subscribed exclusively by low-income or otherwise qualifying households.

That said, this path isn't ideal. Good Fund needs to demonstrate additionality — meaning the grant should fund *new* solar capacity — but Georgia Power

understandably doesn't want to build more community solar when the current program is still undersubscribed.

This approach could work if the grant was used more broadly to support both a new 5 MW project *and* fill the remaining capacity in the current program. Here's what that could look like:

	Number	***Unit***	***Sources and Notes***
Unsubscribed Blocks	5,963		From IRP Main Doc
New Blocks	5,000		Assumes new 5 MW project
Total Blocks	10,963		
Avg Subscription Size	6	blocks	Average customer usage of 1000 kWh per month divided by average production per block per month of 165 kWh (from Georgia Power community solar FAQs)
Avg. Usage before CS	1000	kWh/mo	
Avg. Bill Before CS	$166.61	/mo	Georgia Power bill calculator on PSC Website (weighted average between summer and winter months, before tax)
Avg Metered Usage - w/ CS	10	kWh/mo	1000 kWh/month minus (165 kWh/block-month * 6 blocks)
Avg Bill w/ CS	$17.72	/mo	Georgia Power bill calculator on PSC website (weighted average between summer and winter months, before tax)
Subscription Fee	$19.00	/block-mo	Set at approximately 20% below current rate of $24/month
Customer Net Savings Per Month	21%		
Households Served	1,827		10,963 blocks/6 blocks per household
Total Cost	$3,824,641.80		Savings of $34.89/month x 12 months x 5 years x 1,827 households

The amount of grant funding needed for this option is roughly equivalent to the grants that Good Fund had modeled of $700,000/MW, and the households served per grant dollar is satisfactory as well. However, two additional complications remain.

Q. WHAT ARE THOSE COMPLICATIONS?

A. There are two main complications with this pathway.

First is the timeline. Assuming the project would be procured through the Company's DG RFP process, the project wouldn't be expected to be online until late 2027/early 2028[2], and it would likely take a few months post-completion to get households subscribed. That's a long delay for a program designed to deliver near-term impact and severely restricts opportunities to fund additional projects if the first one proves to be a success.

Second is the issue of program income. Under federal rules, if Georgia Power charges participants a subscription fee, that money has to be tracked separately and can only be used to support Solar for All objectives — even after the program ends. So the revenue couldn't be treated as general income. It would have to go toward things like maintaining the project, managing the program, or continuing to provide bill savings to participants beyond the initial five-year period.

Q. PLEASE DESCRIBE THE SECOND PATHWAY

A. Assuming the proposed Distributed Generation Community Solar program is approved, Good Fund could support community solar in Georgia by bidding a PPA into the upcoming distributed generation RFP. This pathway isn't ideal for a variety

[2] See company response to STF-JKA-2-7(b). Assumes DG RFP is released in Q1 2026 and project achieves commercial operation 18-24 months later.

of reasons, including timing, questionable additionality, and risk of market distortion.

Q. PLEASE DESCRIBE YOUR CONCERNS ABOUT TIMING

A. The Solar for All program is a five year program between May of 2024 and April of 2029. As described for the first pathway, if the Company doesn't launch its DG RFP until Q1 2026, resources wouldn't be online until late 2027 or early 2028. This would be near the end of the Solar for All program, leaving little opportunity to invest in additional projects if the first one proves to be a success.

Q. PLEASE EXPLAIN WHAT YOU MEAN BY "QUESTIONABLE ADDITIONALITY"

A. What I mean by "questionable additionality" is that the DG RFP is already planning to procure 100 MW of distributed generation. That's going to happen with or without Solar for All funding. Unless market conditions somehow prevent the Company from getting enough bids at the right price, using grant money to support a winning project wouldn't actually lead to more solar being built — it would just subsidize something that was already going to happen.

Q. PLEASE EXPLAIN THE "RISK OF MARKET DISTORTION"

A. Good Fund has $25 million in grant funding set aside specifically for community solar. If those dollars are used to compete in a standard RFP against developers who are relying on private capital, it creates an uneven playing field. Grant-funded projects could underbid the market — not because they're more efficient, but because they're subsidized. That could distort the results and potentially squeeze out private investment, which isn't what this program is meant to do.

Q. YOU MADE THE STATEMENT THAT NEITHER OF THE TWO PATHWAYS DISCUSSED IS AN IDEAL FIT FOR THE SOLAR FOR ALL PROGRAM. IS THERE A THIRD OPTION THAT IS A GOOD FIT?

A. Yes — there's a third option that's a much better fit. Good Fund's preferred approach is for Georgia Power to set a target price and clear criteria for what a qualifying community solar project should look like. If a project meets those requirements — including pricing, interconnection readiness, and customer benefit standards — the Company would agree to sign the PPA and move forward without needing to run a full RFP or seek additional approvals. It's a streamlined way to get good projects online quickly while still protecting the utility and ratepayers.

Q. WHY IS THIS OPTION IDEAL?

A. This approach solves the timing issue. First, if given approval in this docket, Good Fund can release their RFP sooner than Q1 of 2026. Second, Good Fund's procurement process can likely move faster than a traditional utility RFP, in part because they can select from projects that have already been through a Georgia Power RFP but weren't selected due to pricing. That allows for quicker deployment of proven, qualified projects.

It also avoids market distortion, because Good Fund isn't bidding into the utility's competitive process. Instead, they would bring forward projects that meet pre-set criteria, and the Company could simply sign the PPA at or below a target price. That keeps things fair and efficient.

Finally, this model provides strong additionality because the projects supported by Good Fund would add new solar capacity beyond what Georgia Power already plans to procure through its existing programs.

Q. WHY SHOULD THE COMMISSION APPROVE THIS REQUEST?

A. The Commission should approve this request because it would add cost-effective, clean energy resources in areas the Company has already identified as high-value to the system. Just as important, it would deliver meaningful bill relief to low-income and disadvantaged households — without shifting costs to other customers. That's exactly the kind of targeted, win-win outcome the Solar for All program is intended to support.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

Exhibit REB-1: August Solar + Storage Performance Analysis

This exhibit summarizes Aurora Solar modeling of residential solar + battery system performance during August, with a focus on evaluating potential grid export impacts on Georgia Power's standard 25 kVA residential transformers.

System Configuration

Modeled configuration includes a 15.2 kW solar array paired with three Enphase IQ Battery 5P units (15 kWh/11.52 kW total storage). The analysis is based on a typical 1,500 square foot, 3-bedroom, 2-bath Georgia residence consuming just under 1,000 kWh per month, on the TOU-EV residential rate.

Export Behavior Observations

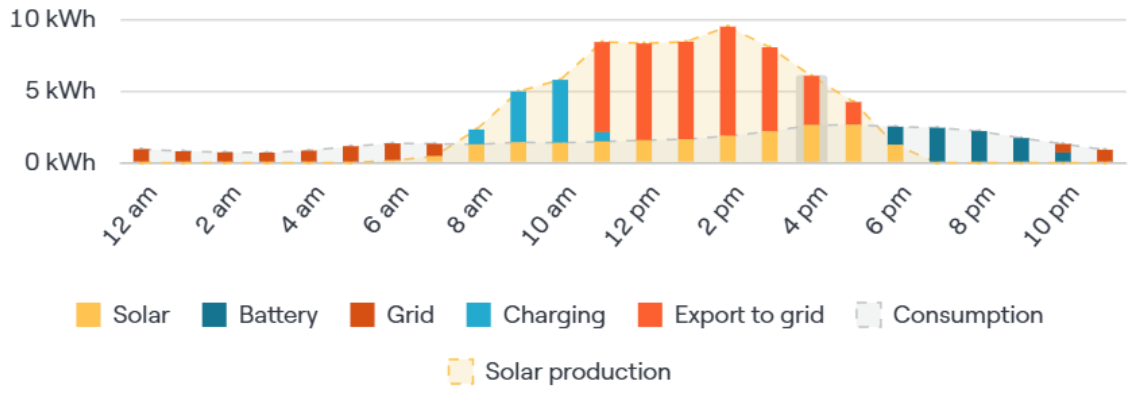
Aurora Solar modeling shows that even under peak summer solar production, actual export to the grid from this system remains well below the 25 kW transformer capacity threshold. Export levels are smoothed and reduced due to concurrent household consumption and battery charging behavior.

Key Insight:

- Grid export typically peaks between 5–7 kW, even with the largest modeled system. This demonstrates that transformer risk remains low due to diversified load profiles, battery usage patterns, and the presence of export-limiting capabilities within modern inverter systems.

Export Profile – August Performance Snapshot

The following chart from Aurora Solar illustrates the system's grid export behavior over a typical August day:



Conclusion

These August simulations reinforce that nameplate system size—including solar and battery inverter capacity—is not a reliable proxy for actual grid export or transformer stress. Actual export is significantly lower in real-world conditions, and utilities have access to additional safeguards through DERMS platforms and smart inverter controls. A fixed 20 kW system size cap is unnecessarily restrictive in light of this data.

Note:

This analysis is based on standard Aurora Solar modeling tools commonly used in the industry. Export values represent typical patterns for the modeled configuration under August conditions and assume solar-only charging. Actual system behavior may vary depending on utility interconnection rules, inverter programming, or future participation in grid services like battery export.

Charles B. Jones, III
Lloyd Avram
Georgia Association of Manufacturers
The Hurt Building
50 Hurt Plaza, Suite 1620
Atlanta, Georgia 30303
cjones@gamfg.org
lavram@gamfg.org

Robert B. Baker
Robert B. Baker, P.C.
2480 Briarcliff Road, NE, Suite 6
Atlanta, Georgia 30329
bobby@robertbaker.com

Simon Mahan
Whit Cox
Southern Renewable Energy Association
11610 Pleasant Ridge Rd., Suite 103 #176
Little Rock, AR 72223
simon@southernwind.org
whit@southernrenewable.org

Jeffry C. Pollock
J. Pollock Incorporated
14323 South Outer 40 Road, Suite 206N
Town and Country, Missouri 63017-5734
jcp@jpollockinc.com

Scott F. Dunbar
Partner, Keyes and Fox LLP
1580 Lincoln St., Suite 1105
Denver, CO 80203
(949) 525-6016
sdunbar@keyesfox.com

Anna Bella Korbatov
Director of Regulatory Affairs
Fermata Energy
100 10th St. NE
Charlottesville, VA 22902
annabella@fermataenergy.com
310-666-8010

Steve Letendre, PhD
Senior Director of Regulatory Affairs
Fermata Energy
100 10th St. NE
Charlottesville, VA 22902
steve@fermataenergy.com
802-779-3580

Zachary Fabish
50 F Street NW, 8th Floor
Washington, DC 20001
(650) 388 8446
zachary.fabish@sierraclub.org

Curt Thompson
Attorney at Law
Thompson & Associates Law Firm, PC
3775 Venture Drive, D100
Duluth, GA 30096
470-375-6962 (o)
curtbthompson@bellsouth.net

Maggie Shober
Southern Alliance for Clean Energy
PO Box 1842
Knoxville, TN 37901
865-235-1448
maggie@cleanenergy.org

Heather Pohnan
Southern Alliance for Clean Energy
691 John Wesley Dobbs Ave NE, Suite C
Atlanta, GA 30312
heather@cleanenergy.org

Eddy Moore
Southern Alliance for Clean Energy
PO Box 1842
Knoxville, TN 37901
865-235-1448
eddy@cleanenergy.org

Patrick King II
Natural Resources Defense Council
1152 15th St NW #300
Washington, DC 20005
225-241-2140
pkingii@nrdc.org

Luis Martinez
Natural Resources Defense Council
1152 15th St NW #300
Washington, DC 20005
212-727-4550
lmartinez@nrdc.org

Amanda Levin
Natural Resources Defense Council
1152 15th St NW #300
Washington, DC 20005
202-289-2370
alevin@nrdc.org

Maeve Sneddon
Natural Resources Defense Council
1152 15th St NW #300
Washington, DC 20005
202-836-9322
msneddon@nrdc.org

L. Craig Dowdy
Taylor English Duma LLP
1600 Parkwood Circle
Suite 200
Atlanta, Georgia 30339
craigdowdy@taylorenglish.com

Tyler Mauldin
Microsoft Corporation
200 17th Street NW
Atlanta, Georgia
tylemauldin@microsoft.com

Stephanie U. Eaton
Carrie H. Grundmann
Spilman Thomas & Battle, PLLC
110 Oakwood Drive, Suite 500
Winston-Salem, NC
Phone: (336) 631-1062
Fax: (336) 725-4476
E-mail:seaton@spilmanlaw.com
cgrundmann@spilmanlaw.com

Steven W. Lee
Spilman Thomas & Battle, PLLC
1100 Bent Creek Blvd., Suite 101
Mechanicsburg, PA 17050
Phone: (717) 791-2012
Fax: (717) 795-2743
E-mail: slee@spilmanlaw.com

Benjamin L. Snowden
Cordon M. Smart
Fox Rothschild LLP
434 Fayetteville Street, Suite 2800
Raleigh, NC 27601
BSnowden@FoxRothschild.com
919-719-1257
CSmart@FoxRothschild.com
336-217-1903

David Nifong
City of Decatur, Department of Public Works
2635 Talley Street
Decatur, GA 30030
david.nifong@decaturga.com
404-295-2764

Mike Wharton
Athens-Clarke County Unified Government, Sustainability Office
110 Bray Street
Athens, GA 30601
Mike.Wharton@accgov.com
706-613-3838

Mendie White
Gwinnett County, Offices of the County Administrator
75 Langley Dr.
Lawrenceville, GA 30046
mendie.white@gwinnettcounty.com

Chandra Farley
John R. Seydel
City of Atlanta, Office of Sustainability and Resilience
55 Trinity Ave SW
Atlanta, GA 30303
cfarley@atlantaga.gov
jrseydel@atlantaga.gov

Joey Crews
Athens-Clarke County, Sustainability Office
110 Bray Street
Athens, GA 30601
joseph.crews@accgov.com

Gordon Kenna
DeKalb County, Public Works
180 Sams Street
Decatur, GA 30030
hgkenna@dekalbcountyga.gov

Kimberly ("Kasey") A. Sturm
Weissman PC
One Alliance Center, Fourth Floor
3500 Lenox Road
Atlanta, Georgia 30326
kaseys@weissman.law
404.926.4630

Jonathan Hunt
Metropolitan Atlanta Rapid Transit Authority
2424 Piedmont Road, NE
Atlanta, GA 30324
jhunt@itsmarta.com

Peter Hubbard
Georgia Center for Energy Solutions
55 Leslie St SE
Atlanta, GA 30317
404-226-4448
peter@georgia-ces.org

Juan Estrada
Attorney At Law
Juan Estrada Law, LLC
3675 Crestwood Pkwy, Suite 400
Duluth, GA 30096
juan@juanestradalaw.com